COMBINATION UTILITY COMPANIES

HEARINGS

BEFORE THE

UBCOMMITTEE ON ANTITRUST AND MONOPOLY

OF THE

COMMITTEE ON THE JUDICIARY
UNITED STATES SENATE

NINETY-SECOND CONGRESS

FIRST SESSION

PURSUANT TO

S. Res. 32

Section 4

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403 A BILL TO PROHIBIT CERTAIN COMBINATIONS AND CONTROL BETWEEN ELECTRIC AND GAS UTILITIES

MAY 11, 12, AND 13 AND JUNE 15, 16, AND 17, 1971

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PROHIBIT CERTAIN COMBINATIONS AND CONTROL BETWEEN ELECTRIC AND GAS UTILITIES

TUESDAY, MAY 11, 1971

U.S. SENATE,
SUBCOMMITTEE ON ANTITRUST AND MONOPOLY
OF THE COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met, pursuant to recess, at 10:10 a.m., in room 2228, New Senate Office Building, Senator Roman L. Hruska presiding.

Present: Senators Hruska, (presiding), Fong, Thurmond, and Gurney.

Also present: Howard E. O'Leary, staff director and chief counsel; Charles Bangert, general counsel; Peter N. Chumbris, chief counsel for the minority; Wilbur Sparks, assistant counsel; Hastings Wyman, minority counsel; Patricia Bario; editorial director, and Janice Williams, clerk.

Senator HRUSKA. The subcommittee will come to order. The chairman of this committee is engaged in other official duties and he has assigned to me the task of presiding and chairing the meeting that we will have today and in later days on S. 403.

This subcommittee opens hearings today on this bill which seeks to prohibit certain combinations and control between electric and gas utilities. This bill was introduced by Senator Lee Metcalf on January 28, 1971, as a successor to a similar bill, of S. 4013, which he introduced in 1970.

It is appropriate to place the text of the bill, S. 403, in the subcommittee record at this point. Without objection, it is so ordered.

(S. 403 follows:)

[S. 403, 92d Cong., First Sess.]

A BILL To prohibit certain combinations and control between electric and gas utilities

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Federal Power Act is amended by inserting at the end thereof a new part as follows:

"PART IV—SEPARATION BETWEEN ELECTRIC AND GAS UTILITY FACILITIES, OPERATIONS, AND INTERESTS

"DECLARATION OF POLICY

"SEC. 401. It is declared that the national public interest, the interests of consumers of electrical and gas services, and the interests of the national defense in a strong and competitive energy industry, may be materially affected when the generation, transmission, distribution, or sale of electricity and gas are under common ownership or control within, or outside, a general sales area; and that it is in the national interest to promote interenergy competition between electricity and gas whenever possible, and to insure that their rates and

the quality of their services, shall relate to costs of providing such forms of energy, as well as to the independent management decisions of their respective operations.

"DEFINITIONS

"SEC. 402. As used in this part, unless the context otherwise requires—

"(a) The term 'person' means an individual or company.

"(b) The term 'company' means a corporation, a partnership, an association, a joint stock company, a business trust, or an organized group of persons, whether incorporated or not; or any receiver, trustee, or other liquidating agent of any of the foregoing in his capacity as such; having an annual gross operating revenue in excess of $1,000,000; but not including any cooperatively, federally, municipally, or other publicly owned person, company, or organization.

"(c) The term 'electric utility' means any company which owns or operates facilities used for the generation, transmission, or distribution of electric energy for sale, other than sale to tenants or the employees of the company operating such facilities for their own use and not for resale.

"(d) The term 'gas utility' means any company which owns or operates facilities used in the production, generation, or distribution of natural or manufactured gas for heat, light, and power (other than distribution to tenants or employees of the company operating such facilities for their own use and not for resale).

"(e) The term 'control' means actual as well as legal control, whether maintained or exercised through or by reason of the method of circumstance surrounding organizations or operations, through or by common directors, officers, or stockholders, a voting trust or trusts, a holding or investment company or companies, or through or by any other direct or indirect means, and also includes the power to exercise control.

"(f) The term 'Commission' means the Federal Power Commission and a member thereof, respectively.

"PROHIBITED CONDUCT

"SEC. 403. On or after January 1, 1973, it shall be unlawful:

"(a) for any electrical utility, directly or indirectly, to own or operate facilities used in the production, generation, or distribution of natural or manufactured gas for heat, light, and power; and for any gas utility, directly or indirectly, to own or operate facilities used for the generation, transmission or distribution of electric energy for sale;

"(b) for any electric utility, or any person controlling, controlled by, or under common control with such a utility, directly or indirectly, to acquire any interest in or control of, or to continue to maintain any interest in or control of, any gas utility;

"(c) for any director, officer, or agent of an electric utility or of any person controlling, controlled by, or under common control with such a utility, in his or their own personal pecuniary interest, to own, lease, control, or hold any interest in any gas utility, directly or indirectly;

"(d) for any gas utility or any person controlling, controlled by, or under common control with such a utility, directly or indirectly, to acquire any interest in or control of, or to continue to maintain any interest in or control of, any electric utility; or

"(e) for any director, officer, or agent of a gas utility or of any person controlling, controlled by, or under common control with such a utility, in his or their own personal pecuniary interest, to own, lease, control, or hold any interest in, any electric utility, directly or indirectly.

"AUTHORITY OF THE COMMISSION; INVESTIGATION AND ENFORCEMENT

"SEC. 404. (a) The Commission is hereby authorized, upon complaint, or upon its own initiative without complaint, but after notice and hearing, to investigate and determine whether any person is violating any of the provisions set forth in section 403 of this part. If the Commission finds after such investigation that any person is violating any of such provisions, it shall by order require such person to take such action as may be necessary, in the opinion of the Commission, to prevent continuance of such violation. The provisions of the subsection shall be in addition to, and not in substitution for, any other enforcement provisions contained in, or applicable for purposes of enforcement of, this Act.

"(b) The district courts of the United States shall have jurisdiction upon the complaint of the Commission or any other party in interest, alleging a violation of any of the provisions of section 403, or disobediance of any order issued by the Commission thereunder by any person; and to issue such writs of injunction or other proper process, mandatory or otherwise, as may be necessary to restrain such person from violation of such provision or to compel obedience to such order.

"(c) The Commission may from time to time, for good cause shown, make such orders supplemental to any order made under the foregoing provisions of this section as it may deem necessary or appropriate.

"PENALTIES

"SEC. 405. Any individual who willfully violates any provision of this part or any rule, regulation, or order, thereunder, shall upon conviction be fined not more than $100,000 or imprisoned for not more than two years or both, except that in a case of violation by a person which is not an individual the fine imposed upon such person shall be a fine not exceeding $1,000,000."

In the declaration of policy which forms the first part of the bill, it is stated that the national public interest, the interests of consumers of electrical and gas services and the interests of the national defense in a strong and competitive energy industry may be affected materially when the generation, transmission distribution or sale of electricity and gas are under common ownership or control within or outside a general sales area. It is stated that the promotion of interenergy competition is in the national interest whenever possible.

The bill provides that on and after January 1, 1973, it shall be unlawful for any electric company to own or operate facilities used in the production, generation or distribution of natural or manufactured gas for heat, light, and power, to acquire any interest in or continue to maintain any interest in any gas utility, or for any director, officer or agent of an electric utility to hold any interest in any gas utility. Companion provisions applying to gas utilities operating electric properties are also included.

The bill exempts companies which are cooperatively owned, federally owned, or municipally owned. In addition, the prohibition would apply only to companies having an annual gross operating revenue in excess of $1 million.

Under this bill the Federal Power Commission is authorized to investigate and determine whether any person is violating provisions of the act. It is empowered to proceed, by order and also through the Federal courts, to compel obedience of the law, with provisions for fines and imprisonment for individuals and fines for companies which do not comply.

The most recent figures made available to the subcommittee indicate that about 78 combination companies supplying 43 percent of the total sales of electric power by private companies in the United States would be affected by this bill. Officers of some of these companies will be heard at these hearings and at a second series of hearings on the bill which probably will be held in June. These companies will state that their combination companies properly operate their systems for the benefit of all concerned with the best possible service at lowest possible rates.

It is my understanding that there will also be testimony by some of the companies that their operations are of such nature, either by way of very large volume of either gas on the one hand and small volume of electricity on the other, that it should not apply. There has been

indication also that some will testify that while there is joint ownership of the two utilities, that in some instances they are separate and apart, and they are to be found in different market areas and therefore exemption will be urged on their part.

In addition, we will hear from witnesses representing companies which sell only one of these commodities, from members of the academic community who are knowledgeable in this area by reason of studies made and writings produced by them and from representatives of several Federal agencies and departments which have an interest. We look forward to hearing the arguments for and against the bill and will do our utmost to weigh the evidence which is offered in this testimony.

It is the subcommittee's pleasure to hear first from our colleague who introduced the bill, Senator Metcalf is a lawyer who has studied and written in the field of energy, including a book entitled "Overcharge," with his executive secretary, Vic Reinemer. He served in the House of Representatives from the 83d to the 86th Congresses, and, therefore, qualifies as a classmate of the acting chairman of this committee, being an original Member of the 83d Congress.

I might add further that he at one time served as one of the Justices of the Supreme Court of Montana, so that he has long experience, not only legislatively but judicially.

We invite you, Senator Metcalf, to take the witness chair and render your testimony in such manner as you desire.

STATEMENT OF THE HON. LEE METCALF, SENATOR FROM THE STATE OF MONTANA

Senator METCALF. Thank you very much, Mr. Chairman. I appreciate that introduction. I recall that we came to Congress together, but that was, as you remember, a Republican Congress in President Eisenhower's first year.

Senator HRUSKA. I remember that with great pleasure.

Senator METCALF. Yes; and with some nostalgia, I imagine.

There were so many new Republicans and so few of us new Democrats that it was pretty hard to get acquainted with the new Members in those days.

Thank you for the plug on the book.

Mr. Chairman, I commend this subcommittee for the studies it has initiated into methods to increase competition within the energy industry. I was very much impressed when you outlined the scope of the hearings, and I believe that they will be valuable in developing the ways in which we can find additional competition.

Monopoly within this industry, our Nation's largest, is increasing, at a rate far exceeding the efforts within Congress to increase competition.

A few large conglomerates, whose beneficial owners are not a matter of record in many instances, are obtaining control of gas, electric, oil, and uranium companies. Out in my country they also have obtained options on rights to water from Federal reservoirs.

This acquisition of options on water rights has proceeded rapidly, within the past few years, on a first-come, first-served basis. Before long, the Congress may be asked to help finance a giant aqueduct system to move this water around.

S. 403 questions the notion that bigness is necessarily good and

that regulation is effective. S. 403 is premised on a basic consumer right enunciated by the late President Kennedy—the right to choose. S. 403 is in line with President Nixon's policy, restated before the Chamber of Commerce recently, in support of free enterprise and competition. S. 403 would extend the concept of the Public Utility Holding Company Act, by requiring combination electric-gas utilities to spin off one property or the other.

As the Chairman has stated, there are, I believe 78 such combination companies. Together they account for more than 40 percent of the total sales of electric power by private companies. The bill, as drafted, may not reach some of those companies. And it may reach one company which should be exempted.

The chairman suggested that a company is operating its gas and electric businesses in different territories. That is the UGI Corp., the successor to the United Gas Improvement Co. in Philadelphia. It is unique, I believe, the only company I know of in that its gas and electric service do not overlap.

I have a letter from UGI president E. H. Smoker, and I would submit it for the record at the conclusion of my statement, and it contains a proposed amendment.

Senator Hruska. Without objection, it will be received and made a part of the record at this point.

UGI Corporation,
Philadelphia, Pa., July 15, 1970.

Hon. Lee M. Metcalf,
U.S. Senate,
Washington, D.C.

Dear Senator Metcalf: The June 23rd issue of the Congressional Record (S9554–5) carries the complete story of your introduction of Bill S4013 relating to the "prohibition of certain combinations and control between electric and gas utilities."

In your remarks you state, "It is my hope, Mr. President, that the industries and agencies affected by this bill and other interested parties will offer their comments on it during the next six months."

Of the 78 combination companies cited, UGI Corporation (successor to The United Gas Improvement Company) with headquarters in Philadelphia, Pa., is unique in that it is one company whose gas and electric service territories do *not* overlap. We serve approximately 50,000 electric customers in 2 counties and approximately 202,000 customers in 13 counties, all in Pennsylvania. In no case does a single customer receive both gas and electricity from us. The distance between the nearest electric and gas customers is about ten miles—the former being southwest of Wilkes-Barre and the latter northwest of Hazleton. A copy of the map of our service territories is included herewith.

Consequently, the competition so earnestly desired is present, and the lack of it alleged in a "combination company" does not exist in our situation. We have vigorous electric competition in our gas territory (Pennsylvania Power and Light Company and Metropolitan Edison Company) and equally vigorous gas competition in our electric territory (Pennsylvania Gas and Water Company). As a matter of fact, having both types of business with memberships in trade associations of both industries, keeps us up to date as to current trends, sales policies, competitive efforts, etc. Therefore, because of our intimate knowledge of the strength and weaknesses of both businesses, we believe we are perhaps better informed and oriented to compete than either a straight gas or a straight electric company without being hindered by the alleged difficulty of competing with ourselves by offering both energies to the same customer.

I would therefore suggest that it would be within the spirit and intent of the bill to exempt from its provisions such so-called "combination companies," as UGI Corporation, who do not overlap in their respective service territories. This could be done by (1) deleting the words "or outside" from Sec. 401, and (2) adding a new paragraph to Sec. 403 reading as follows:

(f) The prohibitions in this section shall apply only if the sales areas supplied by the gas and electric utilities involved or by the gas and electric facilities involved are the same in whole or in part.

Yours very truly,

E. H. SMOKER, *President.*

Senator METCALF. This bill, or at least the concept in it, has strong support from some of the straight gas companies. During hearings in 1969 on S. 607, the Utility Consumers' Information and Counsel Act, the then-executive vice president of the American Gas Association told the Subcommittee on Intergovernmental Relations that quite a few members of AGA would support such a bill. The witnesses for the Edison Electric Institute, which includes quite a few combination companies, chose to take no position.

But at least one electric utility official, Don Cook, of American Electric Power, has stated bluntly:

The combination company is an anachronism that should never have been permitted to exist to begin with. It's hard enough to run one company in one business well, without trying to run two that are natural competitors.

A number of State legislators have attempted to obtain at the State level the divestiture sought in S. 403. Bills to do this, introduced in Montana and North Dakota, never even went to hearing because of the political power of the combination companies which want to perpetuate their monopoly control over two natural competitors. State legislators in Ohio, Indiana, Minnesota, and Arizona have been in touch with me on this matter, but I don't believe any of them have had legislature success at the State level.

I hope, Mr. Chairman, that as these hearings progress you will develop the relative performance of the straight gas companies and the combination utilities by more than economic standards. Let's look at their relative efforts regarding more research and development, especially in the field of pollution control in energy production.

Many of the combination companies are virtually insensitive to this important matter. R. & D. is a deductible operating expense. Some R.&D. can even be included in the rate base so the companies earn money on it. Let they don't spend much of the ratepayers' money on it. In fact, the electric power companies spend eight times as much on advertising and sales promotion as they do on research and development.

And they don't help the majority leader and me get more Federal funds for emerging energy technology such as MHD—magnetohydrodynamics.

I think the R. & D. investment record will show that the companies that do not have multiple monopoly—the straight gas companies—try harder—like Avis.

Of course, as this knowledgeable subcommittee knows, conglomeration is proceeding so fast that even yesterday's advertising slogans are outdated. Avis versus Hertz is in reality ITT versus RCA.

And who really controls ITT and RCA? For all the public knows, Avis and Hertz may have the same grandfathers.

The genealogy and kinship of these corporate grandfathers must be on the public record if antitrust action is going to be more than a futile exercise. If the Justice Department devoted half as much time to collection of factual data on corporations as it does to compiling hearsay

about individuals there would not be such national disgust with the ineffectual efforts of public officials to influence national policy.

I commend to this subcommittee, and to all students of economic concentration, the "Nominee List" published by the American Society of Corporate Secretaries at 9 Rockefeller Plaza. It is helpful in getting behind street names and determining beneficial ownership of corporations. I am sure that the society's executive director, John S. Black, Jr., would be responsive to any request. His phone number is 212–765–2620.

In conclusion, Mr. Chairman, I would emphasize that acquisition of information on beneficial ownership of utilities is important to S. 403. We need to know who owns and controls the potentially competing forms of energy in order to analyze the degree of concentration.

Thank you.

Senator HRUSKA. Thank you, Senator Metcalf.

The 78 combination companies to which you refer in your statement as accounting for approximately 43 percent of the total sales of electric power by private companies, you have noted that there is basis for some exemption and modification at least as to one company specifically, namely, the UGI Corp.

Are there other companies that in your knowledge that would have comparable situations?

Senator METCALF. Not that I know of. I said in my statement that UGI was unique. The whole concept of the bill, Mr. Chairman, is that competing companies, competing in the natural gas and the electric areas should divest themselves of either one or the other company.

When they are not competing in the same area, it isn't our concept that there should be divestiture.

Senator HRUSKA. So if it proved that there were other situations similar to UGI, they would be covered in the exemption and you would not object to that; is that correct?

Senator METCALF. That is correct. I believe that under the concept we are working on there should be competition, that we should make an amendment that would exempt any other such companies.

Senator HRUSKA. It will be followed out by other further testimony. Some companies are rated as combination companies but in reality they are not exactly that. It is the business of a pumpkin and an apple or a pumpkin and a pear or a pumpkin or a plum. Southern California had electric revenues of $550 million and gas revenues of $50 million—that gas revenue being derived solely from the Santa Catalina Islands. That is one example. Another example is the Toledo Edison Co., which served no gas in the city of Toledo, and in total derived less than 2 percent of its revenues from gas operations and yet is classed as a combination company.

Then there are companies like the Wisconsin Electric Power Co. and the Orange and Rockland Utilities and Cambridge Electric Co., the Otter Tail Power Co., Union Electric Co., Wealth Edison Co., that seem to have similar statistics in their relative production and sales in the field.

I presume an analysis of that listing of 78 companies will show what the facts are in all these regards.

Would you as introducer of the bill be receptive to considering an amendment which might take into account that some of these companies are not fully within the thrust of your bill?

Senator METCALF. Well, of course, I see no reason to deprive Santa Catalina Island as a little isolated area from service by a combination company if it is deemed in the public interest. I use that for your first example.

Many of the companies that you have named I know about. I would have to analyze them. It seems to me that in some cases, despite that good analogy you have of a pumpkin as against a plum or something of that sort, it would be proper to tell them to get rid of their plum. But in other cases I can see how the committee might believe, and I might believe, in the public interest it would be better to have the small companies continue to operate as combinations.

What I am trying to do and what I believe would be in the public interest is to require these companies whose gas and electric divisions could compete head to head to divest themselves of either one or the other interest. If they are not competing head to head and the committee can work out some kind of amendment or exempt them, I would have no objection whatsoever.

Senator HRUSKA. Well, that is fine. That is keeping with your sense of balance in these things because to fasten a cast iron rule on a vast field covering 50 States sometimes might produce untold results.

Now, does this bill apply or is it intended to apply to cooperatively owned companies?

Senator METCALF. No, sir. I think in your general statement you pointed out that it didn't apply to municipals or cooperatives or nonregulated companies.

Senator HRUSKA. Nor to federally owned or municipally owned.

Senator METCALF. No.

Senator HRUSKA. Why doesn't it? After all, we have here not so much who owns a public property. I know the public ownership is very, very popular. It is in my State. We have no privately owned generation in my State, and yet that municipally owned combination company conceivably could just be as partisan as any other stock or utility or privately owned company in the matter of imposing upon a community gas instead of electricity or electricity instead of gas, or engaging in some of the very abuses that you seek to treat with in your bill.

Why not put these in the purview of the bill?

Senator METCALF. Well, I haven't included them in the bill consistent with the rest of our regulatory concept, that we only have to regulate these privately owned monopoly companies. In the municipals or the publicly owned companies the consumers are the stockholders. The rate payers are the same individuals—members of the REA co-ops, for example, who are the owners and also the stockholders. There is a variety of self-regulation there that is a thread that runs through our whole regulatory program. And so I have tried to make this bill consistent with this regulatory concept.

Senator HRUSKA. Mr. Counsel, have you any questions?

Mr. O'LEARY. No, Mr. Chairman.

Senator METCALF. Mr. Chairman, in conclusion, as one lawyer to another, I regard the introduction of a bill as a plea and I think that

this hearing—as you have outlined it—will be a hearing on a pleading that gets us into the courts. And I know that the evidence that is going to be developed will be important and significant. I am pleased that the hearings are going to be so comprehensive, as you have outlined.

Senator HRUSKA. That is fine. Of course, this is a subject which had been considered by the Congress many years ago.

Senator METCALF. Yes, sir, it was considered during the Wheeler-Rayburn debate, and so forth, and wasn't passed at that time. All I want to say, Mr. Chairman, is that today, with the development of such things as fuel cells, the real competition between the gas industry and the electricity industry is coming into effect. They could be competing more in exactly the same fields. And while there may be strong justification for exempting some of the companies that you have outlined, there are many of the 78 companies that are operating in exactly the same areas. Their customers have to buy both gas and electricity from the same company.

Senator HRUSKA. There is one statement in your testimony to which I now refer that engaged my interest. Quoting, "and they don't help the majority leader and me to get more Federal funds for emerging energy technology such as MHD, magnetohydrodynamics."

That is a reference to the electric power industry which spends, according to your preceding sentence, eight times as much on advertising and sales promotion as it does on R. & D.

Are we to imply—and there is a note of facetiousness in this—are we to imply that one of the duties of the electric power industry is to help the majority leader and this illustrious witness to get funds for research into magnetohydrodynamics?

Senator METCALF. No. But we are to imply that it is not their job to oppose our efforts to get research.

Senator HRUSKA. Fine. Well, that is fine. I am sure the witness understands that I was a little on the humorous side or trying to be humorous.

Senator METCALF. It was only an aside, a humorous insert and so I appreciate the comments of the chairman.

Senator HRUSKA. We thank you for your appearance.

Senator METCALF. Thank you very much, Mr. Chairman.

Senator HRUSKA. Our next witness is George Bloom who is president of the National Association of Regulatory Utility Commissioners, commonly known as NARUC. I don't know how you pronounce those letters.

Mr. BLOOM. NAROC. N-A-R-O-C.

Senator HRUSKA. He is also chairman of the Pennsylvania Public Utility Commission and he has been chairman in that capacity since May of 1965.

We welcome you here, Mr. Bloom. You have filed your statement pursuant to the committee rules in advance, which we thank you very much, and you may now proceed to discuss such testimony as you have in your own fashion.

This is welcoming you back to a precinct that is very familiar to you from your experience in the Senate. I recall you well when you served in the office of Senator Ed Martin from Pennsylvania. We welcome you home.

STATEMENT OF GEORGE I. BLOOM, PRESIDENT OF THE NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS, ACCOMPANIED BY PAUL RODGERS, GENERAL COUNSEL, NARUC

Mr. BLOOM. Thank you, Senator. Members of the committee, my name is George I. Bloom. I am the president of the National Association of Regulatory Utility Commissioners, commonly known as the "NARUC." As has been stated, I am also the chairman of the Pennsylvania Public Utility Commission and I have served in such capacity since May 3, 1965.

I am accompanied at the witness table today by Paul Rodgers, general counsel of the NARUC.

The NARUC is a quasi-governmental nonprofit organization founded in 1889. Within its membership are the governmental bodies of the 50 States and of the District of Columbia, Puerto Rico, and the Virgin Islands engaged in the regulation of carriers and utilities. Our chief objective is to serve the public interest by seeking to improve the quality and effectiveness of Government regulation.

The members of the NARUC appreciate the opportunity you have given me as their spokesman to make their views known on S. 403, a bill to prohibit combinations and control between electric and gas utilities on and after January 1, 1973.

We believe S. 403 is bad legislation because it proposes an overly simplistic approach to a highly complex problem. S. 403 presupposes that multienergy or "combination" utility companies are inherently evil and, hence, should be destroyed.

In comparing the relative merits of combination utility companies against what are commonly referred to as "straight" utilities, one cardinal fact must be isolated and emphasized at the outset—both forms of utility organization possess advantages and disadvantages.

This appears to be so basic a precept that it does not bear repeating, but it has a definite application in this present examination of the two types of companies, and the deliberations on S. 403.

One form of utility organization is not all "black"; neither is the other all "white."

Yet the proponents of the "straights" apparently believe they have discovered a near-perfect utility form, far exceeding the desirability of the combination companies.

We do not dispute the need for careful and thorough examination of the role of the combination companies, their organization, rate structures and overall operations. They are an important segment of the energy industry as indicated by statistics reported by Senator Metcalf showing that the 78 combination companies that have been referred to here account for 43 percent of electric power sales by private companies. Thus, they exert considerable influence on the national economy.

This criticism of the combination companies prompts the thought that certainly they must have done something right over all these years, or else they would have quickly succumbed in favor of the "panacea" offered by proponents of the straight utilities.

Perhaps a better perspective of these two types of utility organizations can be gained through a brief review of the advantages claimed by each.

The straight utility proponents maintain that public interest will be best served if separately managed electric and gas utilities actively compete for household, commercial, and industrial markets. Greater competition leads industries to lower their prices, expand output, improve service, attain greater management efficiency, economize on labor and capital equipment expenditures, engage in more intensive research and promotional activities, and provide greater freedom of consumer choice.

Straight utility proponents also claim a stronger incentive to hold down costs and prices in order to secure new sales. Thus, with increased competition, output expands, and average or unit costs fall, with price decreasing at a greater rate than for combination companies. Greater output also creates a multiplier effect to stimulate auxiliary demand for production equipment, appliances, and other equipment which uses energy.

These theories present a convincing argument in favor of the straights, but let us turn for a moment to the advantages advanced by the combination companies.

The combination utility proponents point to economics of scale through joint operations. Savings are provided through use of single meter readers and appliance inspectors, a single service department, one headquarters with a common management, and overlapping sales, accounting, purchasing, billing, collecting, and engineering departments.

Other joint benefits include promotion of one type of energy at times of peak seasonal load for the other, sales promotion emphasis where marginal profit is greatest, and use of a single trench for underground distribution. The combinations also claim they can provide unbiased information to consumers relative to the two energy forms enabling customers to make the best decision in selecting the form to use.

Greater revenue stability is possible if revenue fluctuations of the two energies do not coincide. Stabilization of revenue could be expected to produce a more steady rate of return, with consumers reaping the benefits through lower rates.

The lack of competition, and financial stability inherent in diversification is of benefit to both consumers and stockholders, while cost savings are realized in capital market financing.

Combination companies need not engage in the costly practice of mutually offsetting advertising and promotional methods as practiced by competitive firms.

Accordingly, the public served by combination companies is spared the burden of these significant expenses, plus it receives the benefit of total regulation by both Federal and State agencies.

One recent study comparing straight and combination companies reported that "the data do not indicate that a conclusion can be reached either in favor of, or against combination companies based on their performance."

A principal criticism by the prostraight forces is the claimed discrimination of combinations in inadequately promoting the gas side of their utility. The gas business is, in the eyes of some, an "orphan," and all but forgotten in the overall energy package marketed by the combination company.

There is an assumption here that these combination companies are free to do what they will with their "orphan." But the State commissions regulating these firms are charged by statute with regulation in the public interest. Are we to assume the commissions stand idly by and overlook this asserted detrimental behavior? I think not. Each State commission, in response to its mandate, considers each company in toto in judging the public interest issue.

Thus we arrive at one of the major issues to be considered here. The question of splitting up combinations is only secondary to deciding at which level of Government such a regulatory judgment should be formulated.

S. 403 proposes a peremptory and categorical Federal command for the dissolution of combination companies. In short, it employs a "meat-ax" approach in dealing with a very important organism which has served the public well for many years. S. 403 is defective in that it seeks to set no standard for distinguishing between "good" and "bad" combination companies. Instead, it simply adjudges all of them to be detrimental to the public interest and, hence, the "good" ones are found guilty of violating the public interest, not on the basis of their individual characteristics, but only because they are members of an arbitrarily defined class.

Since there are obviously both advantages and disadvantages for the public in operations of combination companies, which vary among companies and from State-to-State, each such company should receive individual consideration of its unique features in the light of local conditions. An individual judgment is required as to whether the continuation of a particular combination company is contrary to the public interest.

The one best qualified to make this judgment is the State and, more particularly, its regulatory agency which has acquired a thorough knowledge of the combination company through day-to-day regulatory contact.

Accordingly, we believe the sweeping Federal preemption proposed by S. 403 is inappropriate and unwise. We believe the public interest will be better served by the Congress continuing to reserve proposals to change the configuration of combination companies for consideration and action by the directly affected States.

State commissions could well use this power in innovative regulation designed to guarantee that both sides of a dual-energy company functioned in the public interest.

In a combination company, encouraging the two services to compete on a combined energy basis focuses attention on the utility's commitment to overall public service and reduces the chances that undue emphasis is placed on maximizing the return of either service at the expense of the other. Under the "combined energy approach," any decision to promote one fuel more heavily than the other would be governed by the objectivity of economic analysis of long-range energy sales.

When the financial performance of the three groups—straight electrics, combinations and straight gas—are compared, their records are similar.

For instance, in the 1956 to 1966 period, straight electrics reported an average growth rate in earnings per share of 6.9 percent, while combinations had 6.6 percent and straight gas trailed at 5.9 percent. Thus,

combination companies almost equalled straight electrics and exceeded straight gas utilities by a wide margin.

In comparing rate of return on invested capital for 1961 to 1966, straight electrics achieved a 6.5 percent average rate, barely above the 6.4 percent for combinations. Here, straight gas firms led with 7.4 percent.

In rate of return on common equity for the same period, straight electrics reported 12.1 percent compared with 11.7 percent for combinations and 11.5 percent for straight gas.

And in performance for the year 1966, combinations equaled the average rate of return on invested capital, reported by straight electrics, and almost equaled the straights average rate of return on common equity.

The proposal to divorce combined utilities could have a serious harmful effect on consumers because of the current financing situation. Separation would have the ultimate effect of decreasing the utility's appeal to investors, since divestiture would reduce the financial base for each company.

The utilities are faced with a tremendous expansion program in the next two decades. By 1990, electric utilities alone must add 200,000 circuit miles of new bulk transmission facilities, requiring a land area of 4,850 square miles.

The electric utility industry, ranked largest in the Nation in terms of capital investment, had a gross capital investment of more than 85 billion dollars in 1968. However, this figure pales when compared with their future financial needs.

In order to finance the construction planned to 1990, the industry must raise an estimated 300 to 350 billion dollars—or more—which is four times its current gross capital investment.

In the midst of an inflationary economy, the utilities are confronted with a dilemma in securing adequate financing which will permit reasonable rates to the consumer, yet provide a reasonable return to the investors. Divestiture can only compound this already serious problem.

If electric and gas utilities were separated, the gas operation would suffer the most.

These two forms of energy are decidedly dissimilar in terms of future energy availability. Where expansion of electric power is dictated solely by construction of additional generating plants, with no limit, theoretically, to the amount of electric power which can be produced, gas is a "wasting asset" with definite limits on the availability of this natural resource.

In the case of the gas utility industry, therefore, we find there is an absolute ceiling on its energy availability, while this is not the case with electric power. Once this resource is fully expanded, its beneficial use is lost forever.

There is already increasing investor disillusionment with utilities. Holdings of electric utility stocks by the major investment trusts, for instance, declined from 12.8 percent of their assets in 1962 to just 3.8 percent by 1969.

If financing difficulties continue, energy companies could be forced to postpone urgently needed expansion to cope with the worsening

energy shortage. Blackouts and brownouts could increase, with catastrophic consequences for the national economy and the consumer.

In the testimony reference has been made to the fact that we in Pennsylvania have two of the alleged combination companies. We do have UGI which furnishes gas in a portion of Pennsylvania and they furnish under what is known as the Lucerne Division of UGI, furnishing electric power in another region in Wilkes-Barre, and in Kingston, so that they are in two separate areas and operate really as two separate companies, and one would not be competing with the other in any sense, and that has been pointed out here by Senator Metcalf in his testimony this morning.

We have the Philadelphia Electric as another company which is one of the companies listed as a combination company.

I might say that in the case of the Philadelphia Electric the Philadelphia Gas Works, which is owned by the Municipality, furnishes all of the gas for the city of Philadelphia. The Philadelphia Electric Co., its gas division, supplies the gas for the suburban area outside of the Philadelphia Municipality.

In comparision, the Philadelphia Electric has 1,200,000 customers. The gas company has 266,000 customers, approximately 250,000 of them being residential customers. They really operate as separate companies. They keep a separate set of books. One is the gas division; one is the electric division. We in the commission deal with them separately in rate matters and we pass on rates on a separate basis in the gas division and the electric division. And where they have common employees that perform service for both of them, where they have a common interest, this under certain prescribed rules and regulations is allocated either to the gas or to the electric, and it is a very definite regulation as though they were separate and apart from each other.

So, these are the two examples in Pennsylvania.

I might say we have had really no complaints about the situation in our State. I know of no serious complaints about Philadelphia Electric so far as the combination is concerned or about UGI.

In short, we believe S. 403 is a bad idea anytime and especially now in this era of increasing energy shortage and high financing costs.

Over the years, the NARUC has worked toward strengthening a viable, mutually satisfactory Federal-State relationship. The test of Federal or State control in utility regulation should be based on which of the two levels of government is best qualified for a particular regulatory function, and on which level action can best be taken to protect the public interest.

In this instance, we believe the preservation of the State's authority to deal with combination companies can best protect the consumer in this complex area.

Thank you, gentlemen, for the privilege of appearing before you.

Senator HRUSKA. Counsel, have you any questions?

Mr. O'LEARY. Yes, Mr. Chairman.

Mr. Bloom, the staff has glanced at a case considered by the Securities and Exchange Commission in 1970 in which the Illinois Power Co., a combination company, wished to acquire the assets of the Central Illinois Public Service Co.

We were attracted by the testimony of the president of Illinois

Power, Mr. Van Wyck, during the hearing, who was asked this question:

Mr. Van Wyck, in an area where Illinois Power sells both gas and electric energy, do you consider that the company owes it to its stockholders to promote the use of that class of energy which would result in the largest net return to the company?

The witness responded that he would.

The question, Mr. Bloom, is, isn't it realistic to expect the combination company to push that class of energy which provides the most profit to the company?

Mr. BLOOM. If you assume that the regulatory body is not performing its function, yes. I would say yes to your question. But I can't assume that that is right. You have under the law, at least we do in Pennsylvania, it says that the utility is entitled to a fair return on the fair value of the plant used and useful and that rule applies to gas as well as electricity, and we allow them that fair return, whether it is gas or electricity, so that they can't go above that.

If they go above that, they are called in and asked to make a rate reduction. If they don't do it voluntarily, we institute proceedings to make them do it and that is the procedure we followed over the years until 1969 when everybody was coming in and asking for rate increases rather than calling them in and telling them to make rate reductions—due to inflation and labor costs and material, and so on.

Mr. O'LEARY. Mr. Bloom, do most State utility commissioners have the power under their statutes to order divestiture of one side of the combination company if the State utility commissioner determines that that company is not acting in the public interest, and to what extent have they done so?

Mr. BLOOM. I can't answer that as well as our general counsel who is in every State and I would ask Mr. Rodgers if he can review that.

Mr. RODGERS. I would doubt if any of our State commissions would have the authority to require divestiture. Our interest there is on the State. We believe the State itself through the enactment of legislation would have the authority to require divestiture.

Mr. BLOOM. I think in our State we could, if we found that this was in the public interest, we could bring in the name of the commission and action to require divestiture but we could not do it ourselves. We would have to bring it in the court to require it.

Mr. O'LEARY. I note in your statement, Mr. Bloom, you testified that S. 403 is defective in that it seeks to set no standards for distinguishing between good and bad combination companies. If we were to consider an amendment to this particular bill which would do away with the meat-ax approach, what standards would you suggest that we incorporate to make such a distinction?

Mr. BLOOM. Well, I think you would have to consider the rates. You would have to consider the benefits that the smaller company is receiving as a result of the combination. For example, if you have a company where the gas is a small portion, they may find it extremely difficult to carry on their finances and to be able to float bond issues and when they go into the market they will have more difficulty in selling their securities, and when they do sell their securities, they will not be able to command the attractive rates that the larger companies do. So when they are combined with a larger electric company, they get the benefit of the

financing and the financial standing of the whole company, for one thing.

I can't enumerate all of the standards, but if you would like me to prepare something and make suggestions, I would be glad to prepare something and submit it to the committee for consideration as standards that might be considered.

Mr. O'Leary. We would appreciate that very much.

Before I go to that, the one test in the area that has been applied in the past is in the Public Utility Holding Act of 1935—section 11(b)(1) In effect it indicates that a holding company is allowed to retain an additional integrated utility system if the additional system cannot be operated without the loss of substantial economies.

Do you have any feelings as to whether or not that test is a bad one for us to consider with respect to an amendment to this particular bill?

Mr. Bloom. I didn't hear what you said. The loss of——

Mr. O'Leary. As I understand the test, a combination company which comes within the jurisdiction of the Public Utility Holding Act is allowed to retain both systems if it can show to the Securities and Exchange Commission that the system to be divested could not be operated without the loss of substantial economies.

Mr. Bloom. I think that is one standard that ought to be considered. If it cannot be divested without doing damage to the company that is being divested, certainly that ought to be one of the considerations.

That is, if you make the decision that there should be divestiture at the Federal level. Of course, I am not taking that position.

Mr. O'Leary. I understand that.

I note that in a recent decision affirmed by the Supreme Court, the Securities and Exchange Commission versus the New England Electric System—which is found at 86 Supreme Court 1397. The company in that instance submitted an estimate that to divest its gas operation would amount to a loss of to in excess of $1 million, and despite that estimate, the SEC chose to order divestiture. I think the company referred specifically to the savings that you made reference to; namely, joint operations for single meter readers, and so forth.

Would it be your reaction to disagree with the Commission's decision in that respect?

Mr. Bloom. Was it a public utility holding company?

Mr. O'Leary. Yes, sir.

Mr. Bloom. Yes.

Mr. O'Leary. Finally, in a note toward the end of your statement, you indicate that gas companies suffer most under SEC. I would ask—based on your 30 years of experience with the Public Utility Holding Company Act—to what extent have gas companies suffered that have been forced to divest or be divested from public utility holding companies? In other words, do you think your experience under the Public Utility Holding Company Act generally has been bad with combination companies that have been split up?

Mr. Bloom. No; I don't think that this is a question of the Holding Act. I think that we are talking about the combination companies but not necessarily the holding companies.

Mr. O'Leary. We are aware of some—approximately 12—divestitures that have been ordered where a holding company has been forced to divest itself of one type of service. I just wanted to get

your reaction based on that experience. I think that is the only experience we can look to.

Mr. BLOOM. I don't know. I think you have to judge every case on the basis of that individual case, and I am not familiar with the specific cases.

Senator HRUSKA. Mr. Bangert, have you any questions?

Mr. BANGERT. Just one question, Senator.

In your statement you indicate that savings are provided through the use of single meter readers, appliance inspectors, and so forth.

Now, as I understand your explanation about the Philadelphia Electric System, they do not have overlapping territories.

Mr. BLOOM. In the Philadelphia Electric, they do have overlapping territories. In the city of Philadelphia itself there is no overlapping territory because the city of Philadelphia is served by a municipal gas company called the Philadelphia Gas Works. The Philadelphia Electric gas service is beyond the city limits in the communities just outside the city of Philadelphia. So there is overlapping in that part of their territory.

Mr. BANGERT. So that those economies that you speak of would be realized by that system?

Mr. BLOOM. Yes, sir.

Mr. BANGERT. One other area. You mentioned that the combination companies need not engage in the costly practice of mutually offsetting advertising and promotional methods as practiced by competitive firms.

I am wondering if this raises the possibility in terms of research and development that the combination company does not have to engage in the type of research and development that would have to be done if the companies were independent and were competing with each other?

Mr. BLOOM. I think it would perhaps make more money available for research and development because it wouldn't have to be expended for sales promotion and for advertising.

Mr. BANGERT. Well, would the same emphasis be put on research and development if in fact the one company wasn't attempting to get a competitive advantage over the other company by development of new facilities?

Mr. BLOOM. Well, I think that you will find a lot of the research and development that is done—and while the percentage may look small when you look at it, what is spent by the utility company—but the industries that serve them like Westinghouse, General Electric, and all of their suppliers, they are spending huge sums of money on research and development and they are—all of the utilities will get the benefit of that research and development because they are interested in selling their particular product to the utility.

So that what you see allocated for research and development in the company process statement is not the only thing that is being spent for research and development in that field because the industries that sell them materials are spending large sums of money for research and development in their field.

Mr. BANGERT. So that research and development on the utility level you would consider to be insignificant, really, in terms of importance.

Mr. BLOOM. I think that the companies are spending—I don't have

the figures, but I would judge that they are spending as much or more than the utilities are spending.

Mr. BANGERT. Do you have——

Mr. BLOOM. If I had the time I would like to tell you what I suggested and promoted among some of the utility companies. I think there ought to be a percentage set aside for research and development in every company that is furnishing electric energy, whether it be privately-owned company, a private-investor company, or public, that each of them would set aside a certain percentage of their gross revenues and that they would establish a laboratory such as ATT has, Bell Laboratories in New York, and that they would work jointly with Government in trying to find the solutions to certain problems.

One of the problems, of course, is the fast breeder which is on its way, but one which would solve our problems today about electric energy without any fallout when they would learn to control atomic fusion, when that day comes, and then the problem of energy is over, and you have no fallout. It meets all of the requirements of the environment. They will wait until they have a crisis to do it, and I think instead of waiting until they have a crisis to put their minds together, they ought to start now to work on it in a joint effort with the Government and all of those that are producing electric energy to establish a laboratory with the finest brains in America in there to find the answer to how you can control atomic fusion so that you can turn it on and turn it off, and then you have your answer. You have your problem answered.

Senator HRUSKA. Will counsel yield at this point briefly? Do you see any difficulties with that concept insofar as antitrust law is concerned, restraint of trade, illegal concert action, and so on?

Mr. BLOOM. You mean in setting up——

Senator HRUSKA. A joint laboratory.

Mr. BLOOM. Oh, my, I wouldn't think that there would be. If it is for research and development. It is in the public interest. It is for not only this generation but for generations to come to quit worrying about whether we are going to run out of uranium and whether we are going to run out of the various natural resources that are required for generating plants. This would certainly solve it and it would be a common interest. It would not be against the public interest.

Senator HRUSKA. We are not talking about public interest. If it is a meritorious proposition and still would run afoul of the antitrust law, it would not be making a record if it were so charged, and I just wondered if you have any thinking on that.

Mr. BLOOM. I really haven't thought of it. I thought it was so good I haven't thought about that phase of it.

Senator HRUSKA. Not too long ago, I am informed, the antitrust division of the Department of Justice warned some of the big corporations of this country that they had better be careful as to any joint efforts in connection with environmental protection problems. And it is that type of thing which I suggest—it is a noble idea. The goodness of it appeals to everyone. But here we have a very high official in the Antitrust Division, I am told, who sort of indicated to some of the big corporations that they had better be careful and not run afoul of this antitrust business insofar as environmental problems are concerned.

I throw this out not as a condemnation but as a note of caution. I do believe the suggestion you make for more research and development in the field anticipating some of the problems for future decades, that has a great deal of merit and someone must get into it. The problem is how can it be done properly and legally.

Thank you, Mr. Counsel. Is that all you have?

Mr. BANGERT. Yes.

Senator HRUSKA. Have you anything further?

Mr. O'LEARY. No, Mr. Chairman.

Senator HRUSKA. Mr. Bloom, doesn't your utility commission have jurisdiction over municipally owned plants in your State?

Mr. BLOOM. No, sir, we do not. The public utility law exempts municipalities. They exempt co-ops. They exempt what is coming into being—what has come into being, in recent years, as authorities, municipal authorities, I think it is wrong but they are exempt.

Senator HRUSKA. In my State it is no problem. I have indicated that already. Yet in my home city of Omaha there is a municipal corporation that distributes gas and water and another municipal corporation distributes electricity. It has sometimes been suggested that the mere fact that they are municipal or government in character doesn't mean that they cannot abuse the consumer. And it can be done, I presume, and perhaps sometimes it has been done, and I just wondered as to why that exemption would be given. Is there something magic or something sacred by reason of the fact that the entire public owns a utility? After all, it is not managed by the entire public. It is managed by management, by a board of directors, usually elected or appointed, but nevertheless capable of human error if nothing else, and maybe judgments and actions were taken which were not in the interest of the general public, not in the interests of the consumer. And I just wondered what you in your very rich experiences in this field would have to say about that.

Mr. BLOOM. Well, in the State of Pennsylvania we have one municipality, in Chambersburg, that operates its own gasworks, operates its own electric plant, operates its own water company, and it is absolutely exempt from anybody's jurisdiction except the city fathers.

Now that does not say that there are not abuses. I am not saying there are abuses but there is no reason to think that abuses couldn't exist. You have exempted the municipal authorities that are set up under Pennsylvania law, and we get thousands of letters from people who are complaining about the service, complaining about rates, and yet we have to write back to them and tell them we are very sorry but under such and so and so of the act, we have no jurisdiction, than that section of the act gives you recourse by finding a suit in the court of common pleas of your county. And they put a customer in a position where he must retain a lawyer to go into court to fight his claim, and I have said time and time again that this is not right, that at least the authority and municipalities ought to be under the jurisdiction of the regulatory body where a citizen could file a service complaint or a complaint against the rates and it could be heard before an impartial body and where he could have it done without any expense to him.

Senator HRUSKA. Well, I wouldn't want my question to imply that there have been abuses by any of the municipal corporations. It is

not the city. In my hometown that operates these utilities. I wouldn't want my asking a question to imply that there had been abuses or bad management. There hasn't. They have been managed well and have done a good job. But I don't imagine if we are going to put a blanket here some place, I imagine somebody is going to ask why not put a blanket overall and not leave some outside of it just because they happen to be blessed with that supposedly magic or sacred note of public ownership. We are not interested in that so much as we are with the impact on the ultimate consumer. We have the same problem in the field of labor organizations, for example. Sometimes the Congress has found the labor union organizations have done things that are not to the benefit of the members of the union, and legislation has been enacted to take care of that problem or to try to do something. I think there could, in this instance, be a separation between the ultimate consumer in a jurisdiction that is served by a municipal corporation and the corporation itself. It doesn't follow that what every municipal corporation does necessarily is for the good of the consumer. It probably could not be, consciously, or subconsciously, inadvertently or otherwise.

Mr. Bloom, we have in many of these combination companies for now some joint efforts that do resolve in some economies. There is the single trench for underground distribution. That is an outstanding example. There are others.

Again, I get back to the proposition, could it be that if there is a divorcement of the two utilities that using the features in common in their distribution systems, could it be that if they were divorced and divested that there might in that commonality as it were be found some basis for violation of antitrust laws or restraint of trade laws because of that concurrence of effort in a given line? Would they be forced, each of them, to dig another trench to hold their respective service lines or would one have to do it and another retain the original trench and using that as a symbolic thing for other joint efforts, in your thinking is there any danger along that line if there were divestiture orders?

Mr. Bloom. I really don't know whether they would require them to start to dig another trench and not make the same trench available, but I don't believe there would be any implication—I still think where they had done it, they could continue to occupy the same trench.

Senator Hruska. I use it only as a symbol.

Mr. Bloom. Yes; because there are some cases, in the case of telephones, some of them, where they try to use common trenching.

Senator Hruska. In one of the statements we had here by a witness it was asserted that bigness is not necessarily good. In you experience with that type of thinking and that type of statement, would you entertain the thought that here is a controversy to that, that bigness is not necessarily bad? Does that make as much sense——

Mr. Bloom. I would have to say from my experience that bigness in itself is not necessarily bad. Bigness can be bad. You can have small companies that are bad, too. Bigness in itself is not bad.

Senator Hruska. Is it necessarily good?

Mr. Bloom. There is good that comes from bigness.

Senator Hruska. But it is not necessarily good.

Mr. Bloom. Not necessarily.

Senator HRUSKA. It can be.

Mr. BLOOM. It can be abused, like anything else. There can be abuses amongst small- or medium-sized companies, but the mere fact that it is big doesn't make it bad.

Senator HRUSKA. Senator Thurmond is here, and while the testimony was going on both Senators Fong and Gurney appeared, and apparently had other obligations to which they returned. But at this time we will ask Senator Thurmond if he has any questions of Mr. Bloom.

Senator THURMOND. Thank you, Mr. Chairman.

Mr. Bloom, as president of the National Association of Regulatory Utility Commissioners, and as chairman of the Pennsylvania Public Utility Commission, I presume you had a great deal of experience in these matters and that your statement today is based upon that experience. Is that correct?

Mr. BLOOM. Well, I have had some experience. I have been on the Regulatory Commission as indicated in my statement and been somewhat active in the national organizations since I have been a utility commissioner, but I wouldn't want to—maybe I am too modest, but I don't want to pose as a great expert, knowing all the situations, all over the country. I have a hard enough time keeping up with my situation in Pennsylvania. But I come in contact with these people and I have a general knowledge of it, yes.

Senator THURMOND. In your capacity in both of those positions of responsibility, your experience more or less would qualify you as an expert; would it not?

Mr. BLOOM. Well, I would hope so.

Senator THURMOND. Are you speaking today in both capacities—or in one or the other or as an individual?

Mr. BLOOM. No; I am speaking as president of the National Association, and as chairman of the Pennsylvania Commission because I have discussed it with my colleagues on the commission and have told them the position I was going to take as the president of the commission, and they have answered a questionnaire—we have in our commission—as to the position of the commission. As a matter of fact, we——

Senator THURMOND. So your position——

Mr. BLOOM. We canvassed the commissions of the United States and they were universally opposed to the bill and thought jurisdiction should be at the State level.

Senator THURMOND. So your position as stated here today does represent the thinking of the National Association of Regulatory Utility Commissioners, which is a nationwide organization——

Mr. BLOOM. Yes, sir.

Senator THURMOND (continuing). As I understand it.

Mr. BLOOM. Yes, sir.

Senator THURMOND. Is this the unanimous thinking of this commission or is there any descent?

Mr. BLOOM. All of them were unanimous in opposition, and one commission said they would rather not take any position.

Senator THURMOND. But there is no descent from the statement here today.

Mr. BLOOM. No. There was no descent, no negative——

Senator THURMOND. So, you are speaking then, for the Public Utility Commissions of the States of the Nation.

Mr. BLOOM. That is correct.

Senator THURMOND. Now, I would like to ask you this. Is there some advantage in combination in some cases? Are there not some economies to be effected in combinations?

Mr. BLOOM. Yes, sir. I have outlined them in my statement, the economies, the advantages of combination companies, and what they are.

Senator THURMOND. And could those economies be attained in any other way except through the combination?

Mr. BLOOM. No. They would not be attained if you didn't have that combination.

Senator THURMOND. So is it your position that the public gets the benefit of the economies because the regulatory commissioners do fix rates in each State and they fix rates based on profits and profits are greater when there are more economies, when there is greater economies? Therefore, I presume it is your position, then, but the greater the economy to the companies, the better rates the public can obtain?

Mr. BLOOM. That is right. That is right because the expenses that they charge off will be less. As a result, their earnings will be more, and then you regulate them to see that the return is a fair and reasonable return. Therefore the rates ought to be lower.

Senator THURMOND. Now, what Federal regulation is there on combinations?

Mr. BLOOM. The Public Utility Holding Company Act is I believe——

Senator THURMOND. That is the basis for Federal regulation?

Mr. BLOOM. I think so, yes, sir.

Senator THURMOND. So you have State and Federal regulation now?

Mr. BLOOM. Yes, sir.

Senator THURMOND. Some of these points I just want to bring out to point them up a little bit more specifically.

Now, this bill, S. 403, as I understand, will just bring about a complete disillusion without regard to any standards.

Mr. BLOOM. The way it is drawn at the present time, that is correct, and that is one of the objections. Further, our regulatory bodies that—this is a matter that should be judged on the basis of each company individually and the State itself—are in a better position than anyone else to determine whether it is in the public interest to let them remain as a combination or to try to see that they be separated.

Senator THURMOND. In other words, the regulatory commission in Pennsylvania or in South Carolina should be in a better position to judge the situation of any company in their respective States than the Congress could passing a law. Is that true?

Mr. BLOOM. That is true.

Senator THURMOND. Now, if this law should be passed, as I interpret it, would this not bring about a complete Federal preemption on this subject?

Mr. BLOOM. Yes, it would. If the bill was passed in the form it is now, they would divorce the gas and electric utility companies from each other, and it would occur all over the United States whether they were good or whether they were bad and whether they were in the public interest or whether the individual company was in the public interest.

Senator THURMOND. You would have complete Federal control which would overrule the desires of any particular State with regard to a company within such State, would you not?

Mr. BLOOM. That is right.

Senator THURMOND. For instance, in Pennsylvania if you had a company which you feel best serves the public by being a combination, it would not be allowed to exist even though it might result in economies to the public and be beneficial to the public. Is that true?

Mr. BLOOM. That is right.

Senator THURMOND. We are having so much Federal preemption now by this Central Government, it is very disheartening to those of us who still believe in the States, that the States have rights. Sometimes some of us are beginning to wonder just how far this National Government is going to go to take over everything, and if it keeps on like it is doing now, the States will be nothing more than territories before long.

Do you feel as a matter of policy and as a matter of protecting the interests of a particular State that it is sounder, safer, more practical and in the best interests of the public of a State to let the regulatory commission of that State handle a matter of this kind?

Mr. BLOOM. I feel that it is to the best interest of the public to commit the States to pass on this question and make that determination.

Senator THURMOND. Thank you very much.

Thank you, Mr. Chairman.

Senator HRUSKA. Thank you very much, Mr. Bloom.

Let the record show at the inception of Mr. Bloom's testimony that he has been accompanied by Carl Rodgers, of general counsel.

You are general counsel for the association?

Mr. RODGERS. Yes.

Senator HRUSKA. Will you give the reporter your address, please.

Mr. RODGERS. It is in our testimony.

Senator HRUSKA. Very well. Thank you very much, both of you.

Mr. BLOOM. Thank you.

Senator HRUSKA. The next witness will be Allan C. Mustard, senior vice president of the South Carolina Electric & Gas Co., of Columbia, S.C.

STATEMENT OF ALLAN C. MUSTARD, SENIOR VICE PRESIDENT OF THE SOUTH CAROLINA ELECTRIC & GAS CO. OF COLUMBIA, S.C., ACCOMPANIED BY JOSEPH FRITZ, SENIOR VICE PRESIDENT OF SOUTH CAROLINA ELECTRIC & GAS CO., AND GEORGE FISHER, VICE PRESIDENT AND GENERAL COUNSEL OF SOUTH CAROLINA ELECTRIC & GAS CO.

Senator HRUSKA. The Chair will call on Senator Thurmond for such comments and remarks as he may want to make at this time.

Senator THURMOND. Thank you very much. Mr. Chairman, I just want to state it is a great pleasure for us to have Mr. Allan C. Mustard, senior vice president of the South Carolina Electric & Gas Co., in Washington, to testify before the subcommittee today. I have known Mr. Mustard for a long number of years. He is one of the most prominent citizens in South Carolina. He bears a reputation of

being a man of character and integrity who has rendered distinguished service to the people of our State.

It is a great pleasure for me to join the subcommittee in welcoming him there today.

Senator HRUSKA. Mr. Mustard, would you like to identify those accompanying you to the witness table.

Mr. MUSTARD. Mr. Chairman, thank you very much. With me I have Mr. Joseph Fritz, on my right, senior vice president, of South Carolina Electric & Gas, and Mr. George Fisher, vice president and general counsel, of South Carolina Electric & Gas Co. on my left.

Senator HRUSKA. We thank you for the submission of your statement in advance as required by the committee's rules. You may proceed in your own fashion to discuss your testimony.

Mr. MUSTARD. Thank you, Mr. Chairman.

Mr. Chairman, gentlemen, it is a pleasure to appear before you today and present the views of my company regarding Senate bill No. S. 403, introduced by Senator Metcalf on January 28, 1971. I am a registered engineer and senior vice president in charge of commercial operations for South Carolina Electric & Gas Co.

The introduction of this bill, which seeks to amend the Federal Power Act so as to prohibit certain combinations and control between electric and gas utilities, has stimulated economic analyses of combined utilities as contrasted with straight single service companies under certain specifications and criteria primarily making the comparisons on the basis of rates and pricing. Current filed tariff rates for electricity and gas are by no means entirely reflective of the total economic interest of the consumer. There are many other factors which should be considered in a study of this legislation and we will refer to those which are meaningful in the vicinity of our service area.

SERVICE TERRITORY

South Carolina Electric & Gas Co. (SCE & GCO) is an investor-owned combination utility with a service area of approximately 12,000 square miles, encompassing 24 counties. It serves both electric and gas customers in the central coastal areas of the State. This is roughly half the counties in South Carolina. Twenty counties are served with electricity by Duke Power Co. or Carolina Power & Light Co. and are served gas by Piedmont Natural Gas Co. or Carolina Pipeline Co. The State-owned South Carolina Public Service Authority (Santee-Cooper) provides electric service in two counties and transmits electricity throughout the State for delivery and sale to the Rural Electric Cooperatives. In one county (Georgetown) we serve gas but do not serve electricity and in another county (McCormick) we serve electricity but do not serve gas. At the end of 1970, we were serving some 271,000 electric customers, and slightly less than 130,000 gas customers. In 1970 electric revenues totaled $101 million and gas revenues totaled $28 million.

Of the 130,000 gas customers served by South Carolina Electric & Gas Co., 119,000 are residential customers served from distribution facilities owned and operated by the company. We are also serving 104 commercial and industrial interruptible customers, and the remainder are in the commercial and industrial firm category, with the exception of two municipalities, Orangeburg and Bamberg, which purchased gas

directly from our transmission line. We also serve gas in two municipalities which are served electricity by rural electric cooperatives. The company opeartes 604 miles of transmission pipeline, the primary purpose of which is to transport gas to its distribtuion facilities in 52 municipalities in South Carolina.

History of Growth of Gas Business

Prior to January 1954, the company operated manufactured gas facilities in Charleston and Columbia. At that time these were the only gas properties owned and operated by SCE & GCO in its service area. In 1957, we purchased the distribution facilities located in Aiken and North Augusta, S.C., from the Atlanta Gas Light Co. Both of these properties also were supplying manufactured gas or propane-air to the customers located in those areas prior to 1954. After lengthy negotiations, we entered into a contract purchase agreement with Southern Natural Gas. Co. for delivery of natural gas to SCE & GCO at Aiken, S.C. The company had to construct some 150 miles of transmission facilities at a cost of $51/4 million to bring natural gas to the two major points of use on its system. These were the metropolitan areas of Charleston and Columbia. Our contract demand at that time was 30,000 M c.f. per day with a minimum take of 27,000 M c.f. We were serving a total of 27,233 customers in the two areas, having peak day requirements of some 9,913 M c.f., with the summer loads dropping to 1,360 M c.f. per day. At that time, we had one major steam electric generating facility located in Charleston-Plant Hagood—which was then using No. 6 oil as the primary fuel. This plant was converted to natural gas in 1953, with No. 6 oil as standby fuel, and valley gas was used under boilers at this plant. Hagood has gas burning capability of 27,000 M c.f. per day. Had we been unable to use valley gas for such a purpose, then our original pipeline could not have been justified, and the customers in Charleston and Columbia would have been deprived of natural gas service. From this beginning the pipeline mileage has quadrupled, customers have increased nearly five times and firm peak day requirements have increased 20 times in 17 years.

South Carolina Electric & Gas Co. is in the process of installing the maximum feasible liquid petroleum gas peak shaving equipment on its system at a total cost of approximately $5 million. It is now negotiating the installation of liquid natural gas facilities to further boost its peak shaving capabilites. This is at a cost of approximately $10 million in the next 2 years. This will result in an additional 50 million cubic feet of gas per day of peak shaving gas.

The company has adequate valley gas to supply its forecasted increase in loads of domestic customers because of its high contract demand of its gas purchases of natural gas, but must install peak shaving equipment to firm up the gas during the winter months.

Because SCE & GCO accepts its full responsibility to its customers, it pursues an aggressive supply policy and is cooperating with Southern Natural Gas Co. in its efforts to purchase liquid natural gas from El Paso Algeria Corp. beginning in 1975–76 in order to firm up its deliverability.

Although it is no longer possible to obtain long-term franchises in cities or towns in South Carolina under which to render electric serv-

ice, it is possible to obtain long-term gas franchises in cities and towns, and this is a considerable advantage to a combination company.

Organization

The sales and operating departments for both electricity and gas in SCE & GCO are brought together at top-level management by the senior vice president, commercial, and the senior vice president, operations and engineering.

The sales programs are designed and executed to "hard sell" electric space heating and gas cooling with virtually no effect toward electric cooling and gas space heating except in the case of the electric heat pump which is a packaged electric heating and cooling piece of equipment. Both electric and gas water heaters are promoted with virtually no effort to encourage electric or gas cooking. The entire sales promotion programs are designed and executed to improve the load factors of the electric and gas systems. Improved load factors reduce average costs and thus hold down rates and benefit all customers. At the operating level, billing, meter-reading, accounting, and other financial and administrative functions are common to electric and gas operations, with attendant savings.

A question we frequently ask ourselves is how does our combination structure affect our ability to extend the benefits of gas and electric service to the customers in our area.

Electricity

The average annual use per residential electric customer of SCE & GCO compares favorably with those of straight electric companies in our area. Our average annual use per customer was 9,853 kilowatt-hours as of December 31, 1970. The average annual residential use of Carolina Power & Light Co. for the year ending December 31, 1970, was 9,794 kilowatt-hours. Duke Power Co.'s annual use was 9,864 and Georgia Power Co.'s annual average use was 8,732. All of these are straight electric companies and all have service areas adjacent to ours.

Gas

South Carolina Electric & Gas Co. has 52 municipal gas franchises and has pledged to all the other municipalities in our service area that it will extend natural gas to them as soon as possible after our gas supplier lifts its embargo on further increases in contract volumes. Our policy is to extend service to communities as vigorously as is possible. We take a very long-term view of the potential profitability and growth prospects of new communities.

Comparison of Customer Uses

Average customer annual use comparisons are not as meaningful in comparing gas utilities as in comparing electric utilities because of the extremely high gas space heating saturation and because of the wide variation in degree-days in relatively short distances. Charlotte, N.C., according to Moody's Public Utility Manual, experienced 3,824 degree-days in 1969 while Columbia, S.C., 100 miles to the south, experienced

2,854 degree-days, and Charleston, S.C., 200 miles south of Charlotte, 100 miles south of Columbia, experienced 2,586 degree-days.

Degree-days are used by engineers in determining fuel requirements for space heating and they have found that fuel use varies approximately directly with degree-days.

We believe that a proper comparison of the aggressiveness of gas companies can be expressed by a comparison of annual percentage customer growth. Listed below are annual residential percentage increases as taken from the 1970 edition of Moody's Public Utility Manual. These cover the two largest straight gas companies operating in territories adjacent to this company. Both companies have larger numbers of customers than SCE & GCO. As of December 31, 1969, Atlanta Gas Light Co. had a total of 585,227 customers, Piedmont Natural Gas Co. with headquarters in Charlotte had a total of 154,994 customers, and SCE & GCO had a total of 115,062 gas customers. The census data of the principal city of each company is as follows:

	1969	1970	Growth percent
Atlanta, Ga	1,017,188	1,390,164	36.66
Charlotte, N.C	316,781	409,370	29.22
Columbia, S.C	260,828	322,880	23.79

The 6-year growth comparison figures of the three companies are as follows. I have listed them from 1964 to 1969 but have run up an average which is not shown in the statement which was filed. That average is for Atlantic Gas Light, for the 6-year period, 4.77 percent. For Piedmont Natural Gas, 7.07 percent. That was a 5-year average on Piedmont because Piedmont purchased Carolina Natural Gas Co. of Hickory, N.C., in 1968 and they have an inflated picture of growth. Of South Carolina Electric Gas for the 6-year period, 10.86 percent average.

ANNUAL PERCENT INCREASE

RESIDENTIAL CUSTOMERS

[In percent]

	Atlanta Gas Light	Piedmont Natural Gas Co.	S.C.E. & G. Co.
Year:			
1969	3.47	6.45	9.31
1968	3.94	[1] 15.31	9.46
1967	3.76	6.99	10.10
1966	6.06	6.11	11.10
1965	6.33	7.81	12.70
1964	5.08	7.99	12.50

[1] Purchased Carolina Natural Gas Co., Hickory, N.C.

While some of our rates are higher and some are lower than those of the three straight gas companies operating in South Carolina, our promotional rates are lower, our promotional gas rates are lower. Here, again, it is not just the rates or pricing that is of real consequence to the customer. We are able to continue offering gas service to residential and commercial customers in spite of prospective gas contract demand limitations while some straight gas companies are either refusing service or severely restricting it.

Marketing Comparisons

The proponents of S. 403 state that there must be competition between electric and gas companies. Do these proponents realize that electric energy on a simple B.t.u. cost comparison costs more than three times that of natural gas?

That is true on the residential level, the commercial level and the industrial level.

Other considerations in addition to rates may cause the consumer to purchase electricity or gas. In many cases, it is a matter of which fuel fits best in the design of the residence or business. Some utilities extend their facilities to and on the premises of the customer while others extend only to the property line. Some utility companies will extend their facilities a certain number of feet and then the customer must pay for an extension beyond that point. Consequently, the rates are not the whole cost to the customer. These varying conditions occur in both combination and straight companies.

The hypothesis on which SCE & GCO markets is that electricity is virtually a necessity whereas gas must be sold as a competitive fuel with oil and liquefied petroleum gas in the residential and commercial markets and with coal and oil in the industrial market.

Gas Purchases

Firm natural gas purchases are made by SCE & GCO under a two-part rate with a demand and commodity charge. The demand charges must be paid monthly based on the contract demand specified in the contract. The commodity charge is paid on the quantity of gas purchased within the monthly billing period. In addition to the firm purchases, certain overrun gas is purchased in excess of that purchased under the firm contract. This gas is on an interruptible basis and is available at the pleasure of the supplier.

It is of paramount importance for a utility to purchase gas on as high a load factor basis as is practicable to the operation. In our case gas sold to our customers represents an annual load factor of approximately 71 percent on our contract demand with Southern Natural Gas Co. By using our valley gas, and additional gas available from our supplier in excess of contract, as boiler fuel for our steamplants, we attain a load factor substantially in excess of 100 percent.

This unusually high load factor on our system makes it possible for us to hold down the rates to our gas customers because of the low average cost of our purchases. It also benefits our electric customers because the gas was placed under our boilers at a cost of less than oil or coal which it replaced. This gives an automatic reduction to all of our electric customers because of the fuel cost adjustment provision in our electric rates and contracts.

We are aware that some would question use of gas as boiler fuel by our company as a top priority use of that fuel, although it does contribute to cleaner air in our territory and at present is lower in price than other fuel. It is not our function to guess at a proper allocation of this resource. Rather, until some governmental determination is made, we must operate our company as efficiently as we can within the regulatory framework in which we find ourselves. We feel our combination status permits us to integrate the various markets and uses of gas

in a manner which lowers costs to both our electric and gas customers.

Since the cost of gas to our customers for years has been competitive with alternate fuels, the policy of our company has been to burn gas under the boilers of our steam electric generating plants only when it cannot be sold to our customers. Our company recognized its responsibility to deliver interruptible gas to its customers when it is available because it is their preferred fuel, and in many cases the customer has made large investments to permit such use. However, being a combination company places SCE & GCO in an enviable position to insure continuity of electric service in periods of fuel supply disruption or uncertainty because it can interrupt large interruptible gas customers and use the gas under its boilers during a period of emergency conditions.

Certainly this is very important in national defense because we have many national defense installations on our lines, both gas and electric.

The action would benefit all of our customers since even those interrupted must have standby fuel, but they could not use it without electricity. Parenthetically, it should be noted that interruptible gas is sold solely at the discretion of the supplier.

Load Factor

Load factor is equally important to electric and gas operations. Climate plays a very important role in creating poor load factors because of high seasonal uses. This is particularly true in the service area of SCE & GCO where electricity is heavily used for summer cooling and gas is primarily used for space heating.

The ideal situation in our section of the country is gas cooling and electric heat. Gas cooling equipment does not yet have public acceptance and it costs more than electric cooling equipment, consequently, SCE & GCO pays $60 per ton to its customers for the installation of gas cooling equipment to offset this difference. This, of course, is in direct competition with electric cooling but improves the load factors of both electric and gas systems.

To further promote public acceptance of gas air-conditioning, the company will furnish, at no cost, to any of its year-round gas users, as many as two gas lamps to be installed by the customer and to be maintained by the company at 50 cents per lamp per month.

Financing a Divestiture

South Carolina Electric & Gas Co. has a capital investment of approximately $700 million of which roughly $90 million is in natural gas facilities. Its financial rating is A. This rating, as you know, governs the bond interest and preferred stock dividends. The embedded cost of money of SCE & GCO is 6.30 percent for bonds and 6.56 percent for preferred stock.

If SCE & GCO were required to divest itself of its gas operations, it is reasonable to assume that the smaller acquiring company would have higher financial costs. This coupled with higher management costs to both companies would result in further increased rates to both the gas and electric consumers. The money costs could increase some 20 to 30 percent, consequently the rates could increase substantially.

General Policies

The general policy of SCE & GCO is that it has a responsibility to extend its electric facilities to supply service to any customer anywhere within its service area without special minimum charges or contributions to aid construction, and that it has a responsibility to extend its gas facilities to any customer anywhere within its service area on an economically sound basis with special attention being given to the extension of facilities in the underdeveloped areas which can be further developed by the availability of natural gas service.

Both with electricity and gas, SCE & GCO will extend its wires and pipes on the customers property at the nearest point convenient to the use, normally on the outside of the building. We will install underground electric service to and on lots in new developments without charge to the customers.

The only cases where a single representative of the company sells both electricity and gas is when industrial development personnel negotiate with new industry locating within our service area. It is the policy of the company to offer very attractive and competitive electric and gas industrial rates with a very small current margin of profit. This is done to encourage industry to locate within the service area of the company and to improve the standard of living of our retail customers. The retail electric and gas rates of the company carry a reasonable profit and allow a reasonable rate of return on the investment and are comparable and competitive with such charges for straight gas companies and straight electric companies adjacent to our service area.

Conclusion

It is my very carefully considered opinion after more than 36 years of service with my company and more than 20 years of service in both electric and gas operations that SCE & CO properly operates its systems for the benefit of all concerned. It offers the best possible service for the lowest possible rates.

South Carolina Electric & Gas Co., as a combination company, has contributed very materially to the development of the area in which we are privileged to serve.

It is our considered judgment that the proposed legislation would result in higher, not lower, rates for our gas and electric customers both in the short run and the long run. This would affect South Carolinians not only directly through the increased rates they would have to pay but also indirectly since it could retard the industrial development of our State. And there is no substantial justification for the imposition of such a burden.

The facts certainly indicate that the operations of South Carolina Electric & Gas Co. contrast well with the operations of straight electric companies and with straight gas companies in our area. Our company is doing an unmatched job in performing the duties and responsibilities as charged by its charter and as supervised by the regulatory bodies having jurisdiction over its operations.

I thank you very much, Mr. Chairman, for allowing me to appear in behalf of my company.

Senator Hruska. We thank you. We recognize Senator Thurmond.

Senator Thurmond. Thank you, Mr. Chairman.

Mr. Mustard, I believe that South Carolina Electric & Gas Co. serves 24 out of the 46 counties.

Mr. MUSTARD. That is right.

Senator THURMOND. The other 20 counties being served by Duke, Carolina Power & Light Co., and with gas by Piedmont Natural Gas, and Carolina Pipeline Co.

Mr. MUSTARD. That is right, sir.

Senator THURMOND. Now, as I understand it, South Carolina Electric & Gas Co. serves 271,000 electric customers with 1970 revenues of about $100 million.

Mr. MUSTARD. That is right, sir.

Senator THURMOND. And it serves 130,000 gas customers with 1970 revenues of about $28 million.

Mr. MUSTARD. That is right, sir.

Senator THURMOND. You are regulated by the Public Service Commission in South Carolina?

Mr. MUSTARD. That is right.

Senator THURMOND. They inspect your books and they make investigations and the rates are fixed by this commission from their studies and investigations.

Mr. MUSTARD. For all retail customers, yes, sir. The FPC regulates the wholesale customers of electricity—the Federal Power Commission.

Senator THURMOND. Do you know of any benefits whatever that could result from the passage of this bill, S. 403, now before this subcommittee?

Mr. MUSTARD. No, sir, absolutely none.

Senator THURMOND. On the contrary, do you feel strongly that it could bring about an increase in rates to the customers that you now serve?

Mr. MUSTARD. Undoubtedly the rates would be increased if we were divested.

Senator THURMOND. Do you not use personnel in serving electric customers and gas customers on projects where if separate companies had to serve these people, additional personnel would be required?

Mr. MUSTARD. That is right, sir.

Senator THURMOND. Are not facilities such as trucks and tools of various kinds and implements used to service both electric and gas customers whereas separate companies would have to have additional supplies of this equipment?

Mr. MUSTARD. This is not exactly true, Senator. We operate on the low level, that is, with the equipment level, as two independent companies except where you have some real heavy equipment to dig a special ditch, but normally we operate as two separate companies on that level.

Now, it is common management, common billing and meter reading and all that, but when you bring in equipment it is another matter. We do not use common equipment.

Senator THURMOND. You do use common personnel?

Mr. MUSTARD. Yes, sir.

Senator THURMOND. Is that a saving, do you feel, to be able to use common personnel in serving both?

Mr. Mustard. No doubt about it. I believe one $20,000 lawyer would be worth two $10,000 lawyers and that is what you would have if you divided it up, you see. It might be a little higher than that.

Senator Thurmond. Have you made any estimate of the rate increase which would be required of your gas customers if a separate company were required by this legislation?

Mr. Mustard. Yes. It would be well—it would be between 20 and 30 percent.

Senator Thurmond. Increase?

Mr. Mustard. Yes, sir.

Senator Thurmond. In other words, if this bill passes, it means there would be an increase to the gas customers in South Carolina of 20 to 30 percent?

Mr. Mustard. That is right, sir.

Senator Thurmond. Now, your company is one of only a few combination companies I believe in the southeast. Do you compare your performance on a continuing basis with so-called straight electric and gas companies in your general area?

Mr. Mustard. Yes, sir, we do. We belong to the Southeastern Electric Exchange and exchange information between all of the companies, straight electric companies. We also belong to and exchange information in the Southern Gas Association and the Southeastern Gas Association as well as the AGA (American Gas Association), and we compare favorably with the combinations and we compare favorably with the independent companies.

Senator Thurmond. Are you familiar with separate gas companies that give the customers better rates than you give your customers?

Mr. Mustard. Yes, sir, I am.

Senator Thurmond. What are they?

Mr. Mustard. Well, the customers that are right close to the wellhead would get better rates than those way over on the Atlantic coast. I mean, take New Orleans and Texas. I imagine those rates are considerably cheaper than those in South Carolina, Virginia, North Carolina, and up in this area.

Senator Thurmond. Are you familiar with any companies that provide better rates to their customers at, say, about the same distance as you are from——

Mr. Mustard. No, sir. Absolutely no. Our rates—actually our promotional rates are lower than any in the general area and our rates are right at the same level.

Senator Thurmond. What do you attribute that to? Is it the combination that enables you to operate more economically?

Mr. Mustard. This is true, sir. The economies resulting from the combination.

Senator Thurmond. From the combination?

Mr. Mustard. Yes.

Senator Thurmond. And this bill under hearing here today would destroy that combination?

Mr. Mustard. Yes, sir.

Senator Thurmond. And therefore increase the rates to the customers?

Mr. Mustard. Yes, sir.

Senator THURMOND. What percent of your total operating revenue is gas and what was it in 1960, for instance?

Mr. MUSTARD. Actually it is a contrast of $101 million as contrasted to 28, so it is something over 27 percent.

Senator THURMOND. And what was it in 1960?

Mr. MUSTARD. 1960? Sixteen percent.

Senator THURMOND. How much has your gas revenue increased in 10 years, and how much has your electric revenue increased in the 10 years?

Mr. MUSTARD. The gas has increased 300 percent in the last 10 years and the electric revenue has increased 100 percent in the last 10 years.

Senator THURMOND. So your gas is treble that over electric consumption in the past 10 years.

Mr. MUSTARD. That is right, sir. The revenue.

Senator THURMOND. Now, what steps are you taking to assure a supply of gas in South Carolina in the future?

Mr. MUSTARD. We are doing three things. We are putting absolute maximum number of cubic feet of liquid petroleum gas, propane, air, into our system for peak shaving. That is at a cost of about $5 million. We are installing within the next 2 years $10 million of liquid natural gas facilities. That is where we reduce the temperature of natural gas to minus 260 degrees and hold it there. And we, of course, are joining with our supplier in an attempt to get gas from Algeria.

Now, we have plenty of valley gas to serve our customers in the foreseeable future but we must make this special investment to handle the firm loads during the winter months.

Senator THURMOND. In a hearing before the Subcommittee on Minerals, Materials, and Fuels of the Committee on Interior and Insular Affairs of the Senate on November 13 and 14, 1969, I observe on page 15 this statement:

> Synthetic gas from coal. Total U.S. coal resources are sufficient for the manufacture of 15 to 25,000 trillion cubic feet of synthetic gas, depending on processing and mining recovery efficiency. Each trillion cubic feet of annual gas capacity will require about 70 million tons of coal and a total investment of about $1½ billion in the physical plant and associated time.

I am just wondering if you had any opinion on that?

Mr. MUSTARD. Senator, the only way that regasification is practical is at the mine mouth. These regasification plants will be installed at mine mouth. The gas coming from those regasification projects will run somewhere in the order of $1 per Mcf or $1 per million B.t.u. Then the cost of transporting it from there to the systems will be additional and there are no coal mines near South Carolina. We have to haul ours, as you know, from West Virginia, Virginia, and Kentucky. And so we do not hope to see any of that in the immediate future.

There are large gas companies right now that have both coal mines and that expect to install regasification plants it is practically to the point that it can be used for peak shaving and that sort of thing, but it would not be marketable too much if you are going to have to pay $1 per million B.t.u. for the raw product when you are paying only 40 percent of that now for natural gas.

Senator THURMOND. So, as I understand from you, the probability of generating gas from coal will result in a higher cost to the customers than the way you are now receiving it?

Mr. MUSTARD. No doubt about it, sir, but that is true with oil and there will be even higher-cost gas. The low-cost gas that we have experienced over the period of years is no longer foreseeable. Gas prices will go up materially as the other fuels do.

Senator THURMOND. From what you have had to say here today, it appears you are convinced that this bill would be harmful not only to your company but to the customers you serve in South Carolina?

Mr. MUSTARD. That is true, sir.

Senator THURMOND. It is your opinion that it would increase the rates to the customers if this bill passes?

Mr. MUSTARD. Absolutely, yes, sir.

Senator THURMOND. Thank you very much. We are glad to have you with us.

Mr. MUSTARD. Mr. Chairman, I wish to thank you.

Senator HRUSKA. Mr. Mustard, just to get some fill-in on the record, the economics for the record, would you furnish us with the population growth in your service area in the last 10 years?

Mr. MUSTARD. Yes. Did we? It is in our—do you mean the entire service area?

Senator HRUSKA. Yes. In the entire service area.

Mr. MUSTARD. I have not done it. We will do it.

Senator HRUSKA. Can you furnish that for the record?

Mr. MUSTARD. Yes, we will. (See p. 40.)

Senator HRUSKA. And what is the projected population growth for the future there inasmuch as you can determine.

Mr. MUSTARD. All right, sir.

Senator HRUSKA. Also so that the record will be clear, will you explain what is meant by valley gas and by peak shaving equipment.

Mr. MUSTARD. Yes, sir.

Senator HRUSKA. You referred to that in your statement.

Mr. MUSTARD. Yes, sir. Actually valley gas is a gas that is created—let me put it the other way. I am going to try to fix it so you can visualize it.

We must buy, across the calendar, constant amounts of gas per day. That is known as our contract demand. That is constant across the calendar from January through December. In January and December we have peaks which exceed the contract demand. When these peaks exceed contract demands, you have what is known as peak shaving gas and you pump that into the line.

Now, you can pump in LNG, and LPG in limited quantities. The specific gravity of the gas limits how much LPG you can put in. But with LNG you can put as much as you can pump in because LNG is nothing but natural gas.

Now, during the months of June, July, May, August, along in there, instead of using up to that line that you have drawn across the calendar, you are going down to less than 10 to 20 percent of the distance between the use and this line. Therefore—it is hard for me to do this in words. I am an engineer, not a lawyer, but the valley that is created under the contract demand is then sold to interruptible customers who can be off the line with 2 hours' notice, and they like that because the gas is cheaper and it is clean, and all we do is give them 2 hours' notice, they get off, use the standby fuel, and that is how valley gas is used.

What is not used by our customers, we put under our boilers and burn it as fuel for steam generation.

Senator HRUSKA. And for the same reason, that it is cheaper and cleaner?

Mr. MUSTARD. That is exactly right, sir; and it creates a lower average cost for our customers and consequently reduces—holds down the rates of gas customers and accordingly does the same for electric customers as well, because of the fuel adjustment surcharge. It does both.

Senator HRUSKA. That is a good explanation and the record will be enriched thereby.

Mr. MUSTARD. Thank you, sir.

Mr. HRUSKA. In your testimony you make the statement that electric energy on a simple B.t.u. cost comparison costs more than three times that of natural gas?

Mr. MUSTARD. That is right.

Senator HRUSKA. Are those computations and is that statement true generally continentally or is it just in South Carolina?

Mr. MUSTARD. No, sir. It is actually true throughout the country. Otherwise you could not use natural gas to generate electricity if that was not true because generation is certainly not 100 percent efficient. You cannot burn anything under a boiler with 100 percent efficiency. But it is possible with the residential electric customer, at a rate of 1¼ cents, 3413 B.t.u.'s, are purchased, you see.

Now, our average gas rates are about a dollar for 1 milion B.t.u.'s. So it is easy to work this formula out. I know the question in your mind is why do people ever buy electricity when they can buy gas at a third of the cost of a B.t.u. which is the unit of heat. In using electric heat you must have a specially designed building or house. You must have insulation in it. With the gas, the gas is so cheap in comparison on a B.t.u. basis that you can have cracks in the wall and no insulation but you could not do that with electricity because the B.t.u. is expensive. It is three times that of gas.

Senator HRUSKA. Thank you very much.

Counsel O'Leary?

Mr. O'LEARY. Mr. Mustard, we would like to thank you for a very instructive statement. I note in your statement you indicate that at the end of 1970 your company had 130,000 gas customers and gas revenues of $28 million. You would say, would you not, sir, that your gas system is not one which is so small as to be incapable of independent economical operation?

Mr. MUSTARD. It could well be independent.

Mr. O'LEARY. Now, would you explain a little bit more with respect to the stress placed on the part of your sales program on electric space heating and gas cooling. I gather that this is intended to improve the load factors of the electric and gas systems?

Mr. MUSTARD. Yes, sir. Mr. O'Leary, we have a strange situation in our area and it is a line drawn across the United States which extends down into Texas where practically an equal number of B.t.u. are required to heat as to cool.

Now, our people have grown to know that it is nice to stay cool in the summertime and the temperature is relatively all right in the wintertime, not very severe, so they will use gas or wood or coal or anything else to heat. But they use electricity to cool.

This electricity creates a tremendous peak on our system. Three hundred thousand kilowatts more in the summer than in the winter. Now, those kilowatts cost us $150 average per kilowatt for the generation and the line to get it down to the customers, so that means there is $45 million invested for some seasonal customers in the summertime.

We actualy have designed our rates to put a surcharge in them with a minimum average block in the summertime to make sure that the electric customer who costs us that extra amount pays for it. And this is the only way we know how to do it.

We also encourage electric heat. We supply services to Fort Jackson—Fort Jackson is an Army post just outside of Columbia—they were putting in 7,000 tons of electric air conditioning and we went to them and offered special gas rates to put in gas air conditioning and they put it in, 7,000 tons of it.

Well, it was an economy to the Government, an economy to our gas operation, and an economy to our electric operation because basically they were using valley gas in the summer to cool the buildings and the facilities there.

Mr. O'Leary. As I understand it—this would go along with your testimony—improved load factors reduce average costs and thus hold down rates and benefit all customers?

Mr. Mustard. That is right, sir.

Mr. O'Leary. Am I correct in characterizing your testimony to mean that the consumer is better off by not having two energy sources competing in the fullest extent?

Mr. Mustard. I did not quite catch that, I am sorry, Mr. O'Leary.

Mr. O'Leary. The proponents of this bill I suppose, would try and turn that around and they would say by design your company does not permit the gas and electricity to compete fully against one another. As I understand it, you feel that ultimately the consumer is better off with respect to that situation?

Mr. Mustard. There is no doubt about it, absolutely. We do have two separate sales forces and they do compete. Now, the only time that it is common that one man talks both gas and electricity is on the industrial development level. On the retail level and even on the commercial level we operate like two separate companies and they both go out and sell their bill of goods to the customer and the customer makes a choice.

Senator Hruska. Would counsel yield?

Mr. O'Leary. Certainly.

Senator Hruska. Mr. Mustard, the example you gave of the air conditioning contract where they contemplated 7,000 and later installed 7,000 tons of air conditioning, and they chose gas instead of electricity, is not that a prime example of competition?

Mr. Mustard. It is a prime example.

Senator Hruska. It is a prime example of competition between the types of fuel?

Mr. Mustard. That is right, sir.

Senator Hruska. It is only one company, to be sure, but I would imagine economies are pretty carefully scrutinized by each customer and they considered respective merits and costs of the types of fuel available and they chose the one that would have a competitive advantage over the other. Is that not true?

Mr. MUSTARD. Exactly right, sir. That is exactly right, Senator.

Senator HRUSKA. Thank you.

Mr. O'LEARY. Mr. Mustard, in your statement you claim savings from joint operations and use as examples billing, meter reading, accounting and other financial and administrative functions.

Could you supply us for the record an estimate with the amount of savings you abtained from joint meter reading and joint billing, joint accounting?

Mr. MUSTARD. We do not have it. We can make estimates for you. What we do, we follow uniform system of accounts an we charge against these accounts whatever costs are involved.

Now, it is true that on some of these accounting functions we allocate it on the basis of the gross revenue and apply it that way. It would be difficult. I do not know how I would do it. I could guess at a company and give you an answer like that, but it would not be anything firm from my books because I cannot verify what you have asked for.

Mr. O'LEARY. Any rough estimate would be appreciated if you could come up with it.

Mr. MUSTARD. What we would have to do is to take a hypotetical company and take our customers and our costs and apply them to a hypotletical company if you want to do that. And everybody could pick that approach apart. Senator Metcalf would just tear me up on that. (Laughter.)

Senator HRUSKA. Will counsel yield?

Mr. O'LEARY. Yes.

Senator HRUSKA. To get at that figure, there would be involed a problem of cost accounting, would there not?

Mr. MUSTARD. Yes, sir.

Senator HRUSKA. For example, in billing, you do that electronically, I am sure?

Mr. MUSTARD. Yes, sir.

Senator HRUSKA. What you would have to do is engage in cost accounting whereby you would calculate a certain amount of time on that electronic computer for one purpose, to wit, the gas, and another further billing of the electricity. Similarly you would do that with your accounting. A certain amount of time is use for accounting processes for one product and the other for others. It would be a cost accounting proposition, would it not?

Mr. MUSTARD. Yes, sir.

Senator HRUSKA. And I presume it would be pretty easy to compute what the meter reading costs would be because there is one set of meter readers that do the work, and if you get two sets of meter readers, you would put out a lot more money in the payroll, wouldn't you?

Mr. MUSTARD. Yes, sir.

Senator HRUSKA. Isn't that sort of thing involved in the administration of a joint operation? Where there is one joint operation as opposed to two? Most of us who are not bachelors, most of us found out it does not cost less to have one married household than one unmarried household. It just does not work that way in most of our experiences, and the same thing is true here. Where you have one household and do a lot of things, if you are going to have a duplicate set of facili-

ties be they bookkeeping or anything else, there is going to be added expense per unit of production.

Mr. MUSTARD. That is right, sir.

Senator HRUSKA. Isn't that the general content and meaning of your reference there to attendant savings in that area?

Mr. MUSTARD. Yes, sir, and too, if you separated these two operations, No. 1, you would not have the same great IBM machine on the little gas, 150,000 gas customers, that you have on a half million electric customers. You would have a smaller machine which would not do the job quite as well as for the other company. That is why it would be hard for us to tiedown and your management—I facetiously answered Senator Thurmond a while ago about two of these cheap lawyers versus one properly paid lawyer, and it is true.

We have high caliber people at the top level in our company that you could not afford with a little 130,000 gas customers company—they could not afford the quality of people that we have on that level. They would have to hire a lot of experts and consultants on the side. It would be difficult to tiedown exactly—I do not know—I do not know how to give it to you, Mr. O'Leary. I am scared of it, to tell you the truth.

We are honest, but we are still scared of these people that can really get at you.

Mr. O'LEARY. I understand that sir. [Laughter.]

According to Moody's manual, the 1970 edition, your company operated a coach or a bus business.

Mr. MUSTARD. That is right.

Mr. O'LEARY. And according to that manual that coach company has lost money every year from 1963 to 1969. Is this loss figured into your rates base for your gas customers and electric customers?

Mr. MUSTARD. Gas and electric customers? No, it is not. But actually gas at one time was also a drag until we got natural gas. We carried it with the electric and the coach. Now we carry the coach with the electric and gas. We lose I guess a quarter of a million dollars, something like that, a year. We raise the rates, and less people ride. We do not know what to do with the thing. Give it away—we can't do that but it is there and it is a public relations thing for us, Mr. O'Leary. And we do not talk about that down in the field when we are away from the centers of population where we have these transportation systems, one in Charleston and one in Columbia, because someone will say, well, you are charging me for that fellow to ride the bus, you know. But it is true. We are carrying it with the others.

Senator HRUSKA. Did I understand you to say that that is not a computation in your rate base?

Mr. MUSTARD. No, sir. It is not a computation.

Senator HRUSKA. Separate and apart?

Mr. MUSTARD. That is right. And we carry it at a loss on our books. It helps a little bit on taxes.

Mr. O'LEARY. In your statement you talk about imbedded costs. Isn't it a fact that this imbedded cost is constantly changing due to periodic refinancing of your assets?

Mr. MUSTARD. Yes, sir. It changed from 4½ percent in 1960 to 6 percent in 1969—we sold 10 percent bonds in 1970. We sold 8.17 bonds in January or February of this year. That is what pushed the imbedded cost up. It has never been on such an incline as it is now.

Mr. O'Leary. You indicate your imbedded costs are 6.3 percent for bonds and 6.56 percent for preferred stock. Could you tell us what you would have to pay to obtain new money now?

Mr. Mustard. Well, we would guess 8½ and we are going to do some financing right soon—in June.

Mr. O'Leary. Now, since interest is deductible on your income tax, the Federal Government is paying some part of that difference between the imbedded costs and the costs of new money.

Mr. Mustard. That is true with the bonds, but it is not true with the preferred stock.

Mr. O'Leary. Could you give us some idea of what is left that squares with your statement that money costs could increase 20 to 30 percent?

Mr. Mustard. Where I got that from?

Mr. O'Leary. Yes, sir.

Mr. Mustard. In talking to the financial community. We have a man who stays with those people practically all the time and if we move from the average of 6.3 and 6½ to 8½ you would get a percentage like that if you just divide the difference by the existing rate.

Mr. O'Leary. Now, during the course of your statement you made several references to Piedmont Natural Gas which is a straight gas company.

Mr. Mustard. That is right, sir.

Mr. O'Leary. And from Moody's 1970 manual, it would appear that your residential average revenue per million cubic foot is substantially higher than Piedmont's, but that your commercial and industrial averages per million cubic feet are well below Piedmont's. Does this suggest that you keep high residential rates for gas but compete very actively against coal and oil in the industrial market?

Mr. Mustard. No; our residential promotional rates are lower than Piedmont's. Now, I called Piedmont on that to find out. I am very close to the president of Piedmont. I said, look, how many MCF a year are you getting out of your residential customers and he said, around 109, 104, some number like this, and I said, is that purely residential? He said, no. It is not purely residential. We have one common rate and this rate applies to commercial and residential.

Well, in Moody's you will notice that we had around 84 or 80, somewhere along in there, but that is purely residential. But our commercial was about 404 units in there, you see. So when you start mixing up the residential with the small commercial, you do not have any contrast and I took it out of our papers because of that. You cannot get the right answer. It will not come out.

I tried it with Atlanta Gas Light and tried it with Piedmont and it would not come out because we have a residential rate solely for the residential and they do not. And you cannot identify it.

Mr. O'Leary. As a combination can you use residential customers where you have a monopoly to subsidize competition against noncombination companies in the industrial market?

Mr. Mustard. I do not believe I understand that, Mr. O'Leary. Would you say it again for me?

Mr. O'Leary. Well, as a combination company, could you, for example, use your residential customers to subsidize competition against noncompany sources such as coal and oil in the industrial market?

Mr. MUSTARD. You mean to make them pay for the difference in rate that we would give? Oh, no, we would not do that.

Mr. O'LEARY. Mr. Mustard, I would like to get your reaction to the question I asked Mr. Bloom, namely, based on your 30 years' experience with the Public Utility Holding Act, during which combination companies had been forced to divest themselves of one system unless they could show a substantial loss of economies, do you think our experience under that act has been bad?

Mr. MUSTARD. I am not qualified to answer that, Mr. O'Leary. I know that we sold our Charleston gas property, some years ago, about I guess, 30 years ago, and we just beat the tar out of them. We just took the electric and made them almost go under and then bought them back because they could not make it.

Now, at that time, that was a small company. We had about, oh, I would guess 10—6,000 to 10,000 customers and the electric was much stronger and the competition just ate the gas up. But I do not know of the other companies. We do not have many combination companies in the southeast, actually. We have one of the few. VEPCO has a few customers up here, and there is one little Florida company down there somewhere—I never heard of it, I saw something from it last night. Where was that? A little tiny company. But that is the only other combination I know of.

Mr. O'LEARY. Thank you.

I have no further questions.

Senator HRUSKA. Mr. Bangert?

Mr. BANGERT. No questions.

Senator HRUSKA. Thank you very much for your testimony, Mr. Mustard.

Mr. MUSTARD. Thank you so much, sir.

SOUTH CAROLINA ELECTRIC & GAS CO.,
Columbia, S.C., May 20, 1971.

HOWARD E. O'LEARY, Jr., Esq.,
Chief Counsel and Staff Director, Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, U.S. Senate, Washington, D.C.

DEAR MR. O'LEARY: We are returning herewith print out on the testimony given by me on Bill S. 403 before the Subcommittee on Antitrust and Monopoly on May 11, 1971 which was passed to us for corrections. We have made the corrections in ink and will greatly appreciate it if you will have them transcribed on the master print.

We are also enclosing the statistical data showing residential cost comparisons on a simple BTU basis of electricity versus gas. Senator Hruska, on page 79 lines 17 through 22, made a query concerning these data and asked that evidence be placed in the records substantiating my statement that electricity is at least three times more costly than gas on a simple BTU basis throughout our Country. Please place this information as an exhibit in the testimony.

Senator Hruska also requested that we furnish for inclusion in the record population growth statistics in our service area. This is covered on page 77 of the testimony beginning with line 12.

According to the U.S. Department of Commerce Census of Population dated 1970 the ten-year growth of the State of South Carolina is 8.7%. The growth for the service area served by South Carolina Electric & Gas Company was 10.8%. This is in spite of the fact that certain of the counties served by our Company lost population between 1960 and 1970. We believe that the migration has now stabilized and that in forecasting the next ten years that the population growth in our service area will be substantially more than that of the State and will be several percentage points higher than that experienced between 1960 and 1970. Our estimate is that it will be somewhere in the order of 12 to 14%. We shall greatly appreciate it if you will see that this information is properly placed in the testimony.

I particularly appreciate your kindness during my recent visit in Washington and your help in assisting me to "get the records straight" with my testimony. Congratulations on the splendid job that you are doing as Chief Counsel for the Subcommittee.

Sincerely,

ALLAN C. MUSTARD.

RESIDENTIAL COST COMPARISON—SIMPLE B.T.U. BASIS, ELECTRICITY VERSUS GAS

Company	Average annual gas use million cubic feet		Average annual bill		Average cost per kilowatt-hour		Equivalent annual electric bill	Ratio electric and gas cost
Piedmont Natural Gas, Charlotte, N.C.	113.7		$139.13					
Duke Power Co., Charlotte, N.C.	113,700,000	B.t.u.'s	33,314 kw.-hr. at		$.0172	=	$573.00	4.12/1
	3,413							
Washington Gas Light, Washington, D.C.	172.5		$226.48					
Potomac Electric Power, Washington, D.C.	172,500,000	B.t.u.'s	50,542 kw.-hr. at		$.0205	=	$1,036.11	4.57/1
	3,413							
South Carolina Electric & Gas Co., Columbia, S.C.	82.6		$112.00					
South Carolina Electric & Gas Co., Columbia, S.C.	82,600,000	B.t.u.'s	24,202 kw.-hr. at		$.0189	=	$457.42	4.08/1
	3,413							
Pacific Gas & Electric Co., San Francisco, Calif.	114.45		$91.78					
Pacific Gas & Electric Co., San Francisco, Calif.	114,450,000	B.t.u.'s	33,534 kw.-hr. at		$.0208	=	$697.51	7.60/1
	3,413							

Senator HRUSKA. The next and final witness will be Fred L. Woodworth, assistant director of the Office of Policy Planning and Evaluation of the Federal Trade Commission.

Mr. Woodworth will give a statement on behalf of Miles W. Kirkpatrick, the Chairman of the Federal Trade Commission.

STATEMENT OF FRED L. WOODWORTH, ASSISTANT DIRECTOR, OFFICE OF POLICY PLANNING AND EVALUATION, FEDERAL TRADE COMMISSION

Mr. WOODWORTH. Thank you, Mr. Chairman, for the opportunity to appear before the Subcommittee on Antitrust and Monopoly to make a statement on behalf of the Federal Trade Commission with respect to S. 403, 92d Congress, 1st session, a bill "to prohibit certain combinations and control between electric and gas utilities."

Chairman Kirkpatrick of the Federal Trade Commission regrets that he is unable to appear before you today. He has asked that I present this brief statement on his behalf and on behalf of the Commission itself. These remarks that I am about to present are virtually identical to those contained in the Commissioner's legislative report on S. 403, such report having been approved by the Commission only a few weeks ago.

The purpose of S. 403 is to prohibit either an electric utility company or a gas utility company from owning or operating the facilities of the other after January 1, 1973. Implementation would be vested in the Federal Power Commission.

In comments made in the Senate on S. 4013, an identical bill introduced in the 91st Congress, 116 Congressional Record, S. 9554 (daily edition, June 23, 1970) and 116 Congressional Record, E7149 (daily edition, July 30, 1970), the sponsor, Senator Metcalf, explained that the bill is intended to eliminate "combination gas-electric companies," and, thus, to stimulate competition between electricity and gas and induce "lower rates and better services."

The Federal Trade Commission has long been aware of the potential lessening of competition which adheres in the common ownership or control of different types of energy sources. In its final report to the Senate pursuant to Senate Resolution No. 83, 70th Congress, on "Economic, Corporate, Operating, and Financial Phases of the Natural-Gas-Producing, Pipe-Line, and Utility Industries, with Conclusions and Recommendations," the Federal Trade Commission in the summary statement of recommendations made the following recommendation:

I am quoting now from our old report in this area of December 31, 1935:

> Because of the fact that gas and electricity are increasingly competitive, and in many communities are the two chief sources of power and light, and because 3 of the 4 dominant interests in natural gas and gas pipe lines also are in the electrical-utility field, it seems obvious that such double control presents a problem meriting serious consideration. The Commission therefore recommends that, with proper limitations as to time and place, divorcement of the two be made compulsory.

(Document 92, Part 84–A, 70th Congress, 1st Session, page 617)

As a result of this study and some of the comments and recommendations that accompanied it, the Federal Power Commission was established and now has primary cognizance of the matters dealt with in S. 403.

Nevertheless, the Federal Trade Commission's primary mission is the fostering of competition, and it has the responsibility for eliminating practices which may substantially lessen competition.

For example, this Commission has initiated an investigation which will focus upon the reporting, estimating and deployment of reserves by the natural gas companies with emphasis upon the antitrust and consumer protection questions which are involved in the handling of gas reserves. The Commission is also currently emphasizing investigation of merger transactions which involve acquisitions by oil companies in the coal area and in other energy areas.

Thus, while the Federal Trade Commission recognizes the primary interest of the Federal Power Commission in S. 403 as the agency which would be required to enforce the mandatory separation of gas and electric utilities, it also recognizes the monopolistic and anticompetitive potential of common ownership of such utilities and, consequently, the need for separation where the public interest requires.

For this reason the Commission endorses the objective of S. 403. The Commission, however, notes that the blanket prohibition, without exception, of common ownership of gas and electric utilities, makes no allowance for instances where such common ownership may work to the advantage of the consumer. It is suggested, therefore, that the Federal Power Commission be given the discretion to permit common ownership in instances where it determines, after considering the comments of the Federal Trade Commission and the Department of

Justice in each such instance, that such common ownership is not destructive of competition and is beneficial to the consumer.

Subject to these foregoing comments, the Federal Trade Commission defers to such recommendation as the Federal Power Commission may make concerning S. 403.

Mr. Chairman, that concludes the prepared statement which I presented on behalf of the Commission.

Senator HRUSKA. Well, thank you, Mr. Woodworth.

You make a suggestion in the latter part of your statement that the Federal Power Comission be given discretion to permit common ownership in instances where it determines that that common ownership is not destructive of competion and is beneficial to the consumer.

Earlier in your statement, however, you say that the Federal Trade Commission has long been aware of the potential lessening of competition which adheres to the common ownership or control of different types of information, and so on.

Now, the Federal Power Commission was established and has primary cognizance of the matters now dealt with in S. 403, has it not?

Mr. WOODWORTH. Yes.

Senator HRUSKA. That is what you say in your statement. And, of course, your Commission's primary mission is the fostering of competition.

Mr. WOODWORTH. Yes, sir.

Senator HRUSKA. Now, I imagine the proponents of this bill and those who see in it a source of harm have the ultimate goal that there should be competition, competition should not be lessened, and the consumers' rights and the benefits coming to them should be respected. But the way S. 403 would go about it is to say all of these combination companies are no good. They will be prohibited. But the Federal Power Commission then in the beneficence of its magnanimity will say but certain of you will be excused because your method of operation is not anticompetitive.

The way the Federal Power Commission now operates is this, is it not, that these companies operate.

Mr. WOODWORTH. I think it is. I cannot say that I am absolutely certain about the technicalities that are involved in it.

Senator HRUSKA. How would you describe it? You indicate in your statement and you testify that the Federal Power Commission has primary cognizance of the matters dealt wtih in S. 403?

Mr. WOODWORTH. What I meant to say, Mr. Chairman, in making that statement, and what the Commission means to say here, is this. We have essentially deferred or would prefer to be guided by the judgment of the FPC as to the overriding need, as to the basic question of the need for this sort of legislation. We think to a very great extent the question of the need for this sort of legislation is a function of developing a careful empirical inquiry into the relative performance characteristics of combinations versus the other types of utilities, and what we are saying here is similar to Senator Metcalf when he said that his proposal of S. 403 was intended to be a pleading which would open up an area where there is great energy complexity and also important antitrust issues present, that we prefer to be—we would be guided essentially by the judgment of the FPC in this area as to the need for legislation.

In any event, we would not favor a blanket prohibition of any sort because we are very concerned about issues such as economies and that sort of thing but that whatever is to occur in this area—and we do not take the lead because of our absence of recent empirical work in the area—we do not take the lead of making definite statements on this. What we are saying is that if there is to be consideration or need for more in this area, we wish to have antitrust considerations be considered.

Senator HRUSKA. This still impresses the acting chairman of this subcommittee that the FPC presently has jurisdiction.

Mr. WOODWORTH. Let me try to respond to that question and again let me say, sir, I am not absolutely clear about the technicalities on this. When I stated as I did that in our view the FPC should have primary cognizance of the area, I meant to say that this area was uniquely one within their expertise. I did not mean, in that statement, to be referring to questions of legal jurisdiction. My understanding of the jurisdictional elements is that the Federal Power Commission while it does have jurisdiction pursuant to a portion of the FPC Act that I cannot now cite to you has jurisdiction with respect to future transactions but it does not presently have technical jurisdiction with respect to existing combinations, the area which is the principal focus of this hearing.

Senator HRUSKA. Well, I cannot quite follow that description. What you say is that they have jurisdiction and they have cognizance of it as a result of the creation of the Federal Power Commission, but what you want is a law that would say all of these combination corporations are prohibited?

Mr. WOODWORTH. No, sir. That is——

Senator HRUSKA. Let me finish. That is what I read here in your statement. The bill makes no allowance for instances where such common ownership may work to the advantage of the consumer. It is suggested, therefore, that the Federal Power Commission be given the discretion to permit common ownership in instances where it determines that such combination of common ownership is not destructive.

Now, do I understand that you want the bill enacted into law, but with the reservation in the Federal Power Commission of a right to say they are all prohibited but the good boys are going to be separated from the bad boys and the bad boys will not be allowed to have a combination form? Is that the position of your statement?

Mr. WOODWORTH. No, sir.

Senator HRUSKA. Then tell us what it is.

Mr. WOODWORTH. I am sorry if the statement is confusing or that I have not been able clearly to respond to the questions that you have raised. But let me try to summarize the position as I feel it is stated.

Turning to the final portion of the statement which I have presented, I have indicated the FTC's basic deferral on the position that the Federal Power Commission wishes to take with respect to the needs, if any, in this judgment as to this type of legislation being passed, but the basic question as to whether a careful analysis of economic performance data should lead to the conclusion that public policy should require some additional legislation here is one that we leave to the FPC.

We defer to their judgment on that matter.

We do say, however, that in any event, we are clear in our view, because of the complexity of the technical energy issues and the competitive issues that are presented and their impossibility to be treated with generalization, that in no event should there be a blanket prohibition of the sort that would appear in S. 403. If there is to be some legislation in this area—and that is something we do not take a primary position on but defer to the FPC—that competitive issues should receive treatment in the course of that consideration. That is the position that——

Senator HRUSKA. Well, I am glad to hear you say that, because the other impression has registered itself on my line of reasoning. What you have here in plain undoubted English:

> The Federal Power Commission should be given the discretion to permit common ownership in the instances where it determines that such ownership is not destructive of competition and is beneficial to the consumer.

Mr. WOODWORTH. Well, again I am sorry that either my presentation or the area or the statement itself leaves you with a sense of ambivalence. I think I have tried to clarify the position of the Commission as I understand it and I think that it is not the position that you——

Senator HRUSKA. Well, I am sorry if I misconstrued it, but in my mind it is open to that construction. In short, you would be willing to defer, then, to the recommendation of the FPC as to whether or not S. 403 should be enacted. Is that what you are saying?

Mr. WOODWORTH. Yes. And again let me respond and say yes, essentially because—the fact that we do not have a great recent wealth of economic expertise in the sense of the development of performance studies of the sort that would have to be involved in any sort of inquiry such as this, our position is one of deferring to the FPC with respect to the general area, the necessity of this type of legislation.

What we have said—and maybe we have sort of placed the paragraphs in inverse order for your purposes—what we have meant to say, in no event should there be a blanket prohibition and that however this process of analysis occurs, competitive issues should receive due treatment in the course of it.

Senator HRUSKA. Well, now, if this bill would make allowance for instances where such common ownership may work to the advantage of the consumer, would that make it a better bill? You say there is no such allowance now in the bill. But if an allowance were made in the bill that would admit common ownership and permit common ownership, where common ownership does work to the advantage of the consumer, would that make it a better bill?

Mr. WOODWORTH. If there were to be a bill that would make it a better bill in our estimation?

Senator HRUSKA. If a bill were to be had at all?

Mr. WOODWORTH. Yes, sir.

Senator HRUSKA. Well, could a bill be envisioned here that could accomplish this purpose by providing that in instances where combination ownership does the work to the advantage of the consumer, then it would be prohibited? Would that be another way of putting legislation of this kind in?

Mr. WOODWORTH. It would be a more standard empirically oriented approach to this type of problem, yes.

Senator HRUSKA. That is the present thrust of the antitrust law generally in this country, isn't it?

Mr. WOODWORTH. Yes.

Senator HRUSKA. That those corporations, those businesses which operate in a fashion to lessen competition, for example, or restraint of trade, they shall not be allowed. But the government has to prove its case.

Mr. WOODWORTH. In essence, this objection that we have expressed to the blanket prohibition element of this bill is analogous to the per se rule of reason, the differential that exists in antitrust theory.

Senator HRUSKA. Well, I am glad for your explanation, for that confusion that temporarily resided in my mind.

Mr. WOODWORTH. Well, I hope it has been clarified.

Mr. BANGERT. Mr. Chairman, perhaps it would help the record if we would put in the applicable Federal Power Commission statutes that govern?

Senator HRUSKA. The one to which Mr. O'Leary has referred several times?

Mr. BANGERT. Section 203(a) of the Federal Power——

Senator HRUSKA. That would be fine. Let us insert it at this point.

(The document referred to follows:)

SECTION 203(A), FEDERAL POWER ACT

(a) No public utility shall sell, lease, or otherwise dispose of the whole of its facilities subject to the jurisdiction of the Commission, or any part thereof of a value in excess of $50,000, or by any means whatsoever, directly or indirectly, merge or consolidate such facilities or any part thereof with those of any other person, or purchase, acquire, or take any security of any other public utility, without first having secured an order of the Commission authorizing it to do so. Upon application for such approval the Commission shall give reasonable notice in writing to the Governor and State commission of each of the States in which the physical property affected, or any part thereof, is situated, and to such other persons as it may deem advisable. After notice and opportunity for hearing, if the Commission finds that the proposed disposition, consolidation, acquisition, or control will be consistent with the public interest, it shall approve the same. [Title 16 USCA Sec. 824(b), Act of June 10, 1920, c. 285 as added Aug. 26, 1935, c. 687, Title II, Paragraph 213, 49 Stat. 849.]

Senator HRUSKA. Mr. O'Leary, is that the section to which you referred from time to time in your questioning here?

Mr. O'LEARY. Yes, sir.

Senator HRUSKA. At an appropriate time. That would be helpful, Mr. Bangert.

Thank you for the suggestion.

Senator HRUSKA. Mr. O'Leary, have you any questions at this time?

Mr. O'LEARY. Mr. Woodworth, I think that the proponents of the bill Senator Metcalf included, would recognize that a blanket prohibition is not in the public interest and that we must look for some sort of standard if this bill is to be considered on its merits.

Do you suggest that we begin with the Public Utility Holding Act? We do have a standard enunciated there and we do have some case law.

Mr. WOODWORTH. I will respond to your question, Mr. O'Leary, but first of all I will do so on the condition of explaining that I am not terribly well versed in the FPC's administration of the Public Holding Company Act. There was to be legislation in this field—part of the basis for which would be a concern about competitive is-

sues—I am sure that really everyone that I have heard testifying here today seems to be in agreement that there would have to be some sort of economically meaningful standards utilized in its adoption and execution by whatever governmental agency might be involved.

My understanding of the Public Utility Holding Company Act is that the only economic standard really articulated there and out of which so much litigation has been produced revolves around the language, "the loss of substantial economies" or something of that sort. I think that if someone were looking for standards in this area, if there were to be a bill in this area, there should be other things involved. I cannot say that I know exactly what they would be but I think that in terms of economic analysis and consumer analysis, there should not be prohibitions absent findings of such things as—in addition to the absence of, "loss of economies"—probability of favorable impact in terms of energy rates, viability of separate entities, absence of derogation of service, and this sort of thing.

In other words, I think that there would have to be more ties than that, Mr. O'Leary.

Mr. O'Leary. I have no further questions, Mr. Chairman.

Senator Hruska. Mr. Bangert?

Mr. Bangert. No questions.

Senator Hruska. Mr. Woodworth, you referred to a report that has been approved by the commission only a few weeks ago. That has not been released yet, has it?

Mr. Woodworth. No.

Senator Hruska. They have approved it?

Mr. Woodworth. They have not yet cleared it.

Senator Hruska. They have not yet cleared it?

Mr. Woodworth. They are——

Senator Hruska. Is there any indication when it will be released?

Mr. Woodworth. I talked to the gentleman from OMB this morning and he did not give any indication.

Senator Hruska. That is a strange thing that he would not know when it would be forthcoming.

Mr. Woodworth. My understanding is that although what I have done here in my testimony is summarize the letter verbatim as requested by our commission, I think that what is—the letter is now receiving the comments of the Department of Justice and FPC at this point.

Senator Hruska. That is fine. I did not mean to intimate any critical attitude because they have not cleared it yet. They do have a big volume of work. I imagine, however, since these hearings will be going over into next month we may have action by them at that time, in which event we can consider the inclusion of that report in this record so it will be complete in line with your testimony.

Mr. Woodworth. Yes, sir.

Senator Hruska. Any other questions?

If not, thank you for your statement.

All right, gentlemen.

The committee will now stand in recess until 10 o'clock tomorrow morning in this same room, at which time we will have the testimony of four witnesses on the same bill, S. 403.

Thank you very much, gentlemen.

The committee is now adjourned.

(Whereupon, at 1:05 p.m. the Subcommittee on Antitrust and Monopoly of the Senate Committee on the Judiciary adjourned, to reconvene the following morning at 10 a.m., Wednesday, May 12, 1971.)

PROHIBIT CERTAIN COMBINATIONS AND CONTROL BETWEEN ELECTRIC AND GAS UTILITIES

WEDNESDAY, MAY 12, 1971

U.S. SENATE,
SUBCOMMITTEE ON ANTITRUST AND MONOPOLY,
OF THE COMMISSION ON THE JUDICIARY,
Washington, D.C.

The subcommittee met, pursuant to recess, at 10:10 a.m., in room 2228, New Senate Office Building, Senator Roman L. Hruska presiding.

Present: Senator Hruska (presiding).

Also present: Howard E. O'Leary, staff director and chief counsel; Charles Bangert, general counsel; Peter N. Chumbris, chief counsel for the minority; Hastings Wyman, minority counsel; Patricia Bario; editorial director; and Janice Williams, clerk.

Senator HRUSKA. The subcommittee will come to order.

The hearing will resume on S. 403.

The first witness will be Ralph P. Coleman, Jr.

The Chair announces at this time that tomorrow's hearing will commence at 11 a.m. in room 1202 in this same building rather than in this room.

Mr. Coleman, will you come forward.

Your statement will be placed in the record in its entirety. You may summarize it or highlight it in your own fashion as you please.

STATEMENT OF RALPH P. COLEMAN, JR., EDITOR AND GENERAL MANAGER, LISTED SECURITIES JOURNAL, JENKINTOWN, PA.

Mr. COLEMAN. I am an investment manager and publisher of a financial magazine. For the last 9 years I have been chairman of the Committee for an Independent Philadelphia Suburban Gas Company and the objective of our committee coincides with that of this bill, to separate the gas and electric operations of a combination utility.

The utility we are dealing with is the Philadelphia Electric Co. which in 1970 derived 80 percent of its revenues from electricity, about 16 percent from gas, and we have tried to work as an independent share-owner group persuading the Philadelphia Electric Co. to do voluntarily what this bill would make compulsory.

We started in 1963. The Philadelphia Electric had an independent study made at the cost of over $100,000. Our committee was never permitted to see the results of this study. We have spoken at several annual meetings on this subject and this past year we just had our proposal included in a proxy statement. We suggested a rights offering and a spinoff of the gas operations as a separate independent com-

pany. The management was opposed to this proposal as you can imagine. It took five times as much space to answer as we were allowed in our proposal. We got over 725,000 shares—over 4,000 shareholders, supporting our proposal.

This worked out to over 4 percent of all shareholders voting and a little under 3 percent of all shares voting.

I think you can see that while we were encouraged, this was a long way from success if we are really to separate the gas and electric operations.

Now, in my testimony I had summarized how Philadelphia Electric has operated as a combination utility in its gas operations. Fortunately, from PE standpoint, they have only the suburbs to serve, not like Consolidated Edison which has both gas and electric in its entire service territory; and Baltimore Gas & Electric. This should make for a really growth utility much like Northern Illinois Gas which was spun out of Commonwealth Edison in the mid-fifties. And yet if you will examine the data, you will note that compared to the Northern Illinois Gas Co. which really is the type of company that this bill envisions—it was a part of a combination utility and in the 1950's, Commonwealth Edison, which serves electricity to Chicago and suburbs, decided to spinoff this property to the shareholders.

Well, it has been a tremendous success since that time and Northern Illinois Gas has established itself as one of the outstanding gas utilities in the country. And as you will notice, taking all of the basic yardsticks, comparing Philadelphia Electric and Northern Illinois Gas, both serving the suburban area, you will see in total revenues, house heating revenues, gas sales, number of customers, commercial-industrial customers, and house heating customers, that Northern Illinois has outgained Philadelphia Electric on practically everything almost 2 to 1, a much larger growth from a much larger base.

I think this is particularly significant. And the conclusions that we reached from this analysis were that Philadelphia Electric's gas operations have been inhibited because the top management of the PE has not encouraged the aggressive growth that the system may well have developed if it had been independent and not simply an adjunct of the electric operation.

Now, perhaps as an independent entity the PE's gas operations would not have grown as rapidly in northern Illinois but I am sure the growth would have been much greater than it was as a combined utility.

Now, I think we have to recognize that over the past decade electricity and gas have grown increasingly competitive, invading each other's territories in a way not being possible years ago. As this competition intensifies, every combination company is faced more and more with a conflict of interest problem.

Now, just how much of the limited resources should be devoted to electricity and how much to gas? I think this is one of the key questions that I do not believe that the top management of many combination companies have been willing to face squarely and honestly, and I think this is particularly true where the electric is dominant as the case with Philadelphia Electric and to a lesser extent where it is a company such as Consumers Power Co. or Northern Indiana Public Service where there is a fairly even balance between the two energy sources and the gas operation can carry its own weight.

How, today, electricity is used for house heating and gas can be used for air conditioning. These were areas where the other energy source up until now had been the sole or prime supplier, and the total energy package concept makes it feasible for entire shopping and apartment complexes to generate their electricity by the use of gas.

Now, this situation creates all kinds of problems for a combination utility when it decides on a new construction project where either energy source may be used.

Now, you can bet your bottom dollar that where the electrical generation is dominant the utility will never recommend a total energy package with electricity supplied by gas. And then, of course, there is another problem of conflict where natural gas is used as a boiler fuel for the generation of electricity.

Now, in the emphasis on minimum pollution raw materials, natural gas has become a very desirable fuel. Now, the question of how much of a combination company's gas allotment goes to gas and how much is used as a fuel in electrical operations is an intriguing one which I believe deserves further investigation. It may well present another conflict-of-interest problem of the first magnitude and I do think that this deserves further study.

In other words, these companies, these combination companies, get so much gas allotted to them. How much of it goes for boiler fuel, how much goes for the strictly gas operations?

Now, in view of the foregoing, you might think I enthusiastically and wholeheartedly support S. 403. I do agree with the basic objectives but I cannot completely endorse this bill in its present form because I do not believe that its authors were fully aware of some of the very difficult problems which would result if this legislation were to be enacted in its present form.

First off, I disagree with section 403 which would excuse any cooperatively, federally, municipally, or other publicly-owned organization from the provisions of this bill. Why should consumers who happen to be customers of these organizations be denied the competitive benefits of the bill any more than consumers who happen to be customers of stockholder-owned combination companies? I think this is rank discrimination against private enterprise.

Second, the arbitrary cutoff date of January 1, 1973, is a very short period of time for combination utilities not only to plan but to dispose of one or other of their operations and to have completed such disposal. I believe this to be a totally unrealistic timetable, particularly if our securities market would happen to fall and the bear market conditions we underwent in 1969 and 1970 resumed.

Third, to make a wholesale prohibition of all combined operations is rather illogical because in some cases the smaller unit may really not be a viable independent entity. I think we should keep this in mind. I do not think it is going to happen in most of the cases but I think that it can happen enough that there should be exemptions to this bill.

Now, if the combination utility can clearly prove that because of the smallness of the independent operation it would not be viable, I think it should be allowed to retain such entity, and where a combination utility derives 30 to 50 percent of its revenues from one source, both sources tend to get pretty good care from top management. But even in these cases I feel separation is the best solution. I think the thrust

of this bill should be directed to those companies where either of the energy sources is dominant and the competitive energy source suffers correspondingly. To make this bill truly effective, I think we should offer incentives rather than punishment to the organizations that would be affected by it because up until now a combination company has been a perfectly legal thing and why it should not be is hard for some of these people to understand.

In order to effect this, you have the problem of human nature, human inertia, and looking at it that way rather than idealistically, these people would be creating their own competition and disturbing what up until now has been a rather cozy relationship and you cannot really blame them in a sense for dragging their heels on this and there is a certain amount of rationale to their arguments about duplication of staff, facilities, billing operations, and possibly higher finance charges if the companies were separated.

However, I feel that the advantages of separation outweigh the disadvantages, but you cannot deny the fact of expenses and disadvantages of separation.

Along these lines, I think that this bill should be amended to provide financial incentives for combination utilities to split their gas and electric operations, and I think these incentives could best take the form of tax credits which would diminish as the final deadline for compliance with the bill is reached. This is the plan that I suggest.

First, establish an initial target deadline of compliance beginning January 1, 1973, and extending to a final date of January 1, 1978.

Second, provide a tax credit equal to the average posttax net income of the operation to be spun off over the 5-year period to December 31, 1971. For example, if the net income of the gas operations of a combination utility averaged $10 million a year over the 5 years to December 31, 1971, this would be the tax credit available. This tax credit would be available both to the company which is separated and the remaining company with $10 million tax credit being made available to each company.

It would be an incentive to encourage separation and also would help to defray some of the very real expenses that separation would entail.

Third, to encourage companies to separate at the earliest possible time, it is suggested that the tax credit be established on a diminishing scale. The tax credit would be available only over a 5-year period in equal amounts to be granted in each year. Further, the tax credit would only be made available to the combination company after separation is effected. For example, in the case indicated above the $10 million tax credit for each company would be available only after separation was achieved. If separation was effected by January 1, 1973, the companies would be entitled to the full $10 million tax credit, receiving $2 million in each year through 1977. On the other hand, if this particular combination utility did not complete its separation until the end of 1975 it would only be entitled to tax credits of $2 million for each company for the 2 remaining years of 1976 and 1977. And, of course, a combination company that did not comply with the bill through 1977 would be entitled to no tax credits whatsoever.

In conclusion, I will state that as a fervent supporter of private enterprise it pains me to offer any support whatsoever to a govern-

mental bill that further encroaches on the operations of business enterprises. However, I think the healthy competition that would result from the implementation of this bill, incorporating the amendments I have suggested, would outweigh the disadvantages of governmental interference.

My own experience with Philadelphia Electric Co. indicates that it is extremely difficult, if not impossible, to develop shareholder support for voluntary separation. As I have said before, I sincerely regret that the governmental powers must be utilized in this situation but the continuing stonewall reluctance of the combination utilities to voluntarily do anything about this situation has undoubtedly been a contributing factor in the creation of bill S. 403. I support the bill, but only if it is modified to conform with the realities of the utilities world and only if the affected utilities are given the appropriate incentives they should receive for complying with its provisions.

Thank you for listening to my remarks.

(The prepared statement of Mr. Coleman follows.)

Testimony resumes on p. 56.

TESTIMONY OF RALPH P. COLEMAN, JR.

My name is Ralph P. Coleman, Jr., 1916 Hilltop Rd., Jenkintown, Pa. I am editor of an investment magazine, Over-The-Counter Securities Review, and president of a mutual fund, Over-The-Counter Securities Fund. For the past nine years I have been Chairman of the Committee for an Independent Philadelphia Suburban Gas Co. The objective of our Committee is the same as that envisioned by Bill S. 403: to separate the electric and gas operations of a combination utility by organizing the gas operations as an independent, competitive gas company. The utility our Committee has dealt with in this situation is Philadelphia Electric Co., which in 1970 derived 82% of its revenues from electricity, 16.1% from gas and 2.2% from steam. To our knowledge, we are the only permanent independent shareowner group which has urged a utility to voluntarily do what Bill S. 403 would make compulsory. Our committee has regularly requested PE to spin off its gas operations as a separate company. Management responded by authorizing an independent engineering study of the subject in 1963. Our Committee was never permitted to see the results of that study. At several annual meetings we have spoken on this subject. Just this year, for the first time, we had our proposal placed in the proxy statement, suggesting a rights offering under which PE could take the proceeds from the sale of the gas operations and use them to pay for its hugely expensive electric expansion program. Management was opposed to the proposal and took five times as much space to explain their opposition as we did to explain our proposal. Without any expenditure of time or money on behalf of our proposal over 725,000 shares were voted by over 4,000 PE shareholders in support of our plan. This worked out to over 4% of all shareholders voting and a little under 3% of all shares voting. We were encouraged by this support but I think you can see we're a long way from success if we are to rely completely on PE shareholders to separate the gas and electric operations.

What has been the record of this one combination utility in regard to its gas operations? Philadelphia Electric is fortunate in its gas operations in that, unlike Consolidated Edison in New York or Baltimore Gas & Electric, it does not have to serve the stagnant or declining central city area. It serves only the rapidly growing suburbs of southeastern Pennsylvania. In this sense, PE is in much the same geographical position as Northern Illinois Gas Co., which serves the suburban area around Chicago and was a spin-off from Commonwealth Edison Co. in mid-1950s. I think a comparison between PE and Northern Illinois Gas is most meaningful because it shows how two companies in roughly comparable suburban service territories have responded to the challenge of growth, the one a part of an electrically-dominated combination utility, the other an independent gas company that was given its "freedom" by its former electrically-oriented parent.

This table provides significant percentages on just how the two operations have grown in the past decade:

PERCENTAGE GAINS—1960 TO 1970

[Based on annual report data]

	Total revenue	House heat revenue	Gas sales	Number of customers	Community and industrial customers	House heat customers
Philadelphia Electric (Gas only)	80.2	58.5	94.8	15.8	30.3	39.4
Nortnern Illinois Gas Co	147.5	100.9	174.1	50.0	128.4	102.7

The above figures are convincing evidence to me that as a part of a combination, electrically-oriented utility, Philadelphia Electric's gas operations growth has been inhibited because PE top management has not encouraged the aggressive growth that the system may have well developed if it had been independent and competitive with PE's electric operations and not simply an adjunct of those operations. Perhaps, PE's gas operations as an independent entity would not have registered as GREAT a growth as that of Northern Illinois. But I am convinced that the growth would have been MUCH GREATER as an independent company than under the combination setup. It should further be noted that the percentage gains achieved by Northern Illinois Gas were more difficult to achieve because Northern Illinois started with a much larger base than did PE's gas operations.

Over the past decade, electricity and gas have grown increasingly competitive, invading each other's "territories" in a manner not dreamed possible only a few years ago. As this competition intensifies, every combination company is faced more and more with a "conflict of interest" problem. Just how much of a limited amount of resources should be devoted to electricity and just how much to gas? This is a very serious question and I don't think the top managements of many combination companies have been willing to face it squarely and honestly. Particularly is this true where the basic thrust of the utility is electrical, as is Philadelphia Electric, where 80% of revenues are from electricity. It is true to a lesser extent in companies such as Consumers Power Co. and Northern Indiana Public Service where there is a fairly even balance between the two energy sources and the gas operation can pretty well take care of itself.

Today, electricity can be used for house heating and gas can be used for air conditioning, areas in which the "other" energy source has until recently been the sole supplier. The total energy package concept has made it feasible for entire shopping and apartment complexes to generate their electricity by the use of gas. Certainly, such a situation creates all kinds of problems for a combination utility when it decides to bid on a new construction project where either energy source may be used. You can bet your bottom dollar that where the electrical operation is dominant the utility will NEVER recommend a total energy package with electricity supplied by gas Another potential area of conflict is the use of natural gas as a boiler fuel for the generation of electricity. With the emphasis on minimum-pollution raw materials, natural gas has become a very desirable fuel The question of how much of a combination company's gas allotment goes to gas operations and how much is used as a fuel in electrical operations is an intriguing one which I believe deserves further invesigtation. It may well present a conflict of interest problem of the first magnitude for combination companies.

In view of my foregoing remarks you might think that I would enthusiastically and wholeheartedly support Bill S. 403. While I do agree with the basic objectives of the bill I cannot completely endorse it in its present form because I do not believe the authors of the bill were fully aware of some of the very difficult problems that would result if this legislation were to be enacted in its present form.

First off, I disagree with Sec. 402 which would excuse any cooperatively, federally, municipally, or other publicly owned organization from the provisions of the bill. Why should consumers who happen to be customers of these organizations be denied the competitive benefits of the bill anymore than consumers who happen to be customers of stockholder-owned combination companies? I think this is rank discrimination against private enterprise.

Secondly, the arbitrary cutoff date of January 1, 1973 is a very short period of time for combination utilities to not only plan to dispose of one or other of their operations but to have completed such disposal. I believe this to be a totally

unrealistic timetable, particuuarly if our securities markets would happen to fall into the terrible conditions they underwent in the Bean Market of 1969–70.

Third, to make a wholesale prohibition of all combined operations is rather illogical because in some cases the smaller unit may really not be a VIABLE independent entity. I'll admit this won't be the situation in the majority of cases but I do think there could be a sufficient number of exceptions to make it worthwhile to consider the granting of exemptions to the bill. If a combination utility can clearly prove that because of the smallness of an independent operation it would not be a viable economic entity it should be allowed to retain such entity. Also, as I indicated earlier, where a combination utility derives 30% to 50% of its revenues from one energy source, BOTH sources tend to get tender loving care from top management because executives in each division have the economic power to stand up for their rights. Nevertheless, even in these cases, I feel the ideal situation would be one in which the companies are truly independent and competitive.

Basically, I think the thrust of this bill should be directed primarily to those companies where either of the energy sources is dominant and the competitive energy source suffers accordingly. Of course in these cases the smaller unit to be spun off should be economically feasible because if it isn't, everyone, customers as well as shareholders, will suffer.

For this bill to be truly effective I think it should offer incentive rather than punishment to the organizations that would be affected by it. If it would be to the economic advantage of the utilities involved to separate their gas and electric operations I think more managements would be willing to undertake such a separation. Looking at the situation primarily in terms of human nature and human inertia, rather than idealistically, it is understandable why combination companies virogously oppose separation. They are, in effect, creating their own competition and disturbing what, until now, usually has been a cozy relationship. You can't really blame them if they drag their heels. Additionally, a certain amount of rationale is inherent in their arguments about duplication of staff, facilities, billing operations and possibly higher financing charges that might occur if separation of electric and gas operations takes place. Obviously, I feel that the advantages of separation outweigh the disadvantages but one cannot deny that there are disadvantages and expenses involved in separation.

Along these lines, I think that Bill S. 403 should be amended to provide financial incentives for combination utilities to split their electric and gas operations. I think these incentives could best take the form of tax credits which would diminish as the final deadline for compliance with Bill S. 403 is reached. The plan I suggest is this:

1. Establish an initial "target" deadline of compliance beginning Jan. 1, 1973 and extending to a final date of Jan. 1, 1978.

2. Provide a tax credit equal to the average post-tax net income of the operation to be "spun off" over the five year period to Dec. 31, 1971. For example, if the net income of the gas operations of a combination utility averaged $10 million a year over the five years to Dec. 31, 1971 this would be the tax credit available. This tax credit would be available to both the company which is separated and the remaining company with $10 million being available to each company. It would be an incentive to encourage separation and also would help to defray some of the very real expenses that are involved in a forced separation.

3. To encourage companies to separate at the earliest possible time it is suggested that the tax credit be established on a diminishing scale. The tax credit would be available only over a five-year period in equal amounts to be granted in each year. Further, the tax credit would only be made available to the combination company after separation is effected. For example, in the case indicated above the $10 million tax credit for each company would be available only after separation was achieved. If separation was effected by Jan. 1, 1973 the companies would be entitled to the full $10 million tax credit, receiving $2 million in each year through 1977. On the other hand, if this particular combination utility did not complete its separation until the end of 1975 it would only be entitled to tax credits of $2 million for each company for the two remaining years of 1976 and 1977. And, of course, a combination company that did not comply with the bill through 1977 would be entitled to no tax credits whatsoever.

In conclusion, I will state that as a fervent supporter of private enterprise it pains me to offer any support whatsoever to a governmental bill that further encroaches on the operations of business enterprises. However, I think the healthy competition that would result from the implementation of this bill, incorporating the amendments I have suggested, would outweigh the disadvantages of

governmental interference. My own experience with Philadelphia Electric Co. indicates that it is extremely difficult, if not impossible, to develop shareholder support for voluntary separation. As I have said before, I sincerely regret that the Governmental powers must be utilized in this situation but the continuing stonewall reluctance of the combination utilities to voluntarily do anything about this situation is a contributing factor in the creation of Bill S. 403. I support the bill, but only if it is modified to conform with the realities of the utilities world and only if the affected utilities are given the appropriate incentives they should receive for complying with its provisions.

Thank you for listening to my remarks.

Senator HRUSKA. Thank you, Mr. Coleman.

Were you here yesterday to hear the testimony?

Mr. COLEMAN. No. This is my first day. I was invited down here today.

Senator HRUSKA. In regard to your statement here, I just have questions in two regards. One has to do with the idea that electricity can be used for house heating or gas can be used?

Mr. COLEMAN. Yes.

Senator HRUSKA. One of the witnesses said, do these proponents who say that there is competition between electricity and gas, particularly in heating, do these proponents realize that electric energy on a simple B.t.u. cost comparison costs more than three times that of natural gas?

He is not here to ask you the question. So I will ask you whether you realize that, and what significance that statement and that fact—if it is a fact—has on minimizing the competition between electricity and gas for heating purposes?

Mr. COLEMAN. I wonder if you might tell me who that statement was made by?

Senator HRUSKA. It was made by Allan C. Mustard, senior vice president of South Carolina Electric & Gas Co.

Mr. COLEMAN. He, of course, is a combination man.

Senator HRUSKA. They have a combined operation. In 1970 they had 271,000 electric customers and 130,000 gas customers. And electricity revenues of $101 million and gas revenues of $28 million. It is against that background, Mr. Coleman, that I ask the question.

Mr. COLEMAN. I would say this, drawing from my experience with the Philadelphia Electric Co., that they have been aggressively pushing electric heating to their customers, both in the suburbs and in the city, and I am sure they are doing it on an economic basis because they can make money on it. I think again this is problably a red herring that is being drawn across by the combination people and as the technologies evolve, the cost of that electric heating has already dropped and I think it is going to drop even further in the years ahead as the process is refined.

Senator HRUSKA. Does the Philadelphia company deny gas service when it is requested or ordered?

Mr. COLEMAN. Deny it?

Senator HRUSKA. Yes.

Mr. COLEMAN. Well, at the moment because of the shortage of natural gas, they are under some restrictions. I think this is only a temporary thing which many other utilities have—

Senator HRUSKA. We hope it is temporary. That is not the forecast as we have been given it by different sources.

Mr. COLEMAN. That is true. This is a factor I did not mention, but it certainly has to be recognized. I think when producers' prices are changed and it is made more attractive to explore for gas, that this situation will largely resolve itself.

Senator HRUSKA. The chairman inquired of Mr. Mustard whether the three times the cost of electricity do to the cost of natural gas for heating purposes, applied to South Carolina only, he said, no, generally over the United States. I just wonder if we can discount the moneysaving qualities of the American taxpayer and homeowner by saying that he would buy something that is three times as expensive when something one-third that cost is available to him. Do you think you would want to discount the Yankee element in most Americans?

Mr. COLEMAN. Well, I think this. I think that the customer, the consumer, should be given the choice.

Senator HRUSKA. Have they a choice under the Philadelphia plan in the gas and electricity field, not the labor field?

Mr. COLEMAN. They have a choice but I think their options are somewhat restricted. I do not think up until now the gas has been as aggressively promoted as it should be. I think that the consumer would gain from separation and I think if it were separated, it would be less subsidy to any particular thing and it would more or less rise and fall on the competitive factors involved. I think you must recognize that probably there is a certain amount of subsidy, like Philadelphia Electric may be now taking a loss on its electric heating to promote it in the hope—and they plan these things out—that it will be profitable to them, and this type of subsidy that can exist with a combination company is eliminated when the energy sources are separated.

Senator HRUSKA. Of course, Mr. Bloom, who is chairman of the utility commissioners, indicated that in his judgment we would have to engage in the assumption that the State utility commissions are not doing their job if they would suffer a discrimination or a choking of competition. What would you say to that?

Mr. COLEMAN. Well, I think this. If you take the utility industry, it is a heavily regulated industry and I think that this fact alone has tended to mitigate competition. I think a combination company further mitigates it, reduces it, because one company has the complete source, it tends to—well, it has it either way. Do you know what I mean? This bill amended properly is one way of introducing an element of competition that does not presently exist.

That is why I favor it even though as I indicated I do have reservations about moving the Government into this area.

I think in the present form I would not be in favor of the bill but I think with proper incentives introduced, that this makes a different situation and one where it could become viable and attractive to the utility. But I think the very fact of the resistance of the combination utilities indicates that this is the way they like it. They have both sources, like when an apartment builder wants a quote, they can quote him just about how they please and what they think is going to be to their benefit, whereas if it is separate companies, he gets a bid from each one and picks and chooses to establish what services he wants to put into the project. This does not exist where one company runs both energies.

Senator HRUSKA. And you think, then, that the bill as presently framed is so inflexible and so enveloping that it would work some disadvantage?

Mr. COLEMAN. I do feel that. I mean it is a very heavyhanded approach that I do not think takes account of either the operational or financial problems that are involved. I think that study is needed and I think a revised bill, perhaps incorporating some of these ideas that I have. I mean, I think to just set a deadline of January 1, 1973, and say all of you have to be separated or you are going to be subject to a fine up to a million dollars is certainly not practical. And yet the objectives I think are good objectives. I would love to see it done on a voluntary basis. We have tried for 9 years with an intelligent, viable utility that could separate. Philadelphia Electric gas profits run over $13 million a year and it could be done, but as I have said, we have run into a stone wall of resistance.

Senator HRUSKA. Well, of course, this industry is regulated. Being regulated, part of the essence of the whole situation is the lack of competition within that industry.

Mr. COLEMAN. That is right, and that is why I come down here. I was invited by Senator Hart to testify because I think this is one avenue of developing competition that could be utilized effectively if it were a properly drawn bill.

Senator HRUSKA. But being noncompetitive, we must resort to the utility commissions that do the regulating to determine whether or not there is an abuse in any given picture.

Mr. COLEMAN. I cannot speak for the Pennsylvania utility commission, except to say this, that in the Commonwealth of Pennsylvania the Philadelphia Electric Co. is the only major utility that is a combination utility. In Pittsburgh you have separate electric and gas companies and in other large metropolitan areas you have the same situation. UGI runs gas and electric, but they are in different territories, so it is not really competitive. And as I say, I do not speak for the commission, obviously. I feel that they would welcome separation of this type.

I think they could work with the Philadelphia Electric Co. to devise a plan. I feel that the SEC would be cooperative if this bill were to be implemented, and I think it could be worked. It seems to me unfortunate that the companies have not followed the lead of the Northern Illinois Gas Co., the Commonwealth Edison situation, and done it voluntarily, but that was almost 20 years ago and they have not done it.

Senator HRUSKA. Now, the second major point that I would make a comment on is your suggestion that tax credits be allowed to give a little incentive to get this divestiture condition achieved. Of course, in the eyes of the Finance Committee and in the eyes of the House Ways and Means there is a thinking which has prevailed for a long time, and it has been a bitter one. There was a sign that I know of once in the office of an old-time tax commissioner in the Commonwealth of Massachusetts. It hung above the desk on the wall. * * * "Every Tax Exemption Is An Appropriation," because to the extent you exempt one taxpayer, you put the load on another.

Now, do you think it would be fair to ask the general public to pay for this kind of an exercise to benefit only Philadelphia, and the other

maybe six dozen cases at the most, and it would probably be 35 cases, do you think it would be fair to ask the general taxpayers of America to pay to have this change made?

Mr. COLEMAN. Well, I really feel that this incentive is something you have to equate against that—whether you think the overall objectives of the bill, the competition that would be created, are worth the price of doing it this way. Because I feel this, that if you do not put these incentives here and you would pass a bill, I think you are going to have these utilities going into the courts and doing everything possible within their power to block this separation. I think it depends on really how much you believe in this bill, whether or not these incentives should be authorized.

I do not particularly applaud the idea of incentives and tax credits, but I feel that this would help because there would be expenses involved and when one puts it against the total tax bills that are paid by industry and the fact that we have banks and insurance companies and oil companies who are already benefiting from the general taxpayer with much lower tax rates than the average utility, I think—not that that makes it right—I do think that this is the type of incentive that could get the companies moving and effect separation.

Now, perhaps this is too generous a proposal, but I do believe some economic incentive that would encourage these companies to separate is the best way to make it work because I do envision if the bill would just be passed that all sorts of litigation could be taken into courts, depriving them of property, and so forth, and that is why I offer this. Not that I am particularly——

Senator HRUSKA. I am sure it would be an incentive. And I commend you for thinking of it. It shows your intense interest. This Senator has been a member of an Appropriations Committee for a long time and anyone who is familiar with the work knows that it is a struggle for priorities, the establishment of priorities, to distribute the moneys in authorized fashion to given activities. We have only so much money. Even Uncle Sam is not that rich, that money is so plentiful that it is limitless, although there are some members of the Congress I am afraid who have that idea and they show it by their actions in proposing all kinds of things for opportunities to spend money. But there is a limit and there are many, many activities, all of them worthy, some of them not quite as worthy as the objective you spell out here, some much more worthy, so we have to establish priorities.

I have an idea that this is on an appropriations bill, the application of this tax credit, could come pretty far down the list. That is just an observation based upon my familiarity in this struggle for high priorities on appropriations' lists. I would have an idea it would be pretty low.

Mr. COLEMAN. Well, I would say this. If any substitute incentive could be developed that would not involve tax credits, I think this would help to effect a bill, but I just feel, and I was trying to work this out on a pragmatic level, having dealt with a utility for 9 years, knowing somewhat how they think, that something along these lines, maybe the committee and its staff can work out something. This is a germ for some type of incentive that could be evolved that would help to move toward the objectives that we are trying to reach with this bill.

Senator HRUSKA. Thank you very much.

Counsel O'Leary, have you any questions?

Mr. O'Leary. Yes, Mr. Chairman.

Mr. Coleman, you mentioned with respect to Philadelphia Electric that gas was not as aggressively promoted. Do you have any idea as to the allocation of promotional expenses between electricity and gas?

Mr. Coleman. This figure has been brought up at various shareholders' meetings and it is sort of a camouflage figure. We do not know the true results of it. I do know this, that, for example, in the general offices of the Philadelphia Electric Co. which are in Philadelphia, which represent the entire system, the whole display areas in front of the building, the office building, are devoted to electricity. Never do they put gas in there even though that is 16 percent of their revenue. And about the same percentage of their profits. They emphasize electricity in their advertising—you see, they compete with the gas company in the city of Philadelphia. So they rarely in our big metropolitan papers, ever push the gas because they think they are helping the city gas operation. But this is one of the conflicts of interest that develops with a combination company that would be resolved if they were indepedent because Northern Illinois Gas I understand advertises in the Chicago Tribune even though it does not serve central Chicago.

Mr. O'Leary. Mr. Coleman, with respect to the proposal that I believe you said you had submitted in a proxy statement, would you give us an idea of the mechanics of that particular proposal, how the divestiture would have been brought about?

Mr. Coleman. Well, our idea was a rights offering. Philadelphia Electric needs a lot of money to finance its electrical operation. They are putting up nuclear plants. And we felt that this would be a good way to raise money if they would have a rights offering and the proceeds to go to the Philadelphia Electric to finance the electric operations. It looked to us to be a good proposal.

Under SEC rules we were allowed 100 words to explain our proposal. Well, that is fine. But the Philadelphia Electric used 500 words to rebut us and I do not think this is a fair doctrine, I mean, I think it should be an equal time situation, equal space situation.

So their argument, of course, carried weight and actually to be honest with you, because management opposed it, we knew we were defeated from the beginning but nevertheless we were encouraged by the support we did have from over 4,000 shareholders because we put no money into it, did not contact a soul about it, it was just on the proxy statement.

Mr. O'Leary. It has been argued yesterday that if S. 403 were enacted, the new gas companies formed to take over the divested properties would find it difficult to finance this change, and then could only finance it if rate increases were granted. Do you have any reaction to that?

Mr. Coleman. I think that would largely depend on the particular gas company. It may be true that some separate gas companies might have to have higher interest charges but I do not think you can make a blanket statement. For example, here in the Philadelphia area we think an independent company would do very well because it does not have the drag of the center city. In other words, it could be con-

sidered more of a growth utility than the Philadelphia Electric itself because it serves only the rapidly growing suburban areas.

Now, going into other areas, this situation might be different. I mean, I have not obviously studied them all, but it is conceivable that each situation has to be treated independently.

In the case that I am familiar with, I think it would work out quite well.

Mr. O'Leary. I suspect that even the proponents of the bill would agree with you that a blanket prohibition is not in the public interest and that some sort of an exception should be worked out to include certainly at least that gas company that could not be operated economically as an independent company.

With respect to your tax credit proposal, however, would it not be possible for the parent company to spinoff the electric property as opposed to the gas property? I am thinking of Philadelphia Electric.

Wouldn't they have the incentive to spinoff the electric property and profit hugely from such an incentive since——

Mr. Coleman. Well, I think the bill—if I did not indicate, it was my error—the bill should be drawn that the tax incentive would only apply to the smaller of the two units. I mean, I agree with you, this would be a really nice loophole but I think it can be very easy to make it the smaller of the two units.

Mr. O'Leary. I have no further questions, Mr. Chairman.

Mr. Hruska. Mr. Bangert?

Mr. Bangert. Thank you, Mr. Chairman.

Mr. Coleman, you earlier mentioned the shortage of natural gas that we are presently experiencing and the fact that there are certain interruptible customers. Do you know with respect to the Philadelphia system what they do with respect to their generation of electricity by gas? Do they use gas to generate electricity?

Mr. Coleman. My understanding is that they do use gas. I have never been able to dig out the exact figures.

Now, of course, in their case, with their nuclear production coming onstream, they hope—of course, even here this is highly problematical with the various conservation groups opposed to it—it would probably be somewhat reduced but I think against that you have the fact that, at least as I understand it, natural gas is considered almost a pollution-free fuel and there will be an increasing urgency on the electric utilities to obtain this, and this is an area that I believe should be further explored.

I think a study of the percentage of natural gas that utilities get from the pipeline suppliers where it is a combination utility, would be useful I am sure that the FPC or somebody could obtain this data if they do not already have it—I have not seen figures on it—I think that could be significant because if they are diverting to electrical use gas that otherwise could have been allocated through gas operations, I think you are seeing an example of the conflict of interest that would favor the electrical orientation. I mean I think this is a subject which should be very carefully examined. I do think so.

Mr. Bangert. But you have no specific knowledge of this with respect to the Philadelphia situation?

Mr. Coleman. No, I do not. To date I have requested it. I have never gotten what to me has been a satisfactory answer.

Mr. BANGERT. The other point that was made was the higher cost per B.t.u. of electricity as opposed to natural gas. I wonder whether or not efficient use of electricity in terms of heating and in terms of having thermostats in individual rooms and the ability to control the heat in one room or other, whether or not in realistic terms this would not bring the price of electricity down much closer to that of gas to the home owner?

Mr. COLEMAN. Are you speaking of electric heating now?

Mr. BANGERT. Yes.

Mr. COLEMAN. Sort of in the background of what this man from South Carolina said. I think that is probably true. It can be controlled individually and I think his statement was not one that went into these areas as it was explained to me. I do think that the electric heating, the cleanest of it, and it has certain advantages, well, the utility the electric utility wouldn't be doing it if they didn't see ultimate substantial profit in it. They have really been pushing it and I sure they have their reasons for it.

It is not just to comfort the customers.

Mr. BANGERT. Then you think it is too broad of a statement just to——

Mr. COLEMAN. Yes; I do, and I think particularly as time goes on and this process is refined, I think these costs will come down and make it even more competitive just as with gas air-conditioning the costs have been coming down on that and making it more competitive with electric air-conditioning.

Mr. BANGERT. I have no further questions.

Senator HRUSKA. Thank you very much.

Mr. COLEMAN. Thank you.

Senator HRUSKA. Our next witness will be Frederick T. Searls, vice president and general counsel of the Pacific Gas & Electric Co.

While he is getting to the table I want to announce that the chairman of this subcommittee, Senator Hart, had scheduled for testifying this morning Mr. Comegys, one of the Assistant Attorneys General in the Department of Justice. He will not testify until the hearings next month. However, Professor John Wilson, originally scheduled for tomorrow will testify today.

Likewise Mr. Robert Willis will plan to testify in June and to submit a statement in advance. When the chairman announces the schedule for June it will include that testimony. So his testimony, Mr. Willis', will be postponed until the June hearings.

And now Mr. Searles.

We are ready to hear from you at this time, sir.

Go right ahead.

STATEMENT OF FREDERICK T. SEARLS, VICE PRESIDENT AND GENERAL COUNSEL, PACIFIC GAS & ELECTRIC CO., SAN FRANCISCO, CALIF., ACCOMPANIED BY WILLIAM B. KUDER, ASSISTANT GENERAL COUNSEL, PACIFIC GAS & ELECTRIC CO.

Senator HRUSKA. Mr. Searls, your statement will be inserted in the record in its entirety so please proceed to summarize it or highlight it in your own fashion.

Mr. SEARLS. Mr. Chairman, members of the subcommittee, I am Frederick T. Searls, vice president and general counsel of Pacific Gas & Electric. With me is my associate, William B. Kuder, assistant general counsel of Pacific Gas & Electric Co.

On behalf of the company, I would like to thank the committee for this opportunity to present a brief description of the company's combined gas and electric operations and our reasons for opposing Senate bill 403.

This bill would make every combination gas and electric company in the United States unlawful, without regard to the effects on the public interest. Such a universal condemnation could only be based on the premise that every combination company provides poorer service and charges higher rates than single service gas and electric utilities. There is no factual basis for such a sweeping assumption. A uniform rule outlawing combination companies would be unwise and, on the basis of hard facts, a very costly rule to the consumer. Certainly the proponents of this bill should have the burden of proving that the consumer would benefit from this measure. We do not believe that they can do so.

Let me describe very briefly the business and operations of Pacific Gas & Electric Co., and show the advantages we obtain by being a combination company.

Pacific Gas & Electric Co. serves 2,300,000 gas customers in northern and central California. The company purchases natural gas from producers in California and the Canadian Province of Alberta, and from El Paso Natural Gas Co. which obtains its gas in Texas and New Mexico.

Pacific Gas & Electric Co. also serves 2,600,000 electric customers in northern and central California. Electric energy is supplied by electric generating plants which have the function of converting some other form of energy into electricity. For P.G. & E. the primary energy sources for electric generation are gas and oil, burned in conventional thermal electric generating units; the kinetic energy of falling water, used to turn the wheels of hydroelectric generating plants; the energy of atomic fission, used in nuclear powerplants; and geothermal steam, which powers our geothermal units. California does not have good commercial deposits of coal and the company does not use coal for electric generation. The use of electricity is so widespread that it might come as some surprise to learn that for the P.G. & E. system approximately five times as much energy is delivered to customers in the form of gas as in the form of electricity, although gas sales produce only one-third of the company's gross revenue.

P.G. & E.'s business may be summed up as the distribution of energy in two alternative forms: one, natural gas; and the other, the processed form, electricity.

In 1970, natural gas was used to generate 45 percent of the electric energy requirements of our system. The gas used for this purpose was equal to about one-third of the amount sold to our customers. The relations between the company's gas and electric departments are subject to regulation by the California Public Utilities Commission. Specifically the gas department charges the electric department for gas under a tariff rate fixed by that commission.

We design our gas system and plan our gas supply arrangements to meet the peak demand of firm customers on the coldest, windiest day we anticipate may occur. Whenever the full capacity of the system is not used to supply firm customer requirements, which, of course, is most of the time, we supply gas to industrial customers on an interruptible basis. To the extent that further unused capacity is available, we supply gas to our electric generating plants. Our electric plants are the first to have their gas supply interrupted and the last to have their gas supply restored. When their gas supply is interrupted the electric plants burn low sulfur, low ash fuel oil.

Under this plan of operation the combined gas requirements for customer use and electric generation permit us to use our out-of-State gas supplies at virtually 100 percent of contractual amounts, thus making full use of the gas transmission facilities and minimizing unit transmission costs.

It was only by taking advantage of these economies of combined operation on a large scale that we were able in 1956 to undertake our project to bring gas from Alberta, Canada, through some 1,400 miles of pipeline to our load center in California. It was the financial strength of PG & E as a combined company, the assurance of the combined market and the lack of any need to divide in advance the supply of gas between customers and electric generation uses that made it possible to proceed on a bare cost-of-service basis in spite of the risks involved.

With the original project and subsequent increments of supply from Alberta, PG & E has been able to maintain an adequate supply of gas for its gas customers and an adequate supply of fuel for its electric plants even in these times of stringent gas supplies. We will have to continue our forward looking policies and planning to maintain this position, but we submit that our record demonstrates that both our gas customers and our electric customers benefit greatly from the fact that we have been able to obtain energy resources on a combined basis.

There are, of course, many other ways in which our combined operations save money for our customers.

We supply about 2 million customers with both gas and electric service. As a combination company, we mail these customers 24 million bills a year. If we were separated into two companies it would be necessary to send these customers 48 million bills a year. At present postal rates of 6 cents for first class mail, this would mean an additional cost of $1.5 million a year for postage alone. And for all those customers who pay their bills by mail, there would be a 100 percent increase in postage and check charges if they had to pay two suppliers. Of course, the mailing and returning of bills is only part of the story. The whole customer accounting process, including meter reading, bill preparation and handling of payments can be done much more efficiently by one company than two. Our estimate is that it would cost an additional $15 million a year to carry on these operations by two separate companies.

It must be obvious too, that there are substantial economies in having a single supervisory and administrative organization with one set of offices, warehouses, service centers, and the like, instead of two. One application for service is a convenience for the customer and economical for the company, which can send one man in one truck to go out and turn on two meters and read them both to initiate service.

About one-third of our customers move to new locations each year, so this means an important cost saving. In new developments, where we are now putting all electric services underground, we coordinate our plans and use one trench for both electric and gas service. All these economies redound to the benefit of the customer.

PG & E gas and electric operations are now controlled from a combined energy control center which includes a weather forecasting group, and both gas and electric dispatch groups with their associated computers, telemetry, and other aids that modern technology has provided. To take an example of how gas and electric operations are coordinated in this center, assume that the meteorologists predict that temperatures, already cold, will drop sharply for a short time period. The gas controller estimates the increase in gas use that will result and calculates the amount of curtailment in gas fuel for electric generation that will be needed so that enough gas will be available to meet gas customer requirements. This information is given to the electric dispatcher who determines whether to increase hydroelectric production or to burn oil in place of the gas. This decision depends on a complex of factors, but the end result is an optimum use of energy resources for the system as a whole.

The complete exchange of information and the great amount of flexibility obtained from our unified control center could not be achieved in any other way. With the total cost of all forms of energy purchased for the gas and electric departments amounting to $341 million in 1970, even a small percentage improvement in efficiency as a result of this coordination means millions of dollars in savings to our customers. We are confident that the actual savings are a very substantial amount.

If the principles of S. 403 were to become law, the customers of PG & E would pay a high price, indeed. They would not only lose the economies of combined operation but they would have to pay the tremendous costs involved in setting up two companies to do what one company is now doing. At least one of the companies would require entirely new financing since the policy of the bill is to have gas and electric company ownership in completely separate hands. This would mean financing at least one company at today's high level of money costs as compared with the advantage which PG & E now has of having raised substantial amounts of capital years ago, when money could be borrowed at rates as low as 3 percent.

We estimate that if PG & E sold its gas properties to a new separate gas company, the new gas company would have to collect from its customers additional revenue of $41 million a year just to meet the added cost of capital funds of the new company at today's money rates. This calculation was made on a very conservative basis. If PG & E were to sell its electric properties to a separate electric company, we estimate that an additional $129 million of revenue annually from customers would be required for costs of capital funds. These figures represent an increase in cost of 10 percent to gas customers and 18 percent to electric customers. These percentages do not include the operational cost increases to which I referred earlier.

We see no real offsets to the burdens of increased operating costs and refinancing that would be imposed upon our customers by splitting PG&E into two parts. The principal reliance of the proponents of

S. 403 seems to be upon the theoretical value of competition as a regulator of economic activity. In the case of gas and electric utilities this reliance is misplaced. For sound reasons, which I will not attempt to detail here, it is well established policy in almost every State of the union and at the Federal level that Governmental regulation is more effective than competition in promoting the public interest in economical and adequate utility service.

S. 403 would simply substitute two regulated utility companies for one regulated combination utility company. It would not, and could not by the very nature of the business, introduce a large number of competitors into the market such as might permit competition to operate in the classical economic sense.

Furthermore, there is a large part of the electric and gas utility markets in which the two services are not competitive at all, such as residential lighting, refrigeration, and the many kinds of motor operated appliances, on the one hand, and industrial fuel on the other. Also, it should be observed that not all forms of competition are desirable. In recent years a number of regulatory commissions have found it necessary to curb undesirable promotional activities. Certainly the ultimate effects of such activities are of particular concern in this period of limited energy resources and striving to reduce the impact of energy use upon the environment.

Existing law recognizes that any application of antitrust policy, i.e., the policy favoring competition, to regulated utility enterprises must take into account the fact that regulation exists to prevent exploitation of monopoly power. Thus the fact that such utilities may be local monopolies does not make them unlawful.

Conversely, regulatory commissions such as the Federal Power Commission must take into account antitrust policy in formulating their decisions. The common goal of antitrust policy and regulatory policy is the public interest. That is the interest in efficient and economic service. To substitute for this approach a flat rule making combination companies unlawful without regard to the consequences for the public, and particularly the consumers, would be to abandon the goal for the mere sake of form.

We believe that these are compelling reasons to reject the principles of S. 403.

Senator HRUSKA. Well, thank you very much, Mr. Searls, for a very informative statement. Yesterday there was described to us by Mr. Mustard of the South Carolina Gas & Electric Co. this system of buying gas and distributing it among the several users just as you have outlined in your testimony today, namely, that you contract for a given amount of gas and then you supply firm customer requirements, and then you supply gas to industrial users on an interruptible basis.

If those two requirements are fulfilled, and there is some gas left, you burn it in your electrical generating plants.

You come to the conclusion that both your gas customers and your electric customers benefit greatly—I am quoting now:

> Both our gas customers and our electric customers benefit greatly from the fact that we have been able to obtain energy resources on a combined basis.

Now, it was brought out by Mr. Mustard—and I suppose it is inherent in your exposition here—that that benefit comes by reason of the

flexibility which you have to use over the year a fairly level volume and a firm volume of gas for these three major categories. Is that true?

Mr. Searls. This is a substantial part of it. I would say also that there is a substantial benefit on being able to buy gas on a larger scale.

Senator Hruska. In larger volume?

Mr. Searls. Larger volume.

Senator Hruska. Large volume at a steady fixed volume?

Mr. Searls. Yes. For instance——

Senator Hruska. For the contract period, whatever it is?

Mr. Searls. For instance, when we went into our Canadian project we built a 36-inch pipeline which is still one of the larger diameter pipelines in use today. And that required a commitment, to make that economical, to take rather large volumes of gas. If we had not had both departments of our company, we would not have been in a position to go ahead on a scale such as that. And that was a long run matter, too, because for the initial volumes a 36-inch pipeline was not the most economical size. We were able to plan ahead on the basis of the uses of both departments with a view to the time when the capacity of that pipeline would be increased by adding compressors at a very low additional investment and the result is that at the present time, with the 36-inch pipeline fully powered, it represents a very economical source of gas supply for us. We could not have done it this way with any lesser scale of use of gas than we have.

Senator Hruska. Let us suppose that you have to divest and in your electric operation you would have to buy gas only for that purpose. Have you made any computations as to the impact of such an operation on the electric company and later on the gas company in its buying of gas to show the difference or be able to estimate the difference in cost to the gas customers and to the electric customers on a separate basis?

Mr. Searls. I do not have any computations of this sort and they are very difficult to make because you have to compare an actual situation with a hypothetical situation which might occur in the future, and it is rather difficult to quantify just how these things will work out. Certainly it is not unusual for a gas company, for instance, to sell gas to an electric utility, but those arrangements necessarily have their contractual limitations and you cannot get the flexibility of joint control without having joint control which is the very thing that S. 403 is trying to prevent.

So I would like to have such a figure but at the moment I do not know how to produce one, and I cannot quantify it in any simple way.

Senator Hruska. Well, I presume that there would be many assumptions that one would have to make for the purpose of such a computation but I assume there would have to be separate pipeline facilities or—I do not know if under this bill which embraces pipeline transmission as well as all other forms of transmission, I do not imagine you could use a pipeline jointly because that would be defeating the purpose of the bill and perhaps run afoul of the antitrust laws again. But you can make this statement—apparently you do make the statement, don't you, that there are certain economies of scale——

Mr. Searls. Yes.

Senator HRUSKA (continuing). Which crank themselves into the present picture which would disappear or be highly dissipated if there were a divestiture and a division of the two businesses. Is that true?

Mr. SEARLS. That is very true, and, of course, if the electric utility has to be supplied by a separate pipeline, you would certainly have some very great additional costs. Such an enterprise was attempted by electric utilities in southern California a number of years ago. It was vigorously fought and successfully fought by the competing gas utilities so that the project never did materialize.

The electric utilities in southern California still buy their gas from their competitor, the gas company, under contractual arrangements, and so the idea of a separate system was discarded by the Federal Power Commission in that case, but nevertheless, the electric utilities in southern California have not been able to get the gas supplies they would like to have at the prices they would like to have.

It is a very different situation when you have independent competing companies. In a way, you might say you are faced, if you have competing gas and electric utilities, with a choice between having separate gas supplies for them or having the electric utility depending upon its competitors for one of its major items of cost and one of the essential elements of its operations.

Senator HRUSKA. Well, it is a big factor. Standing behind it is the impressive argument which you make that after all, all of these operations are subject to the utility commission and its regulations, because it is a monopoly that you are enjoying and therefore the higher the degree of regulation.

I would hope that if any abuses have entered into the picture by reason of lack of competition or aggressiveness in one field the gas field as against the electric field, I would hope that the civic consciousness and the public responsibility of the California regulatory commission would sort of assert itself and make itself known to you. Have you known that to happen?

Mr. SEARLS. Actually the only complaints on this score have been efforts to have the utility commission prohibit advertising on our part and complaints about promotional programs, and nobody has come in to suggest that we should do more.

I might mention that in some ways our situation is unique in that Pacific Gas and Electric initiated natural gas service in 1929 in an area where there is no coal and where the competing, principal competing form of energy was either high cost coal or high cost oil, with the result that in areas that the company serves, such as San Francisco, the heating load is—well, it is probably somewhere between 95 and 100 percents. That is going to add a half million dollars to that differential.

So the situation is quite well stabilized, you might say, and we do not see the efforts toward competition in some areas that are occurring in some other areas of the country.

Senator HRUSKA. There is one respect in which your statement and your testimony is going to have to be modified a little bit, Mr. Searls. Come Sunday, postage will no longer be 6 cents. It is going to be 8 cents. That is going to add a half million dollars to that differential there, isn't it?

Mr. SEARLS. You are exactly right.

Senator HRUSKA. The million and a half dollar figure will reach $2 million.

Mr. SEARLS. That is exactly right.

Senator HRUSKA. And that will come out of the pockets of the consumer because somebody has to pay the bill and your treasury is not big enough, is it?

Mr. SEARLS. That is right. That is the only source of money that we have except by borrowing or selling securities, and I may say we think we have a case for favorable treatment in the postal rates.

Senator HRUSKA. And even the money that you borrow has to be paid back by the consumer, doesn't it?

Mr. SEARLS. It does.

Senator HRUSKA. Now, you did in your testimony give a computation here that the customers of the new gas company would have to furnish $41 million a year just to meet the added cost of capital funds of the new company at today's money rates. What range would today's money rates be for the purpose—what range was used for the purpose of making this computation?

Mr. SEARLS. Well, essentially 8 percent for bond and preferred stock money was used in that computation.

Senator HRUSKA. Is that the rate that PG & E commands now? Or would——

Mr. SEARLS. That is approximately the rate which we have been paying. It is very close to what PG & E is paying as a combination company.

Senator HRUSKA. Of course, we would not have PG & E any more, would we? If we divided this company we would have two companies, Pacific Gas Co. and Pacific Electric Co. It can be assumed that maybe the market may be a little discriminatory with reference to lending money to a new company under new conditions as opposed to a situation of lending money to PG & E as it is now constituted and the experience that it has developed creditwise. Would that be a fair statement?

Mr. SEARLS. That would be a very fair statement and I may say without pretending to be a financial expert that it would seem—there would seem to be a real question as to whether a newly formed separate gas company, which not only would have additional financial costs but additional operating costs, could hope to start out with an AA bond rating and if it did not have an AA bond rating, it would obviously have to pay more for its money.

That is one of the reasons why I said the figure I used was quite conservative in the way we presented it.

Senator HRUSKA. In your statement you cite a prehistoric figure. You refer to 3 percent as a rate. That must be way, way back in the history books there.

Mr. SEARLS. It gives us a touch of nostalgia to think of those days, but the average cost of PG & E's debt on a historical basis today is still I believe less than 5 percent.

Senator HRUSKA. That is an average overall of the long term.

Mr. SEARLS. That is averaging in the 3 percent bonds and we actually had one issue that went out at 9 percent. So we have quite a range.

Senator HRUSKA. That is averaging out the entire portfolio and it comes to what percent?

Mr. SEARLS. Five percent.

Senator HRUSKA. And, of course, the new company would have to start at 8 percent or more under present rates?

Mr. SEARLS. That is right.

Senator HRUSKA. I suppose one could make a computation on that and come out with some interesting, although very monumental figure?

Mr. SEARLS. Well, this really is the way in which we got at the $41 million figure.

Senator HRUSKA. What is the volume of your borrowing now, the gross?

Mr. SEARLS. Well, this year we borrowed $150 million already. We will shortly have completed close to $100 million of preferred stock financing and our plans contemplate another $100 million of borrowing this year.

Senator HRUSKA. What is the total outstanding now? Have you that figure?

Mr. SEARLS. Well, the total debt is over $2 billion.

Senator HRUSKA. $2 billion. My Lord! At a difference of 3 percent, that would represent a lot of money.

Mr. SEARLS. With the debt of $2 billion and still growing, we are very concerned to make sure that we are a healthy company.

Senator HRUSKA. And who would have to pay that difference, Mr. Searls, if this venture were to go forward by way of divestiture?

Mr. SEARLS. The customer.

Senator HRUSKA. He has got enough troubles, it would seem to me, now without taking that on.

Mr. O'Leary, have you any questions?

Mr. O'LEARY. Yes, Mr. Chairman.

Mr. Searls, in your statement you indicate that natural gas is used to generate 45 percent of your electric energy requirements. Could you give us an idea of how the rest of it breaks down, what comes next after natural gas?

Mr. SEARLS. Well, very roughly speaking it would be about one-half hydroelectric power generated by ourselves and one-half purchased power which is essentially hydroelectric power. This will vary according to the weather. That is, if we have a good water year and there is lots of hydropower, we generate more and there is more that we can purchase. To date geothermal power and nuclear power are very minor parts of our supply, although both of these are growing.

Mr. O'LEARY. At this time am I correct in assuming that it is cheaper to generate electricity by the use of natural gas than it would be by using nuclear power?

Mr. SEARLS. I would say that they are substantially on a par. In fact, looking to the future, we are convinced that the nuclear power is the more economic source for the longer run.

Mr. O'LEARY. Does your company sell natural gas to straight electric companies in the State of California?

Mr. SEARLS. No. We have no electric companies that purchase gas from us. Well, there is one exception. We do sell natural gas to the Southern California Edison Co. at one location where they have a plant in the desert, in southern California.

Mr. O'LEARY. Is that on a firm basis, Mr. Searls?

Mr. SEARLS. Essentially that is on an interruptible basis.

Mr. O'Leary. Does PG & E sell power to other electrical systems?

Mr. Searls. Yes, it does.

Mr. O'Leary. Am I correct in assuming that it is more profitable for PG & E to generate the power itself and sell the power as opposed to selling natural gas to an electric company?

Mr. Searls. I really couldn't say. The electric systems to which we sell power within our service area do not have their own thermal generation. So there is nothing to look at by way of comparison. We do sell power, of course, through our major interconnections to Southern California Edison, to the south, and to the north, to the Pacific Northwest. But I do not know of any situation where there really is a choice there where you could make a good comparison.

Mr. O'Leary. Mr. Searls, with respect to your testimony regarding the Alberta pipeline, would you describe for the record what is meant by a bare cost of service basis?

Mr. Searls. Yes; the gas which we obtain from Alberta, Canada, is purchased from producers by a wholly-owned subsidiary of PG & E. That subsidiary contracts to have that gas transported within Canada. Within Alberta the contract is with the Alberta Gas Trunkline, a company that is essentially an instrument of the Province of Alberta, and that transport contract is based on Alberta Gas Trunkline's actual cost of operating the pipeline to transmit this gas plus depreciation and a rate of return on the capital investment in the pipeline.

The next stage of the transport is through British Columbia where the contract is with Alberta Natural Gas Co., which actually is an indirect subsidiary of Pacific Gas & Electric Co.

The contract there is the same type.

At the Canadian boundary the gas is sold to Pacific Gas Transmission Co. at a price which is simply the sum of the cost of gas from producers plus these transport charges. The purchasing company, Pacific Gas Transmission, pays this price, transports the gas through Idaho, Washington, and Oregon, and delivers it to Pacific Gas & Electric Co. at the California boundary, and the price there is simply Pacific Gas Transmission's cost of gas from the Canadian subsidiary plus the cost of operating the Pacific Gas Transmission pipeline plus depreciation and currently a 7¼-percent rate of return on the capital invested in the pipeline.

That in broad terms is the setup so that it is in contractual terms a conventional regulatory setup.

Mr. O'Leary. Thank you for that explanation.

Prior to building this pipeline, am I to assume that you received most of your natural gas from El Paso Natural Gas Co.?

Mr. Searls. Yes. About 70 percent or so.

Mr. O'Leary. And you mention that at the present time your electric plants are the first to have their gas supply interrupted and the last to have their gas supply restored. Was your situation any different prior to the building of the pipeline?

Mr. Searls. No. This has been the manner in which the system has been operated for I would say the last quarter-century or thereabouts and probably before that. Of course, there was much less reliance on gas for electric generation in the earlier years.

Mr. O'Leary. Prior to building the Canadian pipeline did you have a noninterruptible supply from El Paso Natural Gas Co.?

Mr. SEARLS. Yes; and we still do.

Mr. O'LEARY. You suggest as an advantage of the combination company that your gas load factor is improved because you can use valley gas under your own boilers for electricity generation. Couldn't straight gas companies enter into the same sort of an arrangement with straight electric companies?

Mr. SEARLS. Yes; and this has been done. The difficulty is that if you do not have to have contractual arrangements, you can operate much more flexibly and you can enter into longer-term plans such as we did with our Canadian pipeline, building a large diameter pipeline and counting in the future on being able to achieve very substantial economies, and this actually materialized, from having both the gas electric loads in the long-run future.

One of the problems is that with a contractual arrangement between two companies, you either have an obligation under contract to do something or you do not.

Now, a lot of plans have to be made on the basis that something will be done where you cannot have firm commitments to cover all the possible situations, and while projects do proceed in somewhat general terms on letters of intent to start, nevertheless, long-term commitments have to be guarded and they are reduced to explicit terms so that changes become difficult and we simply cannot go ahead with the same assurance.

Certainly I feel that any separate pipeline trying to do what we did in going to Canada would not have been satisfied to do it on a bare cost of service, no more than a specific rate of return, and I should mention that until last year, the rate of return which Pacific Gas Transmission got was only 6¼ percent and that, of course, is something that is fixed and regulated by the Federal Power Commission. It cannot be changed without permission from that Commission. And to the extent that the pipeline became more economical to operate as we increased volumes, those economies were passed directly on to Pacific Gas & Electric Co. and through the company to its customers. There was no need in our minds for Pacific Gas Transmission to have a rate of return that would be needed if it had to take substantial risks as to its future market.

Mr. O'LEARY. With respect to your Canadian pipeline, do you sell any of that gas direct from the pipeline in Washington or Oregon?

Mr. SEARLS. Yes; we do. We sell gas to El Paso Natural Gas Co. which in turn sells it to distributors in communities essentially along the route of the pipeline. We also have an emergency interconnection with the main El Paso San Juan Basin-Pacific Northwest line, where the two lines—where their line crosses ours, and we have supplied substantial amounts of gas in recent years to meet emergency situations on their system.

Mr. O'LEARY. Because of the alleged shortages of natural gas, a number of suppliers have turned down new industrial customers. Have you had to refuse new service or expanded service to any customers in your service area?

Mr. SEARLS. No, we have not.

Mr. O'LEARY. In the event that domestic residual oil supplies went short, would you cut back on gas customers to maintain your own boiler fuel supply or would you keep serving your gas customers?

Mr. SEARLS. Well, we do provide that if the choice is between shutting down an electric generating plant with no alternative fuel and curtailing an interruptible customer, we would curtail the interruptible customer because in essence we think, and this is by a tariff provision that is approved by the California Public Utilities Commission, we believe that the firm users of electric energy should come ahead of interruptible users of gas, but this is strictly an emergency type situation, and I do not recall that it has actually occurred.

Mr. O'LEARY. Mr. Searls, do you compute your rates of return separately on your electric and gas plant investments?

Mr. SEARLS. Yes, we do. Entirely separately.

Mr. O'LEARY. Can you give us those rates of return for 1970?

Mr. SEARLS. Well, at the beginning of 1970 the California commission authorized a gas rate increase which it estimated would produce 7.3 percent rate of return for the gas department. As things turned out, we did not even come close to realizing that.

At the beginning of this year the commission authorized an electric rate increase which the commission estimated would produce a 7.5 percent rate of return on the electric department rate base. This increase has not been in effect long enough for me to really make a statement as to how it is working out, although I do know we are definitely not hitting that mark.

Mr. O'LEARY. Mr. Searls, one of the allegations which is comonly made by the proponents of this kind of a bill is that a combination company is able to engage is cross subsidization. As I understand it, the common form of this allegation is that the residential rate for electricity is somehow used to subsidize an industrial rate for natural gas.

Would you like to react to that allegation?

Mr. SEARLS. Well, the way the California commission regulates us, I do not see how that would be possible. Certainly, we could not create a situation that would give an increased rate of return to one department at the expense of another without having the commission take a very careful look at it, and they certainly would not even consider the possibility that we should be allowed to have a more generous rate of return in one department because the other department was showing a poor rate of return.

The principal way in which some people have said that charges could be transferred from one department to another is in the interdepartmental rate for gas, but here this is something that is strictly regulated by the California commission, and so there is no way for us to control the allocation of revenues between departments by that means.

Mr. O'LEARY. How do your residential rates for electricity compare with those, say, of Southern California Edison?

Mr. SEARLS. Our residential rates for electricity, I believe are lower than those of Southern California Edison.

Mr. O'LEARY. Thank you. I have no further questions.

Senator HRUSKA. Mr. Bangert?

Mr. BANGERT. No questions.

Senator HRUSKA. One other question. Suppose this bill became law and you had to set out to comply with it. How long would it take to divest the one company from the other?

Mr. Searls. Well, I would make a very rough guess that something on the order of 5 to 10 years would be the general idea.

Senator Hruska. Why would it take so long?

Mr. Searls. To decide upon the terms under which the divestiture should be made, to decide on exactly which property should go to which company, would be certainly a time-consuming task, and there would be the problems of lining up financing which is not something that can be done overnight on a scale such as we are talking about here.

You would need roughly on the order of a billion dollars of financing for the new gas company. And certainly there would be a very strong possibility of litigation arising as a result of various investor groups and various parties being dissatisfied with the terms under which the divestiture was being conducted, and this is the kind of ligitation which in my observation can take a great deal of time.

Senator Hruska. Now, that litigation, would that be a challenge of the law or would it be a challenge of the allocation of the assets of the respective parts that would develop from the present company?

Mr. Searls. Well, there certainly would be both. Perhaps I should have mentioned it before, but certainly I would expect that one of the first things I would do if this became law would be to try to reach a conclusion in my own mind as to whether it was valid, constitutional, and it seems to me a very substantial possibility, a probability, that we would not be satisfied to proceed under such a law without having its validity fully tested. I would certainly feel that we would have an obligation to our customers and to our stockholders to do just that.

Senator Hruska. Would such a bill result in Federal preemption of many of the States' present prerogatives?

Mr. Searls. It would certainly, by its terms, seem to—or it definitely does propose to override what a State may consider to be a proper rule for the situation. That is, a State may under its laws be well satisfied that a combination company is in the public interest. This bill would mean that regardless of how the State felt, the Federal rule would have to prevail.

Now, this certainly would be one of the questions as to whether this is an area where the Federal Government could go this far. But I think before we reach the constitutional questions, we should look at the policy questions and in my mind it is very clear that it would be very poor policy.

Senator Hruska. Thank you very much. It is suggested by the Acting Chairman that staff secure, perhaps with the assistance of Mr. Searls, a brief statement of assets and liabilities of the company so that we can see the magnitude of the problem that is involved.

Mr. Searls. I would be glad to submit a copy of our annual report for the record.

Senator Hruska. If you will do that, that would be fine, and staff can then cull from it such information as would be necessary for this purpose without getting too profuse.

Mr. Bangert. Would it be of help to the record, Senator, to also get the estimates with respect to the additional revenue that would be needed for the gas divestiture and also the additional revenue that would be needed for the electricity divestiture that Mr. Searls indicated was made on a very conservative basis? Perhaps that would help.

Senator Hruska. Yes. If you have any further computation or

detail on the computation, if you will get together with staff and see what further might be helpful to the committee in its consideration of the bill.

Mr. SEARLS. I will be glad to do that.

PACIFIC GAS & ELECTRIC CO.,
San Francisco, Calif., May 20, 1971.

MR. HOWARD E. O'LEARY,
Staff Director and Chief Counsel, U.S. Senate Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, New Senate Office Building, Washington, D.C.

DEAR MR. O'LEARY: During my appearance before the Subcommittee on Antitrust and Monopoly on May 12, 1971, at the hearings on S. 403, Senator Hruska asked me how PGandE's residential rates for electricity compare with those of Southern California Edison Company. I replied that I believed PGandE's rates are lower. In support of that statement is the attached comparison of monthly bills for residential electric service by the two companies.

These figures show that at present rates PG and E bills are lower than S.C.E.'s for usage through 1000 kilowatt hours per month. The average use per customer in 1970 on Schedule D-1 was 278 kilowatt hours per month for PG and E and 317 kilowatt hours per month for S.C.E.

If the rate increases presently requested by both companies are authorized, the PG and E bill will be lower than that of S.C.E. for usage through 2060 kilowatt hours per month.

In reviewing these figures it would be pertinent to consider how PG and E's residential gas bills compare with those of Southern California Gas Company, which serves the City of Los Angeles and also much the same territory as that of Southern California Edison Company. Such a comparison is attached.

These figures show that gas bills for residential service under PG and E's present Schedule G-1, and under the proposed Schedule G-1 for which the Company is presently requesting authorization, are lower than the corresponding bills of Southern California Gas Company under its present Schedule G-1. Average use per customer (single and multi-family residential) on Schedule G-1 is 92 therms per month for PG and E and 85 therms per month for S.C.G. This difference in usage undoubtedly reflects the colder weather in the PGandE area.

I would appreciate it if this letter and the attachments could be made a part of the hearing record.

Sincerely yours,

FREDERICK T. SEARLS.

RESIDENTIAL ELECTRIC RATES OF PACIFIC GAS & ELECTRIC CO. AND SOUTHERN CALIFORNIA EDISON CO.

I. Present Rates (as of May 10, 1971) for single family dwelling residential service, Schedule D-1, applicable in the case of PGandE in San Francisco, Oakland and certain adjacent areas of the San Francisco-Oakland metropolitan area, and, in the case of S.C.E., in the Los Angeles metropolitan area (exclusive of certain areas, such as the city of Los Angeles, which are not served by S.C.E.).

Kilowatt-hours per month	Monthly bill		P.G. & E. lower than S.C.E.	
	P.G. and E.	S.C.E.	Dollars	Percent
250	$6.60	$7.38	$0.78	10.6
500	10.40	11.13	.73	6.6
750	14.15	14.63	.48	3.3
1,000	17.90	17.93	.03	0.2
2,000	30.90	29.93	−.97	−3.2

II. Proposed Rates, as requested in applications currently on file with the California Public Utilities Commission, for service under Schedule D-1, applicable as above.

Kilowatt-hours per month	Monthly bill		P.G. & E. lower than S.C.E.	
	P.G. & E.	S.C.E.	Dollars	Percent
250	$6.67	$8.89	$2.22	25.0
500	10.55	13.24	2.69	20.3
750	14.37	17.24	2.87	16.6
1,000	18.19	20.94	2.75	13.1
2'000	31.49	33.94	2.45	7.2

RESIDENTIAL GAS RATES OF PACIFIC GAS & ELECTRIC CO. AND SOUTHERN CALIFORNIA GAS CO.

I. Present Rates (as of May 10, 1971) for single and multi-family residential service. Schedule G–1, applicable in the case of PG and E in San Francisco, and, in the case of S.C.G., in the Los Angeles metropolitan area.

Therms per month	Monthly bill		P.G. & E. lower than S.C.G.	
	P.G. & E.	S.C.G.	Dollars	Percent
25	$3.01	$4.70	$1.69	36.0
70	6.27	8.12	1.85	22.8
100	8.45	10.37	1.92	18.5
200	15.69	17.87	2.18	12.2
500	36.62	40.36	3.74	9.3

II. Proposed Rates of PGandE as requested in an application currently on file with the California Public Utilities Commission, for service under Schedule G–1, compared with existing rates of S.C.G., applicable as above.

Therms per month	Monthly bill		P.G. & E. lower than S.C.G.	
	P.G. & E.	S.C.G.	Dollars	Percent
25	$2.92	$4.70	$1.78	73.9
70	6.01	8.12	2.11	26.4
100	8.07	10.37	2.30	22.2
200	14.94	17.87	2.93	16.9
500	34.74	40.36	5.62	13.0

PACIFIC GAS & ELECTRIC CO.,
San Francisco, Calif., May 18, 1971.

MR. HOWARD E. O'LEARY,
Staff Director and Chief Counsel, U.S. Senate Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, New Senate Office Building, Washington, D.C.

DEAR MR. O'LEARY: Returned herewith is the preliminary transcript of my testimony on S.403 before the Subcommittee on Antitrust and Monopoly on May 12, 1971 with my corrections marked in pencil.

In response to a suggestion of Mr. Bangert, Senator Hruska asked (at p. 167) that I get together with the Staff with respect to furnishing further detail on certain computations. Following the hearings on May 13, you advised me that the Staff would look into the matter later and advise me if anything further is desired. I will be pleased to cooperate.

Let me thank you and the Subcommittee again for the opportunity to express our views.

Sincerely,

FREDERICK T. SEARLS.

JUNE 14, 1971.

MR. FREDERICK T. SEARLS,
Vice President and General Counsel,
Pacific Gas & Electric Co., San Francisco, Calif.

DEAR MR. SEARLS: Thank you for the prompt return of your transcript and for the additional submission of comparative residential electric and gas rates in

the San Francisco and Los Angeles areas. The rate comparison will be placed in the record at the appropriate point.

The material upon which Senator Hruska suggested that we confer with you is the underlying data on which you based your estimates of revenue increases needed to cover the capital costs of spinning off either your gas or your electric operations—increases of $41 million for a gas spinoff or $129 million for setting up a new electric company. I presume that these figures are based on the hypothetical capital structures of the new company or companies. We would appreciate receiving this information from you.

Sincerely,

HOWARD E. O'LEARY, Jr.,
Chief Counsel and Staff Director,
Antitrust and Monopoly Subcommittee.

PACIFIC GAS & ELECTRIC CO.,
San Francisco, Calif., August 20, 1971.

Mr. HOWARD E. O'LEARY, Jr.,
Chief Counsel and Staff Director, Antitrust and Monopoly Subcommittee, U.S. Senate, Washington, D.C.

DEAR MR. O'LEARY: The enclosed table shows how I derived the estimated additional cost of capital required to finance a new electric or gas company to take over the designated utility operation from Pacific Gas and Electric Company, as stated in my testimony on S.403 on May 12, 1971.

My estimate of the new gas company additional financing cost is less than that indicated by Mr. Meyer in his statement presented to the committee. The difference results primarily from assumptions on my part that financial market conditions would be more favorable and would permit capital structure and return requirements differing from those on which Mr. Meyer based his conclusions.

It is clear, using either approach, that splitting combination companies would result in very large financial costs which would have to be borne by their customers.

Very truly yours,

FREDERICK T. SEARLS.

PACIFIC GAS & ELECTRIC CO.—ADDITIONAL REVENUE REQUIRED FOR DIVESTITURE OF GAS AND/OR ELECTRIC DEPARTMENTS

[In percent]

	Capital ratios	Cost	Weighted cost	Taxes at 50 percent	Revenue requirement (including taxes)
Cost of new capital:					
Bonds	42.5	8.0	3.40		3.40
Preferred stock	10.0	8.0	.80	0.80	1.60
Common stock	47.5	12.0	5.70	5.70	11.40
Total	100.0		9.90		16.40
Embedded cost of capital:					
Bonds	55.0	5.0	2.75		2.75
Preferred stock	10.0	5.5	.55	0.55	1.10
Common stock	35.0	12.0	4.20	4.20	8.40
Total	100.0		7.50		12.25

Addition to revenue requirement: 16.40%—12.25 percent=4.15 percent.

	Per rate base (percent)	1972 capitalization (rounded)
Investment in:		
Gas department	25	$1,000,000,000
Electric department	75	3,100,000,000
Total	100	4,100,000,000

Additional annual revenue required for:
(1) New gas company: $1,000,000,000 ×4.15 percent=$41,500,000.
(2) New electric company: $3,100,000,000 ×4.15 percent=$128,700,000.

Senator HRUSKA. Thank you very much.

Thank you for coming.

And now to our next witness.

We shall be glad to hear from you at this time, Mr. Wilson.

Senator HRUSKA. The final witness will be Mr. John W. Wilson, and I might say, Mr. Wilson, this hearing is coming out just about right. The subcommittee will recess for today at 12:30 and there have been two witnesses, each of which has consumed about 45 minutes, and that gives you about 45 minutes. We have no hard and fast rule about equal time here but we do have demands on our time this afternoon in another committee.

Let me tell you that your statement which you submitted in advance will be placed in the record in its entirety and you can either skip-read or highlight it with the thought in mind that we might want to ask some questions before you do conclude at 12:30.

I might say further that this statement has been scrutinized in advance and that is one of the advantages of its being submitted in advance, so if you do not go into it in its entirety there will still be basis for questions by staff and others.

You may proceed.

STATEMENT OF PROF. JOHN W. WILSON, DEPARTMENT OF SOCIAL SCIENCES, U.S. MILITARY ACADEMY, WEST POINT, N.Y.

Mr. WILSON. Thank you.

My name is John Wilson. I am a professor of economics at the U.S. Military Academy at West Point. I received my doctorate in economics from Cornell University where I specialized in the study of antitrust and public utility economics.

In the last 4 years I have done extensive research work in the field of public utility economics. I am the author of several professional journal articles and a book that is going to be published by the Michigan State University Press.

In addition to that, I have served as a consultant and expert witness for the Antitrust Division of the Justice Department on the matters involving public utility mergers.

I appreciate the opportunity to testify on S. 403 today. It is a matter of great public importance as you have requested, I will try to summarize my statement in approximately 15 minutes.

I do believe that efficient utility regulation can be an effective deterrent to many traditional antitrust problems and monopolistic abuses. However, there are numerous instances and situations within the regulated sector of our economy where competitive stimulus tends

to provide a valuable and irreplaceable supplement to discretionary public control.

Contrary to what some of the witnesses in this proceeding have suggested, we are not really faced with the question of choosing between regulation and competition. It it widely recognized that competitive forces can be made to serve as an integral and complementary force within the regulatory framework.

I might interject here some general conclusions that have been reached recently by noted public utility economists. Alfred Kahn, who is presently professor of economics and dean of the College of Arts and Sciences at Cornell University, concluded in a recent publication that, "Competition is far more powerful than regulation, enforcing businesses to explore the scope of their cost functions and elasticity of their demand, and to push down costs, if they are to prosper."

Joel Dirlam, another noted public utilities economist, and Walter Adams, president emeritus of Michigan State University, have concluded in their work that "where market structure can move toward competition that should be encouraged, and we should relay to a greater degree on intraindustry rivalry to achieve ideal performance."

In my statement I have tried to stress two major points. First, there are extremely persuasive reasons a priori for expecting a deterioration of social welfare where local gas and electric monopoly franchises are exclusively controlled by a single interest.

Second, all of the factual evidence available at this time indicates the consumers who are served by combination companies are generally at a disadvantage as compared with markets where gas and electricity are provided by independent enterprises.

It is important to note that it is unrealistic to argue that tried and true ways of controlling monopoly problems will continue to work well in this industry. The market conditions have changed. When the Public Utility Holding Company Act and Federal Power Act were passed in 1935, the competitive interface between gas and electricity was far more limited than it is today. Moreover, both industries were much more localized.

It was not until after World War II that transcontinental pipelines and high voltage transmission lines began transforming these two industries into truly interstate operations. Perhaps that is one of the reasons why the Public Utility Act of 1935 expressly prohibited joint control of gas and electric service only where the holding company device is used and leaves determination to the States in other instances.

Over recent decades changes such as these have heightened the potential for competition between gas and electricity. Because of these changes it seems entirely appropriate to reevaluate the extent to which Federal legislation should deal with competitive conditions in the public utilities industries.

Within the framework of current antitrust philosophy and economics it is perfectly clear that were it not for the complicating fact that we are concerned here with regulated industries and the right of States and municipalities to grant exclusive franchises, there is no question that the formation of combination utilities would be deemed anticompetitive and generally run against the grain of antitrust thinking. Mergers of this type would be prime candidates for proceedings

under section 7 of the Clayton Act and, perhaps, section 2 of the Sherman Act as well. The essential question, therefore, is whether there are sufficient reasons for exempting these industries from normal antitrust prohibitions against anticompetitive combinations.

I will briefly summarize my comments on the empirical work that has been done in a moment. In the time allotted I would like to place major stress on some of the basic reasons for holding this philosophy.

While scale economies may result in some cost savings, it is a more likely prospect that the longrun disadvantages of integrated utility service will generally tend to weigh heavier in the balance. The first and most intuitively obvious disadvantage of electric and gas integration is the loss of competitive stimulus. If enterprises are independent, any service improvement innovation, or cost reduction that will increase sales and net revenue is likely to be adopted. In contrast, if the utilities are operated as a single enterprise and the proposed innovation will cause the consuming public to substitute one type of utility service for the other, there will be a reduced incentive for innovation or service improvement.

Moreover, while regulation can be an effective negative restraint against monopolistic excesses, commissions (unlike market competition) are extremely limited in their ability to force firms to accept risk in the interest of advancement and innovation. After integration has been accomplished and the threat of aggressive interutility competition is eliminated, the management of a combination utility may choose the quiet life as opposed to the dynamic quest for product and market improvements. Given the knowledge that their markets are secure and that normal growth with expanding population is assured, there will be little to compel integrated firms to develop and introduce new technologies and service improvements at the maximum efficient rate.

That, of course, is a problem that is common in one sense to all monopolies. It is, however, probably further heightened where regulation restricts the profitability of successful innovations. There are two generally recognized types of economic incentive. One is that the risk taken will earn a reward for developing and undertaking successful innovations. The reward is typically in the form of higher than normal profits until patents expire and the leader has been fully and successfully imitated by other firms in the industry.

The second type of incentive is survival. If a firm's product is challenged by competitive substitutes, improvements in quality or cost reductions may proceed at the maximum rate merely to avert sales losses. While regulatory profit restraints generally limit the first type of incentives, mergers between gas and electric service will totally eliminate the second.

A second potential disadvantage of combined utility operations stems from the utility's ability to discriminate between consumer groups. While a certain amount of price discrimination is desirable, particularly where differentials mirror variations in the cost of serving different customers, it can become excessive and unjustified. There are special reasons to anticipate certain discriminatory excesses in regulated industries.

The fact that the cornerstone of utility regulation is a restricted rate of return on invested capital suggests a unique consideration in

the case of integrated utilities. If, let us say, a combined gas-electric utility is permitted an 8 percent return on invested capital and the company is allowed substantial independence in proposing specific rate structures that produce an end result of that magnitude, it should be expected that rates will be structured so as to subsidize certain classes of service at the expense of others.

For example, since gas service faces a wide range of competitive fuels for most of its industrial and household applications whereas many electricity uses have no good substitutes, one can expect combination utilities to underprice gas to meet competition from fuel oil or coal and compensate by setting uncontested electric rates higher than they otherwise would be.

Similarly, since large industrial buyers always have alternatives such as generating their own power or relocating some or all of their industrial operations in another utility service area, there is the additional possibility that they will receive special rate considerations at the expense of smaller industrial customers or residential consumers who lack similar alternatives. In general, given the opportunity, we should expect a utility to engage in this kind of socially wasteful discrimination if it will permit the establishment of larger rate bases and greater net return.

Competition, of course, is a powerful antidote against this tendency. In order to reap the private benefits from excessive and uneconomical rate base expansions in selected markets, the utility must be able to cover its losses by charging prices that exceed the full cost of service in its profitable markets.

If gas and electric services are provided by independent enterprises, the possibilities for cross-subsidization and uneconomical price discrimination will be diminished. Obviously, it is unprofitable to provide service below cost to some customers where competition prevents offsetting charges above cost in other markets.

From an antitrust view point a most serious consequence of this kind of cross subsidization and price discrimination is the indirect impact that it may have on competition between a utility's commercial and industrial customers. As already noted, rate discrimination tends to favor large buyers. That, of course, is totally consistent with social welfare maximization only to the extent that rate differentials reflect variations in the cost of service. To the extent that rate discrimination is in excess of what is cost-justified, there are some potentially serious problems.

If low rates to large buyers are wholly or partially attributable to the buyer's bargaining power rather than real cost savings, the reduced profit margin will be recaptured through higher prices to small consumers. The low rates in that case impart only private benefits rather than a net social gain.

Assuming that energy is a significant cost of production, this type of excessive discrimination in favor of large buyers coupled with recoupment from small consumers is likely to result in either or both of two specific harms.

First, to the extent that the favored group of consumers represent a distinctive sector of the economy (large, heavy basic product industries like primary metals, for example) there will be a tendency to expand that sector beyond its optimal size, allocating to it scarce human and

capital resources which, in the absence of unwarranted discrimination, would be more productively employed in other economic pursuits. The reason for the consequent misallocation of resources is that the subsidized power rates result in monetary costs of production below actual resource costs in the favored industries and above actual resource costs in less favored sectors where recoupment is taking place. That, in turn, will lead to lower product prices and larger output where energy costs are artificially low and higher product prices and smaller output where costs are high. Because the cross subsidization process throws monetary costs out of balance with social costs, the end result is an excessive output of relatively low value products and, in terms of social welfare, a more than proportionate scarcity of relatively high value products.

A second potential harm surfaces if some industries are composed of both large and small firms. In that case we are confronted with the distressing possibility that the largest firms in the industry will be subsidized by the smallest, resulting in an unfair and unwarranted competitive advantage. Ultimately that will lead to higher concentration ratios and fewer small competitors (without any socially compensating scale economies) in industries where these conditions prevail.

As an initial response to this warning it might be argued that price discrimination which is not cost-related could be prevented through vigorous enforcement of the Robinson-Patman Act. But that argument, like the argument with regard to the Sherman and Clayton Acts, has some shortcomings. The argument assumes the ability to detect violations.

Under prevailing cost accounting methods and technological conditions the assumption may be totally unjustified with respect to combination utilities. Even where utility services are not integrated we are now very limited in our ability to estimate with any great precision what share of joint costs should be allocated to specific customer categories. Under conditions that would prevail were utility services integrated so as to maximize the kind of potential cost savings that have been stressed by other witnesses in these proceedings, these cost savings being entirely of the joint cost type, there would be far more joint costs than at present.

Consequently, that would further reduce our currently limited ability to estimate the true cost of serving any single customer or group of customers to little more than mere conjecture, and utilities would have an expanded leeway to set individual rates to suit their taste. Thus, it cannot be argued that Robinson-Patman is an effective deterrent to economically damaging price discrimination that could be practiced by combination utilities.

In the remainder of my statement I have tried to summarize the major published empirical studies that have been made on this question, my own as well as two by former Federal Power Commission economists and one by a consulting firm hired by a combination utility company.

In summarizing those findings, several major points emerge.

1. Combinations charged significantly higher rates per kilowatt-hour for each of the three major customer categories (residential, industrial, and commercial).

2. Probably because of these higher rates and lower sales volumes

the combinations were permitted to earn significantly higher net operating returns per kilowatt-hour in order to cover capital costs plus allowed return.

3. Combination utilities had consistently higher distribution expenses except that straight companies spent more per mile on underground distribution lines.

4. Combinations spent more per unit of sales on customer accounts, supervision, meter reading, and administrative expenses and salaries, while the straight electric companies spent more on advertising and sales promotion activities.

Other empirical studies of which I am aware tend to fall between the two extremes that I have outlined in my statement—that is, between the one by a Federal Power Commission economist which is highly critical of combination utilities on an empirical basis and, at the other end of the spectrum, one by a consulting firm which takes a neutral position. I have not seen any reliable statistical studies outside of that range, that is, studies that support a position favoring the merger of gas and electric utilities. Clearly there is a need for considerably more empirical work in this area as well as better basic data before we can reasonably hope to quantify the potential economic harm of interutility mergers.

But on the basis of the limited evidence available, coupled with the strong theoretical case against utility combinations it is entirely appropriate and advisable to take the steps necessary to protect the public interest as soon as possible.

To the extent that additional utility combinations are prevented now we will be spared the highly probable burden of either economic inefficiency of more difficult dissolution cases in the future.

In summary, it is my opinion that excessive integration and monopoly power in utility markets, as in industries in unregulated sectors of our economy, are harmful to the public interest. Therefore, I am in favor of appropriate antimerger and antimonopoly legislation to the fullest practical extent.

Senator HRUSKA. Mr. O'Leary, have you any questions at this time?

Mr. O'LEARY. Thank you, Mr. Chairman.

Professor Wilson, yesterday Mr. Mustard from South Carolina Electric & Gas testified in effect that his company proceeded on the theory that electricity is a necessity. Would you say this is correct or would you have any observation in this regard?

Mr. WILSON. I would say to some extent the answer is yes. There are certain types of energy requirements that have no good substitutes for electricity. Obvious examples of these are lighting and small appliance uses. So there is a basic volume of electricity that is required on a necessity or near-necessity basis.

His company, however, had, according to his own statement, an average annual residential consumption of close to 10,000 kilowatt-hours per year. I believe the figure was over 9,800 kilowatt-hours per year per residential customer. That is almost double the national average.

Now, assuming that economic conditions are not radically different in the State of South Carolina, and particularly in that company's service area, than over the rest of the country, it is quite apparent that there are a number of uses for which electric power is not a

necessity in the sense that in the long run it can very easily be substitutable with natural gas or fuel oil or other power sources.

This brings up a very interesting point and one that I have suggested in my testimony, although I have not elaborated on it. That is, since there are certain uses where this necessity condition prevails, utilities have a great deal of latitude in their ability to set high rates if the commissions will permit them to do so.

I do venture to say that a doubling of the basic electric rate for lighting and small appliance purposes, for example, would not have a proportionate effect on consumption. It would reduce consumption relatively little.

Realizing this, and operating under a rate of return constraint which holds them to a specified percentage on invested capital, it makes sense for regulated utilities, to the extent that it is possible to expand their rate base. That is, there is only a limited restraint against expanded investments in generating, distribution, and transmission facilities, to serve large industrial customers, who have alternatives to either electricity or gas but are willing to take either one if sufficiently low rates are available.

In the event that a utility company is faced with the possibility of selling power, gas or electricity, to an industry firm below the cost of service, it is not necessarily true that because the revenue derived will be below the cost of service that will preclude the sale. It is entirely conceivable, and there is some evidence to support this suggestion, that utilities will indeed sell electric power below the cost of service to these customers that have elastic demands for power if they can turn around and recoup these losses in the necessity areas where rates can be raised.

This maximizes their profit. Contrary to the allegation that there are no means of earning excessive profits in regulated industries, there certainly are. Excess profits in regulated industries can be earned by successfully expanding the rate base and earning the allowed rate of return on excessive capital investment. This is a very serious danger that is considerably heightened by the combination possibility.

Mr. O'Leary. In other words, it is better to earn 8 percent on $100 million than 8 percent on $50 million within the regulated framework?

Mr. Wilson. Precisely.

Mr. O'Leary. In view of your knowledge of these industries, do you believe that separate and competitive electric and gas companies are more likely to utilize technological advances and innovations?

Mr. Wilson. I think technological advancement and innovations, for the reasons that I have elaborated on in my testimony, are more likely to occur where competition prevails. To the extent that an innovation in one service area or the other merely means a reduction in sales on the other side of the fence, that is, improvement or price reduction in electricity means a reduction in sales of natural gas, there is a very diminished incentive to engage in this type of progressive activity. The empirical evidence that exists, does indeed suggest that the combination electric-gas companies do have a tendency to charge relatively lower rates in their more competitive gas markets where they are faced with competition from fuel oil, and affect this with higher rates (higher than straight electric company rates) on the electric side of the ledger. So I think that on both grounds, there is potential harm in utility combination.

Mr. O'LEARY. Is it your feeling that combination companies spend less with respect to research and development as opposed to straight companies?

Mr. WILSON. I would suspect that they would. I am not aware right offhand of any evidence on that particular point.

Mr. O'LEARY. We have heard a great deal about the presumed savings from joint customer service, billing, et cetera, in the combination companies. Do the available data indicate that these savings actually do occur?

Mr. WILSON. The available data suggests that the savings in the past have not accrued to combination company consumers. Besides, these items are only a very small part of total costs. In addition, I have some doubts about the financing cost arguments that have been introduced by other witnesses in this proceeding, particularly the arguments that the cost of capital will tend to be less in the case of large combination utilities. That they will qualify for lower interest rates, if in fact that is true, is not really surprising, but neither is it socially beneficial.

Interest rates reflect risk. A borrower that is in a very risky situation will pay much higher interest rates than a borrower who does not face the same sort of risk. There must, of course, be some burden on the institution that is loaning the funds. But what better way to eliminate risk than to eliminate competition. That is precisely what the combination system does. It eliminates the risk that the competitive company has to face.

Obviously if the combination utility can guarantee that its pipeline will not go bankrupt because it will not permit rate cuts in its electric prices that may force the company into bankruptcy, there is going to be a lower rate. Similarly the Ford Motor Co. would be entitled to lower interest rates if we eliminated Chrysler and General Motors, but I am not at all sure that that is something that would be socially beneficial. So I would tend on economic grounds to strongly reject that particular financing argument.

Another one has to do with the suggestion that customers now receive low utility rates based on old 3 percent interest rates on the original cost of capital. That is very true. There are plants in existence that were built back in the early fifties where we did have interest rates much lower than they are today. Those companies, however, are permitted to charge prices by their State commissions, that will yield them a return based upon that original cost.

Now, the argument that has been made, is that they will be able to sell their assets at a price reflecting an 8 percent rate of return. That would be a pure windfall gain. There is no reason for doing that. If the State commission announced in advance that the dissolved gas utility was not going to be able to charge rates in excess of those justified by the original company's original cost, the sale price of the divested assets would have to reflect that old 3-percent interest rate and prices would not have to go up.

Moreover, that does not imply any loss to the company involved because they are only earning 3 percent now anyway. So I would tend to reject a major portion of those financing cost arguments that have been brought up this morning.

Mr. O'LEARY. Professor, am I correct in assuming that you would be in favor of some sort of a test which is similar to that embodied in the Public Utility Holding Company Act with respect to divestiture.

namely, that a combination company could keep its smaller operation if it was not an economically viable independent unit?

Mr. WILSON. Yes. I would not necessarily be in favor of per se rule banning each and every combination. There are not so many utilities in this country that we cannot afford to take an intensive look at each one, but I would certainly place the burden of proof on the utility involved. I would certainly start with a presumption against the utility on the economic and theoretical grounds that I have already suggested, traditional grounds that we utilize in the enforcement of the rest of our antitrust laws.

Mr. O'LEARY. I take it with respect to the cross subsidization issue you do not have the same degree of faith in the State utility commissioner to prevent this sort of thing that other witnesses have expressed?

Mr. WILSON. No. Utility commissions vary vastly from one State to another. Some State commissions are pretty good, but even the best are quite limited. Even our Federal commissions are limited. For example, I have seen no truly workable and reliable formula that will permit either a company or a commission to determine exactly what percentage of joint costs should be allocated to what groups.

It is a very critical problem, especially because all of the benefits that are alleged by those who support combination utilities are of the joint cost type. They talk about joint meter reading, joint billing, joint administrative arrangements, but on what grounds are we to allocate the costs of these joint operations between industrial and residential customers, between gas customers and electric customers?

It is a fact that utilities have a great deal of leeway in this particular field and will make the determination to their benefit. That is, they are likely to allocate large percentages of the joint costs where they can be easily borne by the company because demand is inelastic (small companies and residential users) and charge a smaller than reasonable percentage of the costs to the consumer that have viable alternatives (large industrial firms).

The evidence with regard to gas and electric utilities really does tend to bear this out. Combination companies, from the evidence I have seen, tend to do a reasonably decent job as far as the price of natural gas is concerned. In some cases the price of natural gas charged by the combination companies is less than the price of gas that is charged by peripheral straight gas companies, but if you look at the other side of the ledger, what is happening in the electric market where the substitutes are not quite as good, you find that the situation is completely reversed. Currently consumers in straight utility areas pay lower electric rates, that is, both residential and industrial, than is the case in combination areas.

Senator HRUSKA. Would counsel yield?

Mr. Wilson, on this matter of cross subsidization, you ask on what grounds are these allocations made, an extremely difficult task, and you know of no practical way it could be done. Apparently that is what you have said as I understand that thrust of your explanation. And you would place very little faith in that sort of thing?

Mr. WILSON. I would say it would be very difficult to come up with any precise and generally acceptable formula for allocating joint costs. It has been difficult in the past. That is a major problem in utility regulation today.

Senator HRUSKA. And yet the books are full of such determinations and allocations. We heard testimony directly on this this morning.

Mr. WILSON. We do the best we can but it is imperfect, grossly imperfect.

Senator HRUSKA. We heard one testimony on it this morning from Mr. Searls who testified that the California Commission has set the rate of return for their gas operations at 7.3 percent, and the rate of return of their electric business at 7.5 percent.

Mr. WILSON. That is——

Senator HRUSKA. I would have an abiding faith in the proposition that neither of those figures were just pulled out of the air or that a pair of dice were thrown out and their sum total showing on top were added and then you come up with these figures. I would have an abiding faith in the proposition that there is a lot of hard statistical work and analysis made. Difficult, to be sure; complicated, to be sure; but they have come up wtih these figures and they are subject to litigation. They do the best they can.

Now, I know that your statement is headed with the word "Theory" and under all those things we have these various arguments that you have made. But how do you answer the proposition that there have been by State regulatory bodies as well as by the Federal authorities, in litigation and otherwise, definite figures, not perfect, but none of us is perfect that I know of. Would you have any comment on that part of it, in a practical way, as opposed to theory?

Mr. WILSON. Yes, sir. I would like to point out that both theoretical and empirical evidence is weighted pretty heavily against the combinations. On the particular point you raise I have no quarrel with the fact that the California Commission can set a 7.3-percent rate of return on invested capital. That is fine. But how do they measure invested capital? A 7.3-percent rate of return on what?

Now, this requires some arbitrary determination as to what share of joint costs go into serving what particular customers, what share of joint costs are gas costs, what percentage of joint costs are electric costs. I am well aware of the empirical work that has been done on this question.

The conclusion that one derives from this empirical work is that we are not able to determine successfully and satisfactorily what percentage of joint costs should be allocated to what consumer. There is a wide difference of opinion among analysts as to what percentage of costs should go to residential, what percentage to industrial, what percentage to gas, what percentage to electricity, and the utility commissions also will acknowledge that fact.

Senator HRUSKA. Well, of course, there will be difference of opinion and, of course, it is difficult, but the difficulty—you say it is an arbitrary determination, that is all. Now, these companies were—you say the capitalized basis is an arbitrary determination. If there were a divestiture of these companies there still is an arbitrary determination, if you want to put it that way.

I do not believe it is arbitrary because it is the well-reasoned conclusion based upon statistics and economics that are analyzed by the technical staff of the commission and it is a very very extended proposition, but we do the best we can with the very complex situation, whether it is a combination or whether it is a straight utility.

Now, to say—as you do here—that consequently you point to the alleged inefficacy of the Robinson-Patman Act and the argument assumes that ability to detect violations has to be taken into consideration. And then you indulge in this language. I am quoting:

> Consequently, that would further reduce our currently limited ability to estimate the true cost of serving any single customer or group of customers to little more than mere conjecture, and utilities would have an expanded leeway to set individual rates to suit their taste.

Mr. Wilson, I have an idea if there is any veracity and soundness to that statement, that there will be an area where utilities can set rates to suit their taste, the path worn to your door by utilities to find out where those jurisdictions are will be worn deeply and quickly. I am sure, because I am sure it is my observation, and the hearings we have had before this committee and in other committees has been that it is not little more than conjecture. It is based upon hard figures. If there is a sufficient difference of opinion on the thing, there always are courts to go to and they have been resorted to where these figures are tested out, and we do the best we can. We do the best we can. But to dismiss it as mere conjecture, I would respectfully have to take difference with you.

I would not minimize the efforts of these regulatory bodies that much.

Now, maybe you do have to be a little more specific in your proof and your evidence on the thing in order to make much of an indentation on my thinking at the present time. I imagine others have the same idea.

Mr. Wilson. Permit me to be more specific on one point. I agree with you that most utility commissions attempt to do the best job that is possible. My concern is that we are making their job more difficult. We are introducing more joint-cost problems, without any empirical evidence of social benefits, by permitting combination utilities. As hard as the task is, it will be considerably more difficult and is considerably more difficult where combination utilities exist.

This is the point that I am trying to raise. There are serious problems inherent in utility combinations, the one that we are dwelling on as well as the others I have raised.

There is nothing but conjecture supporting the argument in behalf of permitting them, and, on balance certainly the arguments against combination far outweigh those in favor of combinations.

Senator Hruska. Well, I cannot see much conjecture to a postal rate of 6 cents for first-class mail on a premium notice, on a bill. You multiply it out and it comes to a million and a half dollars and come next Monday it is going to be $2 million. That is not conjecture.

Mr. Wilson. That is a very small——

Senator Hruska. It is not conjecture for two meter readers needed instead of one. It is not conjecture for the accounting system being handled by two electronic data machines rather than one.

Now, there are so many things that can be fastened down and nailed down and they are not conjecture. They are just very stern facts.

How do you get away from the testimony of Mr. Searls here where he demonstrates even in the administration as he did in his statement that there are substantial economies. Do you say that is mere conjecture?

Mr. WILSON. No, sir. I think that if we look at the facts rather than the claims, what we do see is combination utilities have higher costs. That prompts one to ask if in fact all of these economies take place when combination is permitted, why in fact aren't the combination utilities vastly more efficient vis-a-vis the straight companies and why haven't they been so in the past?

The answer is that the kinds of things that one attempts to dwell on when one is making that argument are a very small percentage of the utility's total costs.

Taking the electric power industry, for example, between 30 and 40 percent of total costs to an electric power company, are the generation costs of electricity, over 30 percent are the distribution costs of electricity. Nearly 10 percent are the transmission costs of electricity. If you subtract all of these things out and you find the areas in which economies are claimed it is a very very small percentage of the utilities' total cost structure. The fact is that while there will be some savings, savings of postal expenditures on the part of both the utility and consumers, savings on meter-reading expenses and some of these other things. I do not contest that they are very small when viewed in proper perspective. Thus, while there may be some minor savings there are other things that tend to push the cost up, that is, higher than we observe in the case of straight utilities that engage in competitive practices.

Senator HRUSKA. Well, let's get to some of the big things, then. I would not agree again that these things which Mr. Mustard talked about yesterday and which Mr. Searls talked about today, I would not agree they are small, but let us get to the big ones, then. Let us get to some of the big problems.

Item 1, pipeline. Here is a 36-inch pipeline that they built. Is the building of another pipeline a small item?

Mr. WILSON. No, sir; but I see no particular advantage in having a combination utility do it. I see advantages in having the straight——

Senator HRUSKA. You know that Mr. Searls did and his company does and they have a $2 billion funded indebtedness. That indicates they are pretty good businessmen.

Now, you do not see the idea of a combination company, do you, but the bondholders do and the debenture holders do. They say this is good business and that is a different thing than simply sitting in a chair arguing under the category of theory and say I don't see any advantage of a combination company doing it.

Mr. WILSON. If I had some money to invest and I was a speculator, I think I would look very approvingly at bonds that were floated by P.G. & E. to construct this kind of a pipeline. Because they face no competition, I am sure that they are going to earn what they set out to earn on it because they control the electric power rates. By controlling the electric power rates they are going to make sure that this pipeline pays itself off.

I would not be quite as certain about investing in a pipeline that was built by a company that faced market competition. So, to the investor, it is not a half-bad idea, but I am concerned about what the consequences are to the consumers.

Senator HRUSKA. You are not going to have competition on electric rates. There is a monopoly on electricity in that area and every area.

every area I know. The company does not fix rates. They propose a rate, a commission approves or does not approve the rates. So they cannot go out and build a pipeline and then say, Mr. Consumer, you have to pay for that pipeline and we are upping your bill. It does not work that way, does it, now in practice? I am not talking about theory. Talking about practice.

Mr. Wilson. In practice it works precisely that way. In addition, there is very aggressive competition between electric utilities in peripheral areas and between gas utilities, more so for industrial than for residential business. Residential business is something that is pretty much under the captive control of the utility that has the franchise to serve the area in question. There is, of course, competition between electricity and gas, but residential customers usually have no alternative but to accept utility services that they are offered. That is not the case for industrial customers.

If we look at the regional industrial development trends in the United States, and single out those particular industries that are large consumers of electricity, our primary metals industry, particularly aluminum, our chemical industries, particularly the producers of inorganic chemicals, or the glass industry, and so on, we find a very substantial and remarkable tendency on the part of these industries to locate in those geographic areas where power rates are low.

Senator Hruska. That is right.

Mr. Wilson. I have made extensive studies on that particular question with regard to the Pacific Northwest, with regard to the East South Central States, the TVA area, and I am aware of very aggressive competition between utility companies.

All you have to do is open up the Wall Street Journal or New York Times and you are going to see advertisements by the investor-owned utilities that serve these areas, trying to attract customers to their service area. That is aggressive competition.

Senator Hruska. Mr. Wilson, what is the relevance of that? Of course, there is competition between Houston and Dallas and Seattle and Denver and Pittsburgh. Of course, there is competition. We are talking about competition and competitive forces that are available to and for the advantage of consumers in a given area. We do not have to get into this metaphysical business of saying glass companies locate where the electric rates are low. We are talking in terms of the competitive forces that are available for the advantage of a given consumer living at 14th and Vine.

Now, how does this business of locating a glass plant one place or another have any bearing on this situation?

Mr. Wilson. Because the glass plant is located where costs of production are lowest, that, in turn, reduces the price of the final product. That would be true, in each of these industries. If you want to talk about the other type of competition where there are direct benefits rather than these indirect benefits to consumers, I would maintain as I have done in my statement that there is vigorous competition between gas and electricity in those areas where the services are provided by independent companies.

Senator Hruska. But it is in a regulated industry, Mr. Wilson, and the commission has the jurisdiction and exercises it. It is a political body and they represent the consumer. We do not have to sit in our

professorial or senatorial offices to get too excited about it. There are others interested in protecting the consumer than you and I or those similarly situated. It is a regulated rate in each instance and they have a ceiling there of x percent for return on capital that is invested. So it is different than manufacturing shoes or glass or automobiles.

Mr. WILSON. I am not aware of any responsible regulators or regulatory bodies that would say they could do that job with perfect efficiency. If you look at what the FPC has done in pipeline franchises, for example, they have demonstrated a tendency in favor of competition where it seems possible. They will franchise competitive pipelines into an area. At least that has been the trend in recent times where possible, as opposed to licensing the existing pipeline to expand its service. We have a presumption against combination mergers under the 1935 Public Utility Act.

The regulatory commission are very aware of their limitations despite their efforts to do a good job. Many of them, Federal agencies, in particular, do a fine job within the limitations under which they operate. State commissions, of course, you realize are the ones that are primarily responsible for regulating local gas and electric rates and there we have wide diversity.

Some States have reasonably good commissions, some have very poor ones. There are States with public utility regulatory commissions that have staffs considerably smaller than this committee's staff, and they have this responsibility to do all the statistical studies to which you refer. They have the reponsibility to allocate all of the joint costs between various consumer groups, between gas and electricity.

It is just something that is very difficult. First of all the technology and information necessary for efficient allocation is not there. Secondly, in many States the funds, the staff, and the necessary people are not available. And consequently it can be a bad situation.

Senator HRUSKA. Those staffs and those commissions won't be any better if we divide these companies than if we leave them in one whole, will they?

Mr. WILSON. That is precisely correct, but if we divide the companies, the requirements on the staff will not be as great because competition will do half the job for us.

Senator HRUSKA. Now, let us get to another big item. How will the business—in the field of theory now—how will this business of $2 billion indebtedness by a big company being divided in two and raised from an average of 5 plus percent as a recurring charge on that money, how will your theoretical approach apply to a situation where one-half of that is spun off and we can anticipate an imbedded carrying charge of anywhere from 8 to 9 percent if it were done today, not 5 or 6 years from now but today, could you apply your theoretical approach to that situation?

Mr. WILSON. Yes.

Senator HRUSKA. And tell us where the customer benefits as a social benefit.

Mr. WILSON. Yes, sir. I have already noted briefly that I would expect interest rates to be somewhat less for combination utilities than they would be——

Senator HRUSKA. That is plain theory, isn't it?

Mr. WILSON. No. It is not theory. It is something that is factual in many cases.

Senator HRUSKA. In what kind of a company?

Mr. WILSON. I would think that the interest rate would be somewhat less for a combination that for a straight company because they do not face competition. They do not have to pay the same risk premium that a straight company has to.

Senator HRUSKA. And it is a saving that insures to the benefit of the consumer, isn't it?

Mr. WILSON. No, sir. It is a saving that goes to the benefit of the investor.

Senator HRUSKA. Now, wait a minute. What becomes of the commission and the rate fixing? What becomes of the rate fixing? That is all computed—that is a part of the thing that is computed on the capitalization and the fixing of the rate. Don't you say that because it is not true, that because they can borrow money for 5 percent instead of 8 percent, the difference of 3 percent going into investors' pockets. It does not. There is still a limit of 7.3 percent for gas and 7.5 percent for gas for P.G. & E. in California and if they said 14 cents—they would have to earn more in order to achieve that.

Mr. WILSON. All that I suggest, is that the investor is willing to take this lower yield simply because of the fact that his investment is not as risky. Now, as far as the consumer is concerned, what we have to weigh (and I do not think that this has been weighed successfully), is the small benefit that the consumer receives in the form of his lower interest rate against what it costs him to grant this utility absolute monopoly power.

I think there is a trade-off here, and I think we have to look at both of these things and weigh them carefully. I think that on balance when one does that to the best of one's ability, there are generally insufficient reasons for permitting combination utilities.

Now, if in fact all of these claims were as valid as the people who are making them suggest, if they were really that valid we would not get the kind of evidence that we do when we compare combination utilities with straight utilities today. Combination utilities at the present time do not have a good track record.

Senator HRUSKA. Well, it may be of small interest but it might be the differential but not being much to you, talking about it, but by using a red pencil, most appropriate, and multiplying 3 percent on $2 billion, that comes to $60 million a year. And the consumer is going to have to pay that bill.

Now, then, what theory have you that will explain that?

Mr. WILSON. I believe that is a theory, sir. I have facts. If you look at the facts in these various studies that have been done, you will see that it is a fact that combination utilities have higher costs, that combination utilities charge higher rates for their electric power.

Now, the idea that there will be great cost savings if we permit combination, that is a theory, and it is a theory that is not supported by the facts.

Senator HRUSKA. Well, I will accept your statement as evidence. I will not accept your statement as proof that the costs are higher because I have an idea there is a difference of opinion on that. But you still have a given situation here. You have a company that this law would divide in two, and it would have to refund and refinance its obligations. They come, in its present portfolio, to $2 billion. Now,

it is inescapable to me, and you still have not explained what becomes of that except for one thing. It is an added cost to the consumer and he is to pay that. He has to pay that difference.

Mr. WILSON. If that philosophy would have governed——

Senator HRUSKA. It is not a philosophy.

Mr. WILSON (continuing). Our antitrust——

Senator HRUSKA. It is a fact.

Mr. WILSON (continuing). Our antitrust enforcement since the beginning of this century we would still have the Standard Oil trust, still have the tobacco trust, DuPont controlling a good share of General Motors. There have been many divestitures of substantial amounts of assets in the past and by and large these divestitures have worked to the public advantage because of the competitive environment.

Senator HRUSKA. Yes, indeed they have, but there is no State regulatory body that sets a rate of return yet on General Motors or Ford or anybody else. There is in the electric business. There is in the electric business and somebody has to pay that increased interest. Somebody has to pay that increased cost of operation of two companies instead of one.

Now, it is idle talk to get into General Motors and these other spinoffs and divestitures. We are talking about a particular kind of beast, and it is governed by—very very stringently governed by State regulatory bodies and by the Federal Power Commission. And so we should fashion our testimony in that context and not in some other context.

Mr. WILSON. I would say that given the fact that State regulatory bodies are imperfect, given the fact that the evidence available suggests that combination utilities have been less efficient and more costly than straight companies, given all of the theoretical reasons to doubt maximum advancement in the future if we eliminate competitive pressures, and in the absence of any really convincing evidence to support combinations, I would tend to have a prejudice against them.

Of course I am not so adamant that I cannot conceive of situations in which some combination in some unusual circumstance may be better than competitive straight companies. That is why I would not necessarily argue that we should have a per se rule prohibiting all combinations.

All that I am saying is that in order to justify a combination there should be some pretty good evidence. There is excellent evidence against it, and I think we have to balance these in order to reach an informed decision.

Senator HRUSKA. Are you in favor of the passage of that bill?

Mr. WILSON. I am in favor of the passage of this bill with the suggestion that it be amended as suggested in the question by counsel to reflect the philosophy of the 1935 Public Utility Holding Act. The per se nature of the bill is the only thing that I am in objection to. And I have outlined that in the last page of my submitted testimony.

Senator HRUSKA. Well, the Public Holding Act has only one limitation and such situations and that is the device of the holding company must not be used and it leaves the determination to the States in other instances. That is what the Public Holding Act——

Mr. WILSON. I am talking about a different qualification. It prohibits combinations with the exception of those instances where the in-

dependent operation of gas and electric utilities would be a nonviable situation financially. I think if we can find some situations where there is very strong evidence that there are big cost savings, that the consumer will benefit by integration and that these cost savings and consumer benefits outweigh the loss of competition then I would say in those isolated instances I would not object to merger. The problem is there isn't going to be very many of those instances because the utilities that exist now in combined form just have not shown us any evidence that they are grossly more efficient than the competitive firms.

Senator HRUSKA. Well, on that, of course, we will let the record speak for itself. We have had a very splendid witness yesterday, a good witness today. We are going to search out the record that can check out the soundness and veracity of their tetimony. If they are to be believed and if the thrust of their testimony is what it appears to be, I would say there is good concrete evidence in the record right now that the assertion you make on the industry as a whole cannot be borne out and will not be borne out. But given the assumptions that the combination companies do not have a more efficient way, given the many assumptions that you have engaged in, of course your conclusion is correct. But I do not know that a body sitting here as a quasi-judicial body is going to give too many assumptions. I think we are going to ask for testimony and evidence.

Let me ask you this question. How long will it take to effect this splitting of these two companies and what will be the costs thereof?

Mr. WILSON. I suspect it would probably take beyond December of 1972, but I would not know precisely how long it should take. I certainly think that is something that should be up for negotiation and rational consideration.

Senator HRUSKA. 1971, 1972, 1972?

Mr. WILSON. I said I think it would probably take longer than that especially if we are going to give the combination utilities the benefit of presenting their case.

Senator HRUSKA. Have you any idea how long it would take, Mr. Wilson?

Mr. WILSON. Well, it took some 12 to 15 years to accomplish the divestiture of DuPont and General Motors and I would suspect it may take up to that much time in some of these cases as well.

Senator HRUSKA. The Public Holding Company Act involved an entirely different thing because the holding companies, after all, were holding companies for individual corporate entities, and yet that took quite a few years, didn't it?

Mr. WILSON. Yes, sir. This certainly is not something that could be efficiently accomplished overnight.

Senator HRUSKA. They dealt with separate packages. This is not a separate package. This is one corporate entity involving two business activities and it would present I am sure a lot of problems and the cost of those divestitures would have to be borne by the consumer.

Mr. WILSON. These are problems that we have overcome in the past numerous times in nonregulated industries, and while there may be some immediate costs to the consumer, there is every indication that in the long run that the consumer will benefit.

Senator HRUSKA. Very well.

Mr. Counsel, I am grateful to you for your patience and tolerance. Have you further questions?

Mr. O'Leary. No, Mr. Chairman. If we have any other questions, we request the opportunity to submit them in writing.

Senator Hruska. By all means, and subject to the patience of the witness, you will get an answer.

Mr. Bangert?

Mr. Bangert. Nothing.

Senator Hruska. We have gone over our limit a little bit but it has been interesting. Thank you for coming, Mr. Wilson.

Mr. Wilson. Thank you, sir.

Senator Hruska. We will recess, let the record show, until 11 tomorrow morning in room 1202 of this building.

Thank you very much, gentlemen.

(Whereupon, at 12:50 p.m. the committee adjourned, to reconvene the following morning at 10 a.m., Thursday, May 13, 1971.)

(The prepared statement of Mr. Wilson follows. Testimony resumes on p. 101.)

Prepared Statement of John W. Wilson

Public opposition to anticompetitive combinations and trade practices is firmly supported by substantial evidence that competitive behavior and market structure are in the public interest. Where informed buyers are able to choose between the products and services of competitive market rivals there are nearly ideal incentives for production efficiency and product quality.

It is because workably competitive markets are not always possible that we find it necessary and desirable to regulate certain industries. Foremost among these are our public utilities. While regulation contributes substantially to the performance of these industries, there is virtually a unanimity of opinion among economists that it is, at best, an imperfect substitute for competition. And, among those who are not convinced that public ownership and operation are a panacea for regulatory imperfections, it is widely accepted that greater reliance should be placed on competitive forces whenever that is possible. Indeed, the President's Council of Economic Advisers made that very recommendation in 1970 in stating that "more reliance on economic incentives and market mechanisms in regulated industries would be a step forward." The Council then went on to state that industries have been more progressive when regulatory agencies endeavored to foster competition.

While efficient utility regulation can be an effective deterrent to many traditional monopolistic abuses, it has thus far failed to provide sufficient positive incentives for maximum advancement in the fields of management efficiency, cost control, research and development, and price reductions. These are areas where the threat of competition can be especially stimulating.

There are numerous instances and situations within the regulated sector of our economy where competitive stimulus tends to provide a valuable and irreplaceable supplement to discretionary public control. In the transportation industries, for example, there is a growing recognition of the important role that intermodal competition can play. This recognition has prompted some to suggest that we relax or even eliminate certain long standing restrictions and regulatory powers of the Interstate Commerce Commission.

In most cases, however, it is not really a question of choosing between regulation and competition. Instead, there is a growing understanding of the ways in which competitive forces can be made to serve as an integral and complimentary force within the regulatory framework. Examples are numerous. Airline service improvements have been spurred by competitive forces ever since the 1940's, and the C.A.B. has, to a large extent, been able to rely on competition to control rates and earnings on major routes. Recent F.P.C. pipeline certifications have tended to favor the entry of additional suppliers where that is economically feasible rather than exclusive market franchises. In March, 1970, the Federal Communications Commission in a report on the communications satellite industry, stressed that one of the most important values of domestic satellites is their potential for "expanding the beneficial role of competition" in markets for communication services.

Thus, at least at the Federal level, where regulatory commissions receive comparatively good financial support and where commission staffs are able

to attract highly skilled professionals, there is a growing and substantial awareness of ways in which competition can improve the performance of regulated industries.

Of course, primary responsibility for local gas and electric rates and service lies with state commissions, and there, as outlined in a report issued September 11, 1967 by the Senate Subcommittee on Intergovernmental Relations of the Committee on Government Operations, effective and efficient regulation is often a less likely end result. Frequently state commissions are understaffed, underpaid, and underskilled. Consequently, even where the best intentions prevail results are necessarily limited. Surely, in view of the social attributes of competition, it would be a serious error not to foster competitive conditions where they are needed most.

In my following comments I would like to stress two major points. First, there are extremely persuasive *a priori* reasons for expecting a deterioration of social welfare where local gas and electric monopoly franchises are exclusively controlled by a single interest. Second, the limited empirical evidence available at this time indicates that consumers who are served by combination companies are generally at a disadvantage as compared with markets where gas and electricity are provided by independent enterprises.

THE CASE AGAINST COMBINATION GAS-ELECTRIC UTILITIES

Before proceeding directly to the first major point, it is worth noting that certain specific issues under consideration here are of relatively recent vintage. When the Public Utilities Holding Company Act and the Federal Power Act were passed in 1935, the competitive interface between gas and electricity was far more limited than it is today. Moreover, both industries were much more localized. It was not until after World War II that transcontinental pipelines and high voltage transmission grids began transforming these two industries into truly interstate operations. Perhaps that is one reason why the Public Utilities Act of 1935 expressly prohibits joint control of gas and electric service only where the holding company device is used and leaves determination to the states in other instances.

The increased interstate nature of the utility industries has greatly improved the likelihood of direct competition in local markets. Gas distributors are no longer dependent on the availability of nearby natural gas deposits or the cost of locally manufactured gas. In addition, interstate interties and pooling arrangements between electric utilities tend to reduce the cost of electric service in that they lessen the need for reserve capacity to meet seasonal and daily peaks. Interties and pooling arrangements have also encouraged the development of otherwise uneconomically large generating units.

In addition, there has been a proliferation of household and industrial energy uses that can utilize either gas or electric power. Air conditioners and clothes dryers were virtually nonexistent in 1935 as were electric stoves. Furthermore, both gas and electricity have made substantial inroads on coal and fuel oil for water and space heating energy requirements.

All this, of course, has heightened the potential for competition between gas and electricity. Because of these changes it seems entirely appropriate to reevaluate the extent to which federal legislation should deal with competitive conditions in the public utilities industries.

Within the framework of current antitrust philosophy and economics it is perfectly clear that were it not for the complicating fact that we are concerned here with regulated industries and the right of states and municipalities to grant exclusive franchises, there is no question that the formation of combination utilities would be deemed anticompetitive and generally run against the grain of antitrust thinking. Mergers of this type would be prime candidates for proceedings under Section 7 of the Clayton Act and, perhaps, Section 2 of the Sherman Act as well. The essential question, therefore, is whether there are sufficient reasons for exempting these industries from normal antitrust prohibitions against anticompetitive combinations and practices.

I. Theory

There are a number of possible advantages which may result from the integration of gas and electric service. While these are likely to be of less importance than the disadvantages, they should, nevertheless, be noted in the interest of a balanced appraisal. The most frequently mentioned advantages fall into three

categories: (1) advantages in obtaining capital and other production inputs due to the relatively large size of the combined operation, (2) technical economies arising from the elimination of overlapping efforts, and (3) economies derived from the elimination of competitive sales promotion efforts and other rivalrous activity of low social value.

Utility customers could benefit, for example, if the integrated company's cost of capital was reduced due to increased diversity of the combined enterprise or if merger were to permit more efficient use of personnel and equipment. The reading of gas and electric meters might be consolidated; joint billings could reduce service costs; and administrative operations might be combined within a single corporate headquarters.

While scale economies like these may result in significant savings in some instances, it is a more likely prospect that the long-run disadvantages of integrated utility service will generally tend to weigh heavier in the balance. The first and most intuitively obvious disadvantage of electric and gas integration is the loss of competitive stimulus. If enterprises are independent, any service improvement, innovation, or cost reduction that will increase sales and net revenue is likely to be adopted. In contrast, if the utilities are operated as a single enterprise and the proposed innovation will cause the consumming public to substitute one type of utility service for the other, there will be a reduced incentive for innovation or service improvement.

Moreover, while regulation can be an effective negative restraint against monopolistic excesses, commissions (unlike market competition) are extremely limited in their ability to force firms to accept risk in the interest of advancement and innovation. After integration has been accomplished and the threat of aggressive interutility competition is eliminated, the management of a combination utility may choose the "quiet life" as opposed to the dynamic quest for product and market improvements. Given the knowledge that their markets are secure and that "normal" growth with expanding population is assured, there will be little to compel integrated firms to develop and introduce new technologies and service improvements at the maximum efficient rate.

That, of course, is a problem that is common in one sense to all monopolies. It is, however, probably further heightened where regulation restricts the profitability of successful innovation. There are two generally recognized types of economic incentive. One is that the risk taker will earn a reward for developing and undertaking successful innovations. The reward is typically in the form of higher than normal profits until patents expire and the leader has been fully and successfully imitated by other firms in the industry. The second type of incentive is survival. If a firm's product is challenged by competitive substitutes, improvements in quality or cost reductions may proceed at the maximum rate merely to avert sales losses. While regulatory profit restraints generally limit the first type of incentive, mergers between gas and electric service will totally eliminate the second.

A second potential disadvantage of combined utility operations stems from the utility's ability to discriminate between consumer groups. While a certain amount of price discrimination is desirable, particularly where differentials mirror variations in the cost of serving different customers, it can become excessive and unjustified. There are several reasons to anticipate certain discriminatory excesses in regulated industries.

The fact that the cornerstone of utility regulation is a restricted rate of return on invested capital suggests a unique consideration in the case of integrated utilities. If, let us say, a combined gas-electric utility is permitted an 8 percent return on invested capital and the company is allowed substantial independence in proposing specific rate structures that produce an end result of that magnitude, it should be expected that rates will be structured so as to subsidize certain classes of service at the expense of others.

For example, since gas service faces a wide range of competitive fuels for most of its industrial and household applications whereas many electricity uses have no good substitutes, one can expect combination utilities to underprice gas to meet competition from fuel oil or coal and compensate by setting uncontested electric rates higher than they otherwise would be. Similarly, since large industrial buyers always have alternatives such as generating their own power or relocating industrial operations in another utility service area, there is the additional possibility that they will receive special rate considerations at the expense of smaller industrial customers or residential consumers who lack similar alternatives. In general, given the opportunity, we should expect a utility to engage

in this kind of socially wasteful discrimination if it will permit the establishment of a larger rate base and greater net return.

Competition, of course, is a powerful antidote against this tendency. In order to reap the private benefits from excessive and uneconomical rate base expansions in selected markets, the utility must be able to cover its losses by charging prices that exceed the full cost of service in its profitable markets. If gas and electric services are provided by independent enterprises, the possibilities for cross subsidization and uneconomical price discrimination will be diminished. Obviously, it is unprofitable to provide service below cost to some customers where competition prevents offsetting charges above cost in other markets.

From an antitrust viewpoint a most serious consequence of this kind of cross subsidization and price discrimination is the indirect impact that it may have on competition *between* a utility's commercial and industrial customers. As already noted, rate discrimination tends to favor large buyers. That, of course, is totally consistent with social welfare maximization only to the extent that rate differentials reflect variations in the cost of service. To the extent that rate discrimination is in excess of what is cost-justified, there are some potentially serious problems.

If low rates to large buyers are wholly or partially attributable to the buyer's bargaining power rather than cost savings, the reduced profit margin will be recaptured through higher prices to small consumers. The low rates in that case impart only private benefits rather than a net social gain. Assuming that energy is a significant cost of production, this type of excessive discrimination in favor of large buyers coupled with recoupment from small consumers is likely to result in either or both of two specific harms.

First, to the extent that the favored group of consumers represent a distinctive sector of the economy (large, heavy basic product industries like primary metals, for example) there will be a tendency to expand that sector beyond its optimal size, allocating to it scarce human and capital resources which, in the absence of unwarranted discrimination, would be more productively employed in other economic pursuits. The reason for the consequent misallocation of resources is that the subsidized power rates result in monetary costs of production below actual resource costs in the favored industries and above actual resource costs in less favored sectors where recoupment is taking place. That, in turn, will lead to lower product prices and larger output where energy costs are artificially low and higher product prices and smaller output where costs are high. Because the cross subsidization process throws monetary costs out of balance with social costs, the end result is an excessive output of relatively low value products and, in terms of social welfare, a more than proportionate scarcity of relatively high value products.

A second potential harm surfaces if some industries are composed of both large and small firms. In that case we are confronted with the distressing possibility that the largest firms in the industry will be subsidized by the smallest, resulting in an unfair and unwarranted competitive advantage. Ultimately that will lead to higher concentration ratios and fewer small competitors (without any socially compensating scale economies) in industries where these conditions prevail.

As an initial response to this warning it might be argued that price discrimination which is not cost related could be prevented through vigorous enforcement of the *Robinson-Patman Act*. But that argument assumes the ability to detect violations. Under prevailing cost accounting methods and technological conditions the assumption may be totally unjustified with respect to combination utilities. Even where utility services are not integrated we are now very limited in our ability to estimate with any great precision what share of joint costs should be allocated to specific customer categories. Under conditions that would prevail were utility services integrated so as to maximize the kind of potential cost savings noted above, there would be far more joint costs than at present. Consequently, that would further reduce our currently limited ability to estimate the true cost of serving any single customer or group of customers to little more than mere conjecture, and utilities would have an expanded leeway to set individual rates to suit their taste. Thus, it cannot be argued that *Robinson-Patman* is an effective deterrent to economically damaging price discrimination by combination utilities.

II

Turning finally to the limited empirical studies of existing combination utilities, one is unable to find any substantial quantitative evidence that tends to

allay, redeem, or offset the theoretical reasons for opposing such combinations. Indeed, virtually all of the empirical work available, if anything, tends to confirm the a priori case against integration.

That there is substantial competition between gas and electricity is an undeniable fact. My own statistical studies and those of others show a high cross elasticity between the demand for either type of energy and the price of the other. As the price of electricity falls there are tendencies for both the quantity of electricity sold to rise and for gas sales to fall. The opposite is true if electric power rates rise. Similar conditions prevail if gas prices vary while electric rates remain constant. The competitive interrelationship can be illustrated by focussing attention on those major household appliances where the consumer has a choice between electricity and gas. Consider, for example, the evidence in Table 1. The monthly electric bill for 500 kilowatt-hours in these ten cities ranges from $5.00 to $14.24. It is apparent that, as a general rule, where the electricity price is high fewer households rely on electric power for cooking and heating purposes. Using a statistical sample of over eighty S.M.S.A.s and the residential gas rate I found that the cross elasticity value for water and space heating was in excess of unity. That means that as the price of gas varied by one percent the number of homes using electric power varied by more than one percent, or greater than proportionately.

TABLE 1

SMSA	Monthly price for 500 kw.-hr.	Percentage of homes with electric—		
		Ranges	Water heat	Space heat
Seattle	$5.00	84.2	79.3	9.56
Portland	6.40	80.6	74.5	10.10
Nashville	6.90	74.7	65.7	34.48
Atlanta	8.60	33.6	14.2	.58
Birmingham	8.73	39.2	16.9	.88
Pittsburgh	9.70	21.9	8.1	.14
Washington	11.59	21.6	8.0	.30
Baltimore	12.85	13.4	8.2	.35
Boston	13.56	25.5	8.2	.12
New York	14.24	7.6	1.5	.15

Source: Federal Power Commission, Typical Electric Bills 1963 and U.S. Department of Commerce, Bureau of the Census, 1960 Census of Housing.

Accepting the fact that the natural gas and electric power industries are competitive, other investigators have attempted to determine whether there is evidence that integration enables cost and rate reductions that would tend to offset the loss of competition.

A study by William H. Collins, formerly an economist with the Federal Power Commission, covered 52 combination and 89 straight electric utilities. He concludes, "the performance of combination utilities is significantly below that of straight electric utilities." Collins examined 40 individual revenue, cost, and sales variables in an attempt to determine whether there were generally identifiable and systematic differences between straights and combinations. Among his more interesting findings were the following:

1. Combinations charged significantly higher rates per kilowatt-hour for each of the three major customer categories (residential, industrial, and commercial).

2. Probably because of these higher rates and lower sales volumes the combinations were permitted to earn significantly higher net operating returns per kilowatt-hour in order to cover capital costs plus allowed return.

3. Combination utilities had consistently higher distribution expenses except that straight companies spent more per mile on underground distribution lines.

4. Combinations spent more per unit of sales on customer accounts, supervision, meter reading, and administrative expenses and salaries, while straights spent more on advertising and sales promotion activities.

Work that I have done is in general agreement with the Collins findings. Since combinations do have higher rates for electric service it follows logically that they will have higher costs per kilowatt-hour in almost all cost categories as well as higher profits per unit sold. Higher rates are the cause. Because rates are high, combinations sell less electricity (there being the tendency noted above for consumers to substitute other fuels—especially natural gas). That, of course means that all overhead and fixed operating and maintenance expenses are spread

over a smaller sales volume and the allowed rate of return on plant and equipment must be earned from fewer kilowatt-hours of output. The ultimate result is a relatively low volume, high cost operation.

My own work on sales expenses further substantiates that straight electric do incur higher promotional costs. Examining 53 straight electric and 47 combined utilities I found that in 1968 the straight electric group allocated about one-half of one percent of total revenues to advertising as compared to one-third of one percent for the combinations. While the percentage is low in both cases, the difference is statistically significant, and it is consistent with the expectation of more competition where utility services are not integrated. Higher advertising expenditures, of course, are not necessarily evidence of greater social welfare, but the fact does highlight a significant behavioral difference between integrated and non-integrated firms.

Another empirical study was done in 1968 by National Economic Research Associates, a New York consulting firm. The N.E.R.A. study, done for the Long Island Lighting Company, a major combination utility, covered 47 straight electric companies, 40 combinations, and 13 straight gas companies. While the authors of the study reach the conclusion that "the data do not indicate that a conclusion can be reached either in favor of, or against combination companies," they are in agreement with Collins in that customer accounts expenses, administrative and general expenses, operating and maintenance expenses and capital costs (as measured by gross electric plant in service) are all higher for combination companies than for straight electric utilities when measurements are made on a per kilowatt-hour basis.

N.E.R.A.'s reluctance to reach a firm conclusion regarding the relative merits of combination utilities is most likely attributable to the fact that their 13 straight gas companies appear to have higher costs per gas customer than do the 40 combinations. That, however, is in accord with the preceding theoretical argument that combinations will use their increased ability to engage in cross subsidization by allocating joint costs in order to reduce rates in their more highly competitive gas markets (i.e., where natural gas competes with fuel oil and coal) at the expense of electric customers. At any rate, the N.E.R.A.'s study, while stopping short of Collins' condemnation of combinations, does not challenge the *a priori* case against integration.

In a 1966 study, Regina Herzlinger, another former F.P.C. economist, concludes, like Collins, that straight electric utilities have lower units costs and lower average rates than combination utilities. Herzlinger finds that to be the case for utilities of all sizes.

Other empirical studies of which I am aware tend to fall between Collins' clear-cut verdict and N.E.R.A.'s neutrality. I have not seen any reliable statistical studies that support a position favoring the merger of gas and electric utilities.

Clearly there is a need for considerably more empirical work in this area as well as better basic data before we can reasonably hope to quantify the potential economic harm of interutility mergers. But on the basis of the limited evidence available, coupled with the strong theoretical case against utility combinations it is entirely appropriate and advisable to take the steps necessary to protect the public interest as soon as possible. To the extent that additional utility combinations are prevented now we will be spared the highly probable burden of either economic inefficiency or more difficult dissolution cases in the future.

My major reservation with regard to S. 403 is that it appears to be a per se rule blanketing all gas-electric integration. While it is clear that such integration is usually undesirable, there may be special instances where unique local conditions justify exceptions to the general rule. For example, utility integration is permitted under the 1935 Public Utilities Holding Company Act when independent service is not an economically viable alternative. While there should be a strong presumption against such mergers with the burden of proof placed on the utilities, since there are only several hundred major utilities in the United States and less than 100 combinations, the cost of a more flexible rule would not be overbearing. That, of course, would make it necessary to expand the time limit for divestiture over a longer period than proposed.

In summary, it is my opinion that excessive integration and monopoly power in utility markets, as in industries in unregulated sectors of our economy, are harmful to the public interest. Therefore, I am in favor of appropriate antimerger and antimonopoly legislation to the fullest practical extent.

PROHIBIT CERTAIN COMBINATIONS AND CONTROL BETWEEN ELECTRIC AND GAS UTILITIES

THURSDAY, MAY 13, 1971

U.S. SENATE,
SUBCOMMITTEE ON ANTITRUST AND MONOPOLY
OF THE COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met, pursuant to recess, at 11:05 a.m., in room 1202, New Senate Office Building, Senator Hiram L. Fong presiding.

Present: Senator Fong.

Also present: Howard E. O'Leary, staff director and chief counsel; Charles Bangert, general counsel; Peter N. Chumbris, chief counsel for the minority; Hastings Wyman, minority counsel; Patricia Bario, editorial director; Wilbur Sparks, assistant counsel; and Janice Williams, clerk.

Senator FONG. We are continuing this morning the hearings on S. 403, introduced in the Senate by Senator Metcalf, a bill to prohibit certain combinations and control between electric and gas utilities.

We are very fortunate to have with us this morning Mr. John N. Nassikas, chairman of the Federal Power Commission, and his staff.

Mr. Nassikas, will you introduce your staff?

Mr. NASSIKAS. Yes; I will be very happy to, Chairman Fong.

We have with us today Mr. Harry Voigt, who is an assistant to me; Mr. Emmett J. Gavin, who is another assistant to me as chairman; Mr. Gordon Gooch, to my right, general counsel; Daniel Goldstein, assistant general counsel; Mr. James R. Tourtellotte, attorney in the office of general counsel; Mr. William P. Diener, on my left, attorney, in the office of general counsel. In the back of the room: Mr. Roy Nierenberg, legal assistant; Mr. William W. Lindsay, who is the chief of our Division of Rates and Corporate Regulations, Bureau of Power. From the Office of Economics, Mr. David S. Schwartz, who is the assistant chief of that office and currently acting chief. From the Bureau of Natural Gas, Thomas J. Joyce, chief. And from the Office of Accounting and Finance, Mr. Arthur L. Litke, chief.

Senator FONG. The committee is very happy to have your staff with us.

Mr. NASSIKAS. Thank you, Mr. Chairman.

Senator FONG. You may proceed as you desire, Mr. Nassikas.

STATEMENT OF JOHN N. NASSIKAS, CHAIRMAN, FEDERAL POWER COMMISSION: ACCOMPANIED BY HARRY H. VOIGT AND EMMETT J. GAVIN, ASSISTANTS TO THE CHAIRMAN; GORDON GOOCH, GENERAL COUNSEL, DANIEL GOLDSTEIN, ASSISTANT GENERAL COUNSEL, JAMES R. TOURTELLOTTE, ATTORNEY, WILLIAM P. DIENER, ATTORNEY, AND ROY NIERENBERG, LEGAL ASSISTANT, OFFICE OF THE GENERAL COUNSEL; WILLIAM W. LINDSAY, CHIEF, DIVISION OF RATES AND CORPORATE REGULATIONS, BUREAU OF POWER; DAVID S. SCHWARTZ, ASSISTANT CHIEF AND CURRENTLY ACTING CHIEF, OFFICE OF ECONOMICS; THOMAS J. JOYCE, CHIEF, BUREAU OF NATURAL GAS; AND ARTHUR L. LITKE, CHIEF, OFFICE OF ACCOUNTING AND FINANCE, FEDERAL POWER COMMISSION

Mr. NASSIKAS. In response to Chairman Hart's letter of April 23, 1971, I am here to present the views of the Federal Power Commission on S. 403.

Although S. 403 is in the form of an amendment to the Federal Power Act, its practical effect is to add to the antitrust laws a special provision respecting the common ownership of electric utility facilities and gas utility facilities. I believe, therefore, that it will be useful to examine the provisions of S. 403 against a background summarizing the existing powers of the Federal Power Commission and other agencies, under the antitrust laws.

Under section 203 of the Federal Power Act, 16 U.S.C. § 824b, approval by the Commission is required before any electric company may merge or consolidate its jurisdictional facilities with similar facilities of another. In proceedings under section 203, in which a proposed merger involves gas utility property as well as electric utility property, the Commission has asserted its authority to require the applicants to divest the gas properties as a condition of the merger, and it has imposed upon the applicants the burden of demonstrating that the retention of gas properties is consistent with the public interest. See *Commonwealth Edison Co.*, 36 F.P.C. 927 (1966), aff'd sub nom. *Utility Users League* v. *F.P.C.*, 394 F. 2d 16 (7th Cir.), cert. denied, 393 U.S. 953 (1968). Thus, the Commission exercises control over combination companies where such companies seek to expand through merger or acquisition. However, there is no arbitrary rule that divestiture will automatically be required. The public interest standard is employed to make that determination based upon the facts presented in each individual case.

The Commission also has jurisdiction over the acquisition of jurisdictional facilities by natural gas companies under section 7 of the Natural Gas Act, 15 U.S.C. § 717f. It should be noted that under present law, the Commission does not have parallel jurisdiction over stock mergers of natural gas companies.

I will interpose here to say that we are seeking such authority from the Congress.

To date, the Commission has not been faced with any application to acquire facilities under section 7 involving an asset acquisition of, or by, a combination company.

Aside from its power to control certain mergers and acquisitions of public utility companies, the Commission does not have primary jurisdiction over antitrust questions, and the Commission's issuance of a license, for example, for construction of a hydroelectric project, does not preclude a collateral antitrust action in the courts. *Pennsylvania W. & P. Co. v. Consolidated G.E.L. & P. Co.*, 184 F. 2d 552 (4th Cir.), cert. denied, 340 U.S. 906 (1950). The Commission has no power to enforce the antitrust laws or to declare that a certain transaction or course of conduct violates the antitrust laws. *Cf. City of Pittsburgh v. F.P.C.*, 237 F. 2d 741 (D.C. Cir. 1956) (involving a pipeline application under the Natural Gas Act).

Under existing law, there is no jurisdiction to alter the existing status of a combination company. Jurisdiction attaches only when the combination company seeks to acquire, or be acquired, by another utility.

In other words, I might interpose, Mr. Chairman, that under existing law, the Commission does not have power to compel a divestiture of a combination gas and electric utility.

Senator FONG. Only when a company wishes to merge, then you have a right to tell them that——

Mr. NASSIKAS. Yes.

Senator FONG. That they have to divest certain of the properties; is that correct?

Mr. NASSIKAS. Yes, sir.

Senator FONG. Have you been allowing any company which wishes to merge and has, say, a gas franchise, to continue to have that gas franchise and merge with the electric company?

Mr. NASSIKAS. Yes, we have a case which is currently pending on rehearing—it is an Iowa case—in which the Commission in its original opinion allowed the merger of electric and gas utility properties. As I stated, this case is pending on rehearing, and, of course, the Commission has not yet decided the case finally.

Senator FONG. Thank you.

Mr. NASSIKAS. In addition to the Federal Power Commission's authority over combination companies, the ownership of gas and electric utility properties by registered holding companies and their subsidiaries is regulated by the Securities and Exchange Commission under the Public Utility Holding Co. Act of 1935. Here, again, I will interpose, Mr. Chairman. The reason that I refer to this statement relative to the authority of the SEC under the Public Utility Holding Co. Act is to give the committee some understanding of existing sanctions under the law which can be exercised in the event of holding company were to attempt to acquire another associated property; or, in the event a holding company were operated as a combination. In these instances there have to be certain exemptions from registration as the chairman understands. These exemptions have to be obtained under the hearing processes of that act. Now, I will refer to this statute and the proceedings under it in more detail later in my testimony.

Also in this regard, anticompetitive acts and practices by a combination utility which are violative of the Federal Trade Commission Act, the Sherman Act or the Clayton Act may be subject to investigation and court action by the Antitrust Division of the Department of Justice or to administrative action by the Federal Trade Commission.

A blanket statutory prohibition against the continued operation of combination gas-electric utilities as joint enterprises would have far-reaching consequences. It would entail a massive restructuring of the operations of companies which account for more than two-fifths if the total electricity sales by private utilities and for a substantial part of the total gas sales by utilities and pipelines making direct sales to ultimate consumers. The impact of compulsory divestitures of every combination utility's gas or electric operations would be felt in varying degrees by their customers, employees, stockholders, and bondholders. Whether the overall effect would tend to be favorable or adverse to the public interest, in my opinion, can only be determined by a careful and detailed analysis of each company's operations and the territory served.

It is necessary to examine the proposed bill in the context of national policy issues. National policy fosters a strong energy industry dedicated to technological progress and economic growth compatible with the highest attainable environmental standards consistent with adequate service and reasonable price to the consumer. The encouragement of competitive enterprise is, of course, one of our important national goals, but in the case of regulated electric and gas utilities it is a goal which has always been conditioned upon other public interest considerations. We recognize that some economies of joint electric-gas operations could not be attained if the electric and gas operations of the enterprise were divested from single to multiple ownership and control.

S. 403 is premised on the belief that separately managed gas and electric utilities will out perform combination utilities. This is a proposition requiring empirical investigations, case by case. On the one hand, we must consider the various possible sources of cost savings with combined operations: For example, a single meter reader for gas and electricity, combined inspection and service departments, joint accounting, purchasing, and billing departments, and a common management. Importantly, diversification of combined gas and electric operations may contribute to revenue stability and a lower cost of capital. These advantages, if realized, can be passed on to the utility's customers in the form of lower rates or better service, or both. On the other hand, we should not deny the possibility—and I do not—that direct competition between gas and electricity may induce greater efficiency of performance and effort by each utility to economize on labor and capital and give better service. That is the heart of our competitive process in the United States, namely that competition is an incentive to better service. I recognize this principle, but you have to balance that competitive principle against the economies of scale and other advantages that can be realized from joint operation, and, then, make a determination, not by congressional findings but rather by a complete analytical and thorough investigation of each case in each market in the United States.

Senator Fong. Is it true that all the gas companies and all the electric companies are under the control of public utility commissions?

Mr. Nassikas. In the States?

Senator Fong. Yes.

Mr. Nassikas. Yes. This is almost 100 percent correct. There are two or three exceptions to that in some States which are really quite immaterial to the general question.

Senator FONG. Is it part of the role of these commissions to look into the efficiency of the operation of these enterprises?

Mr. NASSIKAS. Yes, sir. Mr. Bloom, the president of the National Association of Regulatory Utility Commissioners, for example—I happened to read his statement earlier this morning—testified as to the duties of the State commissions relative to the efficient utilization of resources and showing that there were no abuses of competitive effects.

I serve on the executive committee of the National Association of Regulatory Utility Commissioners, not because I do not have enough to do, but I feel there should be coordination between your primary Federal power agency and the State agencies that are involved in similar endeavors. There are some State commissions that are understaffed and require assistance; nevertheless, there are many State commissions that are not understaffed relative to carrying out their responsibilities.

Overall we must ask as a fundamental proposition of this legislation whether it is desirable for the Congress of the United States by Federal preemption to limit the regulatory authority of the States with reference to combination gas and electric utilities? Is it desirable?

Senator FONG. And you brought up the question of efficiency and competition.

Mr. NASSIKAS. Yes, sir.

Senator FONG. Now, with the Commission being a very aggressive Commission, a Commission that will really pay attention to what it is doing, it should create efficiency in these companies.

Mr. NASSIKAS. Yes, sir.

Senator FONG. And the imposition of rates, for example, they will not subscribe to certain rates if they find that the utility does not conform with certain efficient operations, would they?

Mr. NASSIKAS. That is correct. Also, it is a universal duty of State regulatory commissions to assure that there are nondiscriminatory rates charged. There must be a sound relationship between the rate which is charged and the service which is given. There is a duty on the part of the regulatory commissions to prevent, shall we say, subsidization of one class of ratepayer, an electric ratepayer, by another class of ratepayer, a gas consumer, or vice versa.

Senator FONG. And that is the reason, because you do not have any competition here, that Government really looks with a very, very jaundiced eye at these operations.

Mr. NASSIKAS. Yes; because, potentially—and I want to emphasize this, and I think I did, when we do not have competition, there is inherent in this process a necessity for some kind of regulation to be certain that the consumer is being well served.

Senator FONG. Thank you.

Mr. NASSIKAS. Now, competition, of course, may also provide more freedom of consumer choice and it will eliminate the danger that one service, either gas or electricity, will be neglected wherever there are advantages for a combination utility to promote one service at the expense of the other.

At the top of page 7 of my prepared statement, the second line, the "do not" should be stricken out, so the sentence should read:

In the absence of compelling evidence that combination gas and electric utilities operate contrary to the public interest, I would not advocate a congressional mandate for automatic divestiture.

In other words, unless there were compelling evidence that combination gas and electric utilities operate against the public interest, then I do not believe that the Congress should pass an act which automatically compels divestiture.

A further consideration in this context is that the existing supply shortages for both gas and electricity in various parts of the United States and in various market areas of the United States limit the opportunities for meaningful gas-electric competition. Some utilities are being forced to curtail their promotional activities. One of these, incidentally, is Consolidated Edison of New York, which happens to be a combination gas and electric utility. They have a campaign on now which they started last week, I believe, called "Save a Watt." The company is beleaguered by inadequate generating capacity and transmission insufficiencies on the electric side as well as on the gas side being faced with a problem of not being able to meet its incremental demands for new markets. The idea behind the advertising campaign is to discourage the sale of services which it cannot supply to the consumer.

There are some other companies in this same position in the United States, but Consolidated Edison being the largest is the most dramatic example.

All electric utilities—and I think this is an extremely important consideration—will face huge capital requirements to meet environmental standards and meet their service standards over the course of the next 20 years.

The figure, by the way, has been estimated by our staff as being somewhere between $350 billion and $400 billion which will be required for capital investment by the electric utility industry in the course of the next 20 years to meet the expanded growth as we now project it in our National Power Survey, which is scheduled for completion in September of 1971 with respect to the gas industry, the financing demands to meet growth requirements should be in the area of about $60 billion over this period of time. So, in round figures, we are dealing in about $500 billion, or a half a trillion dollars, of capital requirements.

Many gas utilities are finding it necessary to seek supplemental supplies and take other steps to minimize the risk of service interruptions. The problems of adjusting to persistent inflation must also be considered. In these unsettling circumstances, it would seem inadvisable, by compulsory divestiture, to compound the difficulties which have been multiplying for both classes of utilities, gas and electric, in recent years and for which there is no early relief in sight.

S. 403 would amend the Federal Power Act by inserting at the end thereof a new part IV pertaining to the prohibition of certain combination of ownership or control in electric and gas utilities. Specifically, section 403 of the bill provides that after December 31, 1972, it shall be unlawful for any electric utility—qualified under the statute as an electric utility with a million dollars of annual sales or more—directly or indirectly to own or operate any facilities used in

the production, generation, distribution, or sale of natural or manufactured gas, for heat, light or power, and for any gas utility to own or operate facilities used for the generation, transmission, distribution of electric energy for sale.

That is the language of the act.

What will be the impact of enactment of S. 403? In most cases, not in all cases but in most cases, electric plants owned by combination electric and gas utilities will far exceed gas plants. Consequently, it is reasonable to assume that if this bill is enacted, most combination utilities would elect to dispose of their gas properties.

The debt securities of combination companies consist principally of bonds which are issued and secured by mortgage indentures covering all of the properties. From the limited examination which staff has made, it appears that most of the indentures contain provisions for release and substitution of property covered by the mortgage but not for division of debt between the combination gas and electric utility and any subsequent purchaser of its gas properties.

Incidentally, this particular issue is the subject of extensive litigation in various proceedings, particularly in a case in which the Commission is involved called the *El Paso* case.

It is my opinion from my examination and from my staff's examination that companies required to divest would have a debt financing problem. Usually, the indenture provisions require that cash or other property be turned over to the trustee for the bondholders as compensation for the release of property subject to a mortgage indenture. Generally, the indentures provide several alternatives to the utility for the use of proceeds from the sale of property, including the right to withdraw cash to finance property additions, and the use by the trustee of the sale proceeds to redeem bonds. In either event, there should not be any significant impact on the selling combination utility's cost of debt, although there may be impact on the selling utility's overall cost of capital, cost of money upon rates of return are predicated.

On the other hand, there is likely to be a significant impact upon the cost of debt of the purchasing utility which is compelled to finance the acquisition of gas properties with new debt offerings. Several of the combination companies have outstanding bonds with interest rates as low as 2¾ percent. Separation of the gas properties could require financing by the purchaser at substantially higher rates. Thus, the gas consumer might be burdened with substantially higher rates reflecting the higher cost of new financing.

In addition, the bill would prohibit "common control"* of any electric utility and any gas utility. The words "electric utility" and "gas utility" and "control" are new to the Federal Power Act and are defined for the purposes of the proposed new part IV in section 402.

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*Under section 403(c) and section 402(c) at least one personal interest group may be affected. The Tenney family owns a large stock interest in Orange and Rockland Utilities, Inc.; Fitchburg Gas & Electric Light Co.; and Brockton Taunton Gas Co. C. H. Tenney II is chairman of the Board of each of these companies. Orange and Rockland Utilities, Inc. supplies electricity in its entire service area extending for about 37 miles along the west shore of the Hudson River and it distributes natural gas in a smaller area consisting of 38 communities. In addition, Orange and Rockland Utilities, Inc. owns all the stock of two subsidiaries: Rockland Electric Co., an electric distributor in northeastern New Jersey, and Pike County Light & Power Co., an electric distributor in northeastern Pennsylvania. Brockton-Taunton Gas Co. is a gas distributor in a 1000-square-mile area of east-central Massachusetts. Fitchburg Gas & Electric Co. is a combination gas and electric utility which serves Fitchburg and several surrounding communities in Massachusetts.

I thought Appendix A might be useful to this committee. It lists electric and gas net plant as of December 31, 1969 and 1970 for 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant. Appendix A includes subsidiaries of registered public utility holding companies [1] and one nonregistered public utility holding company which owns gas and electric property,[2] but does not include holding company systems in which gas distribution activities are handled by separate distribution companies exempted from the Natural Gas Act by section 1(c) (15 U.S.C. § 717(c)). The total net gas and electric utility plant of combination electric and gas companies as of December 31, 1969, in relation to the total net utility plant of privately owned electric utilities and interstate natural gas pipeline companies, was 41.3 percent.

The net electric utility plant portion of total plant was 34.9 percent of the net utility plant of all privately owned electric utilities and interstate natural gas pipeline companies and the net gas utility plant portion was 6.4 percent (appendix A).

The size of the utilities listed in appendix A varies greatly. The 20 largest companies listed in appendix A had as of December 31, 1970, total electric net plant of $25,623,719,612, total gas net plant of $3,819,424,780, and total gas and electric net plant of $29,443,144,392.

Appendix C shows electric and gas revenues for the years 1969 and 1970 of the 78 utilities filing FPC Form No. 1 or 2 which own both gas and electric plant. As of December 31, 1969, total electric and gas revenues of combination electric and gas companies were 38.8 percent of total utility operating revenues of all privately owned electric utilities and interstate natural gas pipeline companies. Electric utility operating revenues were 28.1 percent and gas utility operating revenues were 10.7 percent of the companies (appendix C). The 20 largest companies listed in appendix C had for the year 1970 total electric operating revenues of $6,542,784,412, total gas operating revenues of $2,109,517,696, and total electric and gas operating revenues of $8,652,302,108.

Appendix D lists net utility operating income for the years 1969 and 1970 for 78 utilities filing FPC form nos. 1 or 2 which own both gas and electric plant.

Senator Fong. Why is it that the outlay for gas works is much cheaper than that of the electric?

Mr. Nassikas. Their markets are smaller to start with.

Second, the capital investment required to serve the electric utility consumer is generally larger than the same capital investment that is required to serve the gas consumer. The primary difference is attributable to the size of the market and the number of consumers served, however.

Senator Fong. Here you have the operating revenues almost 3 to 1, and yet——

Mr. Nassikas. Yes.

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[1] H.R. 15516, 91st Congress would have transferred administration of the Public Utility Holding Co. Act of 1935 to the Federal Power Commission. The Commission reported in favor of that legislation which was proposed by the Securities and Exchange Commission. A copy of the Commission report is attached as appendix B.

[2] Those companies are: The Connecticut Light & Power Co. and the Hartford Electric Light Co. (both subsidiaries of Northeast Utilities); New Bedford Gas & Edison Light Co. (a subsidiary of New England Gas & Electric Association); New Orleans Public Service, Inc. (a subsidiary of Middle South Utilities, Inc.); Delmarva Power & Light Co.; and Michigan Power Co. (a subsidiary of American Electric Power Co., Inc.).

Senator FONG (continuing). And yet the assets of the 20 largest companies are about 8 to 1.

Mr. NASSIKAS. Yes, sir.

Senator FONG. Revenues in relation to net assets; is that right?

Mr. NASSIKAS. Yes; that is correct. It appears to be an excellent investment; on the other hand, there are some very serious problems in the gas industry today which affect all consumers, primarily in the area of gas supply which, of course, the Commission and our staff have spent a priority portion of its time on in order to try to establish policies which will enable continued service to the consumer and continued expansion of this portion of our energy economy.

Appendix D sets forth net utility operating income for the years 1969 and 1970. As of December 31, 1969, net operating income of combination gas and electric companies was about 41.1 percent of the net utility operating income of all plants, with net electric operating income representing 33.9 percent and net gas operating income representing 7.2 percent of the total—appendix D. The 20 largest companies again had a large proportion of the total, $1,482,545,127 for electric, $302,986,791 for gas, and a total of $1,785,531,918.

The Public Utility Holding Company Act of 1935 [1] limits ownership of gas and electric utility properties by registered holding companies and their subsidiaries. Under the provisions of section 11(b)(1)(A) of the Public Utility Holding Company Act (15 U.S.C. § 79k(b)(1)(A)) a registered holding company is limited to a single—gas or electric—integrated public utility system unless the Securities and Exchange Commission finds, among other things, that an additional system—gas or electric—cannot be operated independently "without the loss of substantial economies." *Securities and Exchange Commission* v. *New England Electric System*, 384 U.S. 176 (1966).

Therefore, even if S. 403 is not enacted, as I touched on briefly earlier, there already is a remedy under which the gas properties of registered holding company systems can be divested.[2]

I think I can skip over page 13. I simply outline there the various holding companies which are exempt from registration and what the holding companies are doing voluntarily or under compulsion to divest themselves of additional integrated systems which are prohibited or proscribed under that act.

Page 14 is more of the same, covering several companies.

Page 15, the same.

I would, of course, request the chairman, if I may, to have my statement incorporated in the record in full.

Senator FONG. It will be received in full, for the record.

Mr. NASSIKAS. Thank you. Please include the attachments as well.

Congress and the courts have indicated that antitrust policy is directed not only toward economic goals but also contains both social and political aims. The historical ethic of local control and small business establishments are steeped in our heritage. "* * * Competition is our fundamental national policy. * * *." *U.S.* v. *Philadelphia National*

[1] Registered holding companies and their subsidiaries would not be affected by S. 403 because section 318 (16 U.S.C. 825q) of the Federal Power Act would preclude Federal Power Act jurisdiction.

[2] In January of 1971, the Ash Council rendered its report on selected regulatory agencies, *A New Regulatory Framework*. Among other things the Ash Council report (page 112) recommends transfer of the administration of the Public Utility Holding Company Act to the FPC. Appendix E consists of selected pages from the FPC's Ash Council comment relating to transfer of the administration of the Public Utility Holding Company Act.

Bank, 374 U.S. 321 (1963). In order to achieve the "desirable" objective of increased competition, certain sacrifices in efficiency may be necessitated. See Legislative History of the 1950 amendments to section 7 of the Clayton Act. Also, *Brown Shoe Co.* v. *U.S.*, 370 U.S. 294 (1962), another leading case. It is not clear to us, however, that such social and political aims should override a broader "public interest."

Competition has not been deemed desirable for all segments of the economy. We recognize that certain industries, among them the electric utility and gas industries, are ones in which Congress has decided that the public interest is best served, not by free competition but rather by direct and uniform regulation of certain phases of their interstate operations. The Supreme Court has indicated that in the area of public utilities, competition may not itself be a national policy. *F.C.C.* v. *RCA Communications, Inc.*, 346 U.S. 86 at 91–96 (1953).

Justice Brandeis, in his eloquent dissent in *New State Ice Co.* v. *Liebman*, 285 U.S. 262 at 281 (1932), summarized the advantages of regulating certain types of industries. His views are equally true today, I believe.

> The certificate of public convenience and necessity was unknown to the common law. It is a creature of the machine age, in which plants have displaced tools and businesses are substituted for trades.

I might interpose that such a certificate is a creature of the Congress of the United States, not state legislatures; it is a statutory creation, not an empirical creation by the development of the common law. Justice Brandeis continues:

> The purpose of requiring it is to promote the public interest by preventing waste. Particularly in those businesses in which interest and depreciation charges on plant constitute a large element in the cost of production, experience has taught that the financial burdens incident to unnecessary duplication of facilities are likely to bring high rates and poor service. There, cost is usually dependent, among other things, upon volume; and division of possible patronage among competing concerns may so raise the unit cost of operation as to make it impossible to provide adequate service at reasonable rates. The introduction in the United States of the certificate of public convenience and necessity marked the growing conviction that under certain circumstances free competition might be harmful to the community and that, when it was so, absolute freedom to enter the business of one's choice should be denied.

In order to sacrifice the benefits of competition, there must be some paramount public interest.

Our Commission has attempted to harmonize, when possible, antitrust and regulatory policies, guided by the mandates of the legislature and the judiciary. In *Northern Natural Gas Co.* v. *Federal Power Commission* (399 F. 2d 958, 959, 971 (D.C. Cir. 1968)), the court observed:

> . . . it appears that the basic goal of direct governmental regulation through administrative bodies and the goal of indirect governmental regulation in the form of antitrust laws is the same—to achieve the most efficient allocation of resources possible . . .

Which, Mr. Chairman, is the thrust of your earlier questions, exactly as stated by that court.

> This analysis suggests that the two forms of economic regulation complement each other.
>
> * * * * *
>
> Unless the Commission finds that other important considerations militate in favor of the joint venture and that these considerations are more beneficial to the

public than additional competition, the antitrust policies should be respected * * *.

On remand, the Commission concluded—incidentally, this is an opinion which I wrote as chairman.

* * * even though it were assumed that there could be potential competition between American Natural and Great Lakes and this competition was affected adversely to some degree by joint ownership and that American Natural was in a position to foreclose to some extent Canadian gas supplies that might be available through Great Lakes, it is our opinion that these benefits of United States ownership relating to operations and financing would override any limited adverse effects on competition. *Great Lakes Gas Transmission Company, et al* 44 F.P.C. 21, 33 (1970).

I might state with respect to that case that there was no appeal to the court after the remanded case, so that the opinion which I wrote is now the final decision. The Justice Department did not choose to appeal the case even though they participated in the proceedings, both on the first appeal and in the remanded case below.

I believe that the forced divestment of the gas or electric properties of combination utilities (which would be required by S. 403) could result in a significant increase in rates to the ultimate consumers and other undesirable disruptions in utility service, as well as in the national economy, for the following reasons—and I do not consider this list exhaustive:

1. Economies of scale inherent in combination gas and electric utilities would not necessarily be offset by increased competition between the divested gas and electric utilities.

I would also like to inquire what the economists mean when they state that in the long-run competition is going to result in a long-range benefit to the consumers of regulated industries, how long do they mean?

2. It is questionable whether dividing managements and technological skills will improve management capacity to provide the same level of service to the consumer as an integrated combination utility.

3. Refinancing may sharply increase capital costs.

4. It would require vast adjustments in utility structures and capital markets, with a possible adverse impact on the national economy and our economic productivity goals, if over 40 percent of the electric and gas utility industries were compelled to divest their combined electric and gas properties into separate operations.

5. In the absence of compelling evidence that the public interest is not being served by the combination gas and electric utilities, it is undesirable as a matter of congressional policy to mandate divesture.

Divesture of the gas or electric assets and replacement of existing debt structures ranging from 3.6 to 6.87 percent for all but one of the combination companies with new debt at 8 percent will increase the affected utilities' cost of debt.

Let me interpose that what I have said is not intended to convey the impression to the committee that you will have 100 percent refinancing by debt and no equity. I am simply trying to indicate or to quantify taking figures and taking an assumption of what the average embedded costs of debt are, an assumption of 8 percent, which, again, could change; this could go up or down. I am speaking of the added capital costs of the displaced gas utility portion of the investment of combination gas and electric utilities.

Senator Fong. What percent of the debt structure of these companies would you say were incurred prior to the interest rate going precipitously high?

Mr. Nassikas. A substantial part of the debt structure would have had to be incurred prior to the precipitous rise of interest rates of the past 2 to 3 years because the weighted average costs which I show in appendix F show that that weighted value is far less than the prevailing interest rates. That is why most of it was incurred before the rise.

Senator Fong. What percentage would you say——

Mr. Nassikas. I would——

Senator Fong (continuing). If you had to guess?

Mr. Nassikas. If I could, Mr. Chairman, I would appreciate it if I could respond by a supplementary review of that for the record.

Senator Fong. Yes. Would you prepare that for the record?

Mr. Nassikas. I will supply that for the record.

Mr. Chumbris. Mr. Chairman, I might add that the witness for the Pacific Gas and Electric Co. testified yesterday that he has some as low as 3 percent, but they average out 5 percent for his entire debt, including some 8 and 9 percent.

Mr. Nassikas. Thank you, Mr. Chumbris.

Since it is not possible to predict whether future purchases of divested gas properties would be made by existing gas distribution companies, natural gas pipeline companies, or new corporate entities, it is impossible to predict the percentages of debt and equity in the capitalization of a purchasing company in any specific case.

As I have previously indicated, I would be opposed to S. 403 even if prevailing interest rates were not at substantially higher levels than historical embedded debt costs. In other words, let us take the reverse of the gas situation. Let's say that as of today by refinancing you could refinance average embedded debt costs of 8 percent for 5 percent, in other words, the reverse situation. I think that this is inconclusive either way. The point is that there is a disruption, there is refinancing, and I prefer to look at things in terms of the realism of where we are today than where it might be 10 years from now.

Regardless of interest rates, there will probably be an adverse impact on service to the public arising from dismantling and reorganizing over 40 percent of the Nation's gas and electric utility industry. The present state of the capital market is an additional complicating factor that I believe counsels against the enactment of the proposed legislation.

Thank you, Mr. Chairman.

Senator Fong. Thank you, Chairman Nassikas, for a very, very excellent statement.

(The prepared statement and attachments submitted by Mr. Nassikas read in full as follows. Testimony resumes on p. 132.)

STATEMENT OF JOHN N. NASSIKAS, CHAIRMAN, FEDERAL POWER COMMISSION

In response to Chairman Hart's letter of April 23, 1971, I am here to present the views of the Federal Power Commission on S. 403.

Although S. 403 is in the form of an amendment to the Federal Power Act, its practical effect is to add to the antitrust laws a special provision respecting the common ownership of electric utility facilities and gas utility facilities. I believe, therefore, that it will be useful to examine the provisions of S. 403

against a background summarizing the existing powers of the Federal Power Commission, and other agencies, under the antitrust laws.

Under Section 203 of the Federal Power Act, 16 U.S.C. § 824b, approval by the Commission is required before any electric company may merge or consolidate its jurisdictional facilities with similar facilities of another. In proceedings under Section 203, in which a proposed merger involves gas utility property as well as electric utility property, the Commission has asserted its authority to require the applicants to divest the gas properties as a condition of the merger, and it has imposed upon the applicants the burden of demonstrating that the retention of gas properties is consistent with the public interest. See *Commonwealth Edison Co.*, 36 F.P.C. 927 (1966), *aff'd sub nom. Utility Users League* v. *FPC*, 394 F.2d 16 (7th Cir.), *cert. denied*, 393 U.S. 953 (1968). Thus, the Commission exercises control over combination companies where such companies seek to expand through merger or acquisition. However, there is no arbitrary rule that divestiture will automatically be required. The public interest standard is employed to make that determination based upon the facts presented in each individual case.

The Commission also has jurisdiction over the acquisition of jurisdictional facilities by natural gas companies under Section 7 of the Natural Gas Act, 15 U.S.C § 717f. It should be noted that under present law, the Commission does not have parallel jurisdiction over stock mergers of natural gas companies. To date, the Commission has not been faced with any application to acquire facilities under section 7 involving an asset acquisition of, or by, a combination company.

Aside from its power to control certain mergers and acquisitions of public utility companies, the Commission does not have primary jurisdiction over antitrust questions, and the Commission's issuance of a license for construction of a hydroelectric project does not preclude a collateral antitrust action in the courts. *Pennsylvania W. & P. Co.* v. *Consolidated G.E.L. & P. Co.*, 184 F.2d 552 (4th Cir.), *cert denied*, 340 U.S. 906 (1950). The Commission has no power to enforce the antitrust laws or to declare that a certain transaction or course of conduct violates the antitrust laws. *Cf. City of Pittsburgh* v. *FPC*, 237 F.2d 741 (D.C. Cir. 1956) (involving a pipeline application under the Natural Gas Act).

Under existing law, there is no jurisdiction to alter the existing status of a combination company. Jurisdiction attaches only when the combination company seeks to acquire, or be acquired by, another utility.

In addition to the Federal Power Commission's authority over combination companies, the ownership of gas and electric utility properties by registered holding companies and their subsidiaries is regulated by the Securities and Exchange Commission under the Public Utility Holding Company Act of 1935. I shall refer to the statute and proceedings under it in greater detail later in my testimony. Further, anticompetitive acts and practices by a combination utility which are violative of the Federal Trade Commission Act, the Sherman Act or the Clayton Act may be subject to investigation and court action by the Antitrust Division of the Department of Justice or to administrative action by the Federal Trade Commission.

A blanket statutory prohibition against the continued operation of combination gas-electric utilities as joint enterprises would have far-reaching consequences. It would entail a massive restructuring of the operations of companies which account for more than two-fifths of total electricity sales by private utilities and for a substantial part of total gas sales by utilities and pipelines making direct sales to ultimate consumers. The impact of compulsory divestiture of every combination utility's gas or electric operations would be felt in varying degrees by their customers, employees, stockholders, and bondholders. Whether the overall effect would tend to be favorable or adverse to the public interest can only be determined by a careful and detailed analysis of each company's operations and the territory served.

It is necessary to examine the proposed bill in the context of national policy issues. National policy fosters a strong energy industry dedicated to technological progress and economic growth compatible with the highest attainable environmental standards consistent with adequate service and reasonable price to the consumer. The encouragement of competitive enterprise is one of our important national goals, but in the case of regulated electric and gas utilities it is a goal which has always been conditioned upon other public interest considerations. We recognize that some economies of joint electric-gas operations could not be attained if the electric and gas operations of the enterprise were divested from single to multiple ownership and control.

S. 403 is premised on the belief that separately managed gas and electric utilities will out-perform combination utilities. This is a proposition requiring empirical investigations, case by case. On the one hand, we must consider the various possible sources of cost savings with combined operations: for example, one meter reader for gas and electricity, combined inspection and service departments, joint accounting, purchasing, and billing departments, and a common management. Importantly, diversification of combined gas and electric operations may contribute to revenue stability and a lower cost of capital. These advantages, if realized, can be passed on to the utility's customers in the form of lower rates or better service, or both. On the other hand, we should not deny the possibility that direct competition between gas and electricity may induce greater efficiency of performance and effort by each utility to economize on labor and capital and give better service. Competition may also provide more freedom of consumer choice and it will eliminate the danger that one service, either gas or electricity, will be neglected wherever there are advantages for a combination utility to promote one service at the expense of the other.

In the absence of compelling evidence that combination gas and electric utilities operate contrary to the public interest, I would not advocate a Congressional mandate for automatic divestiture.

A further consideration is that the existing supply shortages for both gas and electricity limit the opportunities for meaningful gas-electric competition in several sections of the country. Some utilities are being forced to curtail their promotional activities. Moreover, the electric utilities face huge capital requirements to meet environmental standards, while many gas utilities are finding it necessary to seek supplemental supplies and to take other steps to minimize the risk of service interruptions. The problems of adjusting to the persistent inflation must also be considered. In these unsettling circumstances it would seem inadvisable, by compulsory divestiture, to compound the difficulties which have been multiplying for both classes of utilities in recent years and for which there is no early relief in sight.

The bill would amend the Federal Power Act by inserting at the end thereof a new Part IV pertaining to the prohibition of certain combinations of ownership or control in electric and gas utilities. Specifically, Section 403 of the bill provides that after December 31, 1972, it shall be unlawful for any electric utility directly or indirectly to own or operate any facilities used in the production, generation, distribution, or sale of natural or manufactured gas, for heat, light or power, and for any gas utility to own or operate facilities used for the generation, transmission, distribution, or of electric energy for sale.

What will be the impact of enactment of S. 403? In most cases, electric plant owned by combination electric and gas utilities will far exceed gas plant. Consequently, it is reasonable to assume that if this bill is enacted, most combination utilities would elect to dispose of their gas properties.

The debt securities of combination companies consist principally of bonds which are issued and secured by mortgage indentures covering all of the properties. From the limited examinations which staff has made, it appears that most of the indentures contain provisions for release and substitution of property covered by the mortgage but not for division of debt between the combination gas and electric utility and any subsequent purchaser of its gas properties. Usually the provisions require that cash or other property be turned over to the trustee for the bondholders as compensation for the release of property subject to a mortgage indenture. Generally, the indentures provide several alternatives to the utility for the use of proceeds from the sale of property, including the right to withdraw cash to finance property additions, and the use by the trustee of the sales proceeds to redeem bonds. In either event, there should not be any significant impact on the selling combination utility's cost of debt.

On the other hand, there is likely to be a significant impact upon the cost of debt of the purchasing utility which is compelled to finance the acquisition of gas properties with new debt offerings. Several of the combination companies have outstanding bonds with interest rates as low as 2¾ percent. Separation of the gas properties could require financing by the purchaser at substantially higher rates. Thus, the gas consumer might be burdened with substantially higher rates reflecting the higher cost of new financing.

In addition, the bill would prohibit "common control"[1] of any electric utility and any gas utility. The words "electric utility" and "gas utility" and "control" are new to the Federal Power Act and are defined for the purposes of the proposed new Part IV in Section 402.

Appendix A lists electric and gas net plant as of December 31, 1969 and 1970 for 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant. Appendix A includes subsidiaries of registered public utility holding companies[2] and one nonregistered public utility holding company which owns gas and electric property,[3] but does not include holding company systems in which gas distribution activities are handled by separate distribution companies exempted from the Natural Gas Act by Section 1(c) (15 U.S.C. § 717(c)). The total net gas and electric utility plant of combination electric and gas companies as of December 31, 1969, in relation to the total net utility plant of privately owned electric utilities and interstate natural gas pipeline companies, was 41.3%.

The net electric utility plant portion of total plant was 34.9% of the net utility plant of all privately owned electric utilities and interstate natural gas pipeline companies and the net gas utility plant portion was 6.4% (Appendix A).

The size of the utilities listed in Appendix A varies greatly. The 20 largest companies listed in Appendix A had as of December 31, 1970, total electric net plant of $25,623,719,612, total gas net plant of $3,819,424,780, and total gas and electric net plant of $29,443,144,392.

Appendix C shows electric and gas revenues for the years 1969 and 1970 of the 78 utilities filing FPC Form Nos. 1 and 2 which own both gas and electric plant. As of December 31, 1969, total electric and gas revenues of combination electric and gas companies were 38.8% of total utility operating revenues of all privately owned electric utilities and interstate natural gas pipeline companies. Electric utility operating revenues were 28.1% and gas utility operating revenues were 10.7% of the total (Appendix C). The 20 largest companies listed in Appendix C had for the year 1970 total electric operating revenues of $6,542,784,412, total gas operating revenues of $2,109,517,696, and total electric and gas operating revenues of $8,652,302,108.

Appendix D lists net utility operating income for the years 1969 and 1970 for 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant. As of December 31, 1969, total net operating income of combination gas and electric companies was 41.1% of the net utility operating income of all privately owned electric utilities and interstate natural gas pipeline companies, with net electric operating income representing 33.9% and net gas operating income representing 7.2% of the total (Appendix D). The 20 largest companies listed in Appendix D had for the year 1970 total electric operating income of $1,482,545,127, total gas operating income of $302,986,791, and total electric and gas operating income of $1,785,531,918.

The Public Utility Holding Company Act of 1935[4] limits ownership of gas and electric utility properties by registered holding companies and their subsidiaries. Under the provisions of Section 11(b)(1)(A) of the Public Utility Holding Company Act (15 U.S.C. § 79k(b)(1)(A)) a registered holding company is limited to a single (gas or electric) integrated public utility system unless

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[1] Under Section 402(e) and Section 402(c) at least one personal interest group may be affected. The Tenney family owns a large stock interest in Orange and Rockland Utilities, Inc.; Fitchburg Gas and Electric Light Co.; and Brockton Taunton Gas Co. C. H. Tenney II is Chairman of the Board of each of those companies. Orange and Rockland Utilities, Inc. supplies electricity in its entire service area extending for about 37 miles along the west shore of the Hudson River and it distributes natural gas in a smaller area consisting of 38 communities. In addition, Orange and Rockland Utilities, Inc. owns all the stock of two subsidiaries: Rockland Electric Company, an electric distributor in northeastern New Jersey, and Pike County Light & Power Co., an electric distributor in northeastern Pennsylvania. Brockton Taunton Gas Company is a gas distributor in a 1000-square mile area of east central Massachusetts. Fitchburg Gas & Electric Light Company is a combination gas and electric utility which serves Fitchburg and several surrounding communities in Massachusetts.

[2] H.R. 15316, 91st Congress would have transferred administration of the Public Utility Holding Company Act of 1935 to the Power Commission. The Commission reported in favor of that legislation which was proposed by the Securities and Exchange Commission. A copy of the Commission report is Appendix P.

[3] Those companies are: The Connecticut Light and Power Company and the Hartford Electric Light Company (both subsidiaries of Northeast Utilities); New Bedford Gas and Edison Light Company (a subsidiary of New England Gas and Electric Association); New Orleans Public Service, Inc. (a subsidiary of Middle South Utilities, Inc.); Delmarva Power and Light Company; and Michigan Power Company (a subsidiary of American Electric Power Company, Inc.).

[4] Registered holding companies and their subsidiaries would not be affected by S. 403 because Section 318 (16 U.S.C. 825q) of the Power Act would preclude Federal Power Act jurisdiction.

the Securities and Exchange Commission finds, *inter alia*, that an additional system (gas or electric) cannot be operated independently "without the loss of substantial economies." *Securities and Exchange Commission* v. *New England Electric System*, 384 U.S. 176 (1966). Therefore, even if S. 403 is not enacted, there already is a remedy under which the gas properties of registered holding company systems can be divested.[5]

Five registered holding companies and one holding company exempt from registration own gas and electric properties. The five regulated companies are: Michigan Power Company, Delmarva Power and Light Company, the eight gas distribution companies in the New England Electric System, The Connecticut Light and Power Company, and The Hartford Electric Light Company (subsidiaries of Northeast Utilities), New Orleans Public Service, Inc. (subsidiary of Middle South Utilities), and the six subsidiaries of New England Gas and Electric Association, an exempt holding company system (36th Annual Report, Securities and Exchange Commission, page 159). Northeast Utilities has announced that it is negotiating for the sale of the gas properties of The Connecticut Light and Power Company and The Hartford Electric Light Company (Annual Report of Northeast Utilities, 1970, page 14).

Michigan Power Company has been trying to dispose of its gas properties for nearly 4 years. An SEC order of July 24, 1967 authorized the sale of those properties to Michigan Gas Utilities Company (MGU). However, in 1969 MGU informed Michigan Power that it was unable to go through with the acquisition. Michigan Power is "currently exploring alternate methods of accomplishing the divestment of its gas utility assets" (Michigan Power Company FPC Form No. 1–1970, page 108).

The New England Electric System (NEES) is negotiating with prospective purchasers for the sale of its four smallest gas distribution companies: Central Massachusetts Gas Company, North Hampton Gas Light Company, Norwood Gas Company, and Wachusett Gas Company (1970 Annual Report, New England Electric System, page 11). It should be noted that NEES owns five larger gas subsidiaries: Central Massachusetts Gas Company, Lawrence Gas Company, Lynn Gas Company, Mystic Valley Gas Company, and North Shore Gas Company.[6]

All of the gas properties of the Delmarva System are owned by Delmarva Power & Light Company. Delmarva Power & Light Company of Maryland and Delmarva Power & Light Company of Virginia distribute electricity on the eastern shore or Maryland and Virginia. I am not aware at this time of any proceeding before the Securities and Exchange Commission under Section 11(b)(1)(A) to divest the gas properties of Delmarva Power & Light Company.

New Orleans Public Service, Inc. distributes electricity and gas in the City of New Orleans and it also operates the public transit system in that city and two motor coach lines which extend for short distances into the adjacent Parishes of St. Bernard and Jefferson. I am not aware at this time of any proceeding before the Securities and Exchange Commission under Section 11(b)(1)(A) to divest the gas properties of New Orleans Public Service.

On May 5, 1971, the Securities and Exchange Commission issued Holding Company Act Release No. 17116 authorizing the acquisition of Arkansas-Missouri Power Company (a combination utility) by Middle South Utilities, Inc. A condition of that order requires Middle South to dispose of Arkansas-Missouri's gas properties within one year.

Since New England Gas and Electric Association is not a registered holding company the Securities and Exchange Commission does not have jurisdiction to order divestment of a second system. In addition to New Bedford Gas and Edison Light Company (listed in Appendix A) New England Gas and Electric Association owns the following subsidiaries: Cambridge Steam Corp., Canal Electric Company (a generating company which owns a 560-Mw steam-electric plant situated on the Cape Cod Canal) and Worcester Gas Light Company, a gas distributor. Presumably S. 403 would apply to New England Gas and Electric Association.

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[5] In January of 1971, the Ash Council rendered its report on selected regulatory agencies, *A New Regulatory Framework*. Among other things the Ash Council report (page 112) recommends transfer of the administration of the Public Utility Holding Company Act to the FPC. Appendix E consists of selected pages from the FPC's Ash Council comment relating to transfer of the administration of the Public Utility Holding Company Act.

[6] By Securities and Exchange Commission order of March 19, 1964, New England Electric System, Holding Company Act Release No. 15035 (not reported with Commission opinion 41 S.E.C. 888), NEES was directed to dispose of the gas properties controlled by it. The S.E.C.'s order has been twice affirmed by the Supreme Court: *S.E.C.* v. *New England Electric System*, 384 U.S. 176 (1966) and *S.E.C.* v. *New England Electric System*, 390 U.S. 207 (1968).

ANTITRUST POLICY AND REGULATED UTILITIES

Congress and the courts have indicated that antitrust policy is directed not only towards economic goals, but also contains both social and political aims. The historical ethic of local control and small business establishments is steeped in our heritage. "* * * Competition is our fundamental national policy * * *". *U.S.* v. *Philadelphia National Bank*, 374 U.S. 321 (1963). In order to achieve the "desirable" objective of increased competition, certain sacrifices in efficiency may be necessitated. (See Legislative History of the 1950 Amendments to Section 7 of the Clayton Act. Also, *Brown Shoe Co.* v. *U.S.*, 370 U.S., 294 (1962)). It is not clear to us, however, that such social and political aims should override a broader "public interest".

Competition has not been deemed desirable for all segments of the economy. We recognize that certain industries, among them the electric utility and gas industries, are ones in which Congress has decided that the public interest is best served, not by free competition but rather by direct and uniform regulation of certain phases of their interstate operations. The Supreme Court has indicated that in the area of public utilities, competition may not itself be a national policy. *F.C.C.* v. *RCA Communications, Inc.*, 346 U.S. 86 (1953) at 91–96.

Justice Brandeis, in his eloquent dissent in *New State Ice Co.* v. *Liebman*, 285 U.S. 262 (1932) at 284, summarized the advantages of regulating certain types of industries:

"[The certificate of public convenience and necessity] was unknown to the common law. It is a creature of the machine age, in which plants have displaced tools and businesses are substituted for trades. The purpose of requiring it is to promote the public interest by preventing waste. Particularly in those businesses in which interest and depreciation charges on plant constitute a large element in the cost of production, experience has taught that the financial burdens incident to unnecessary duplication of facilities are likely to bring high rates and poor service. There, cost is usually dependent, among other things, upon volume; and division of possible patronage among competing concerns may so raise the unit cost of operation as to make it impossible to provide adequate service at reasonable rates. The introduction in the United States of the certificate of public convenience and necessity marked the growing conviction that under certain circumstances free competition might be harmful to the community and that, when it was so, absolute freedom to enter the business of one's choice should be denied."

In order to sacrifice the benefits of competition, there must be some paramount public interest.

The Commission has attempted to harmonize, when possible, antitrust and regulatory policies, guided by the mandates of the legislature and the judiciary. In *Northern Natural Gas Co.* v. *Federal Power Commission*, 399 F.2d 958, 959, 971 (D.C. Cir 1968), the court observed:

"* * * it appears that the basic goal of direct governmental regulation through administrative bodies and the goal of indirect governmental regulation in the form of antitrust law is the same—to achieve the most efficient allocation of resources possible * * * This analysis suggests that the two forms of economic regulation complement each other.

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"Unless the Commission finds that other important considerations militate in favor of the joint venture and that these considerations are more beneficial to the public than additional competition, the antitrust policies should be respected * * *."

On remand, The Commission concluded:

"* * * even though it were assumed that there could be potential competition between American Natural and Great Lakes and this competition was affected adversely to some degree by joint ownership and that American Natural was in a position to foreclose to some extent Canadian gas supplies that might be available through Great Lakes, it is our opinion that these benefits of United States ownership relating to operations and financing would override any limited adverse effects on competition." *Great Lakes Gas Transmission Co., et al.* 44 FPC 21, 33 (1970).

CONCLUSION

I believe that the forced divestment of the gas or electric properties of combination utilities (which would be required by S. 403) could result in a significant

increase in rates to the ultimate consumers and other undesirable disruptions in utility service, as well as in the national economy, for the following reasons:

1. Economies of scale inherent in combination gas and electric utilities would not necessarily be offset by increased competition between the divested gas and electric utilities.

2. It is quetionable whether dividing managements and technological skills will improve management capacity to provide the same level of service to the consumer as an integrated combination utility.

3. Refinancing may sharply increase capital costs.

4. It would require vast adjustments in utility structures and capital markets, with a possible adverse impact on the national economy and our economic productivity goals, if over 40% of the electric and gas utility industries were compelled to divest their combined electric and gas properties into separate operations.

5. In the absence of compelling evidence that the public interest is not being served by the combination gas and electric utilities, it is undesirable as a matter of Congressional policy to mandate divestiture.

Divestiture of the gas or electric assets and replacement of existing debt structures ranging from 3.60 to 6.87 percent for all but one of the combination companies with new debt at 8 percent will increase the affected utilities' cost of debt. Appendix F lists the weighted average coupon rate as of December 31, 1970 for all utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant. Appendix G shows the annual difference in interest charges which would result if the gas property shown on Appendix A is refinanced at 8 percent instead of the weighted average coupon rate shown in Appendix F. Since it is not possible to predict whether future purchases of divested gas properties would be by existing gas distribution companies, natural gas pipeline companies, or new corporate entities, it is impossible to predict the percentages of debt and equity in the capitalization of a purchasing company in any specific case.

As I have previously indicated, I would be opposed to S 403 even if prevailing interest rates were not at substantially higher levels than historical embedded debt costs. Regardless of interest rates, there will probably be an adverse impact on service to the public arising from dismantling and reorganizing over 40 percent of the Nation's gas and electric utility industry. The present state of the capital market is an additional complicating factor that counsels against enactment of the proposed legislation.

List of Appendices to the prepared statement of John N. Nassikas, Chairman, Federal Power Commission, presented to the Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, United States Senate, May 13, 1971.

Appendix A: Electric and gas net utility plant as of December 31, 1969 and 1970 for 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant.

Appendix B: Commission report in favor of H.R. 15516, 91st Congress, a bill to transfer administration of the Public Utility Holding Company Act of 1935 to the Federal Power Commission.

Appendix C: Electric and gas revenues for the years 1969 and 1970 of the 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant.

Appendix D: Net utility operating income for the years 1969 and 1970 for 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant.

Appendix E: Selected pages from the Federal Power Commission's comment on the Ash Council Report.

Appendix F: The weighted average coupon rate as of December 31, 1970 for all utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant.

Appendix G: Annual difference in interest charges which would result if the gas property shown on Appendix A is refinanced at 8 percent instead of the weighted average coupon rate shown in Appendix F.

Company	Net utility plant, 1969					Net utility plant, 1970				
		Electric		Gas			Electric		Gas	
	Total plant	Plant	Percent of total	Plant	Percent of total	Total plant	Plant	Percent of total	Plant	Percent of total
Arizona Public Service Co	$481,534,756	$406,301,993	84.4	$61,288,002	12.7	$508,490,968	$427,129,724	84.0	$65,439,452	12.9
Arkansas-Missouri Power Co	41,725,775	34,320,430	82.3	7,405,345	17.7	42,807,319	35,152,089	82.1	7,655,230	17.9
Baltimore Gas & Electric Co	854,951,261	674,888,182	78.9	145,311,773	17.0	1,033,810,460	841,731,866	81.4	152,633,184	14.8
Boston Gas Co	86,682,847	2,419,842	2.8	84,263,005	97.2	97,162,207	2,706,781	2.8	94,455,426	97.2
California-Pacific Utilities Co	57,012,852	26,323,330	46.2	17,237,121	30.2	62,139,193	27,605,704	44.4	19,913,764	32.0
Central Hudson Gas & Electric Corp	211,743,564	171,177,997	80.8	31,884,159	15.1	232,446,803	191,559,157	82.4	32,252,824	13.9
Central Illinois Light Co	251,340,377	178,963,183	71.2	68,883,240	27.4	299,660,535	206,465,224	68.9	89,770,791	30.0
Central Illinois Public Service Co	351,858,034	291,548,928	82.9	60,309,106	17.1	396,130,875	332,854,651	84.0	63,276,224	16.0
Central Kansas Power Co., The	18,078,928	16,478,636	91.1	1,525,795	8.4	20,026,615	18,385,710	91.8	1,566,722	7.8
Central Louisiana Electric Co., Inc	174,002,098	154,978,405	89.1	11,660,811	6.7	194,637,863	174,108,898	89.5	12,030,180	6.2
Central Telephone & Utilities Corp	132,207,089	102,597,714	77.6	25,505,533	19.3	134,312,805	103,101,255	76.8	26,269,724	19.6
Cheyenne Light, Fuel & Power Co	12,788,183	7,703,864	60.2	4,008,372	31.3	12,794,188	7,733,085	60.4	4,023,511	31.4
Cincinnati Gas & Electric Co., The	549,777,220	433,470,026	78.8	95,775,436	17.4	627,918,432	503,601,479	80.2	99,722,934	15.9
Citizens Utilities Co	40,451,529	33,339,050	82.4	3,329,285	8.2	44,216,300	35,511,100	80.3	3,614,683	8.2
Community Public Service Co	76,674,844	75,370,089	98.3	1,304,755	1.7	80,007,205	78,656,811	98.3	1,350,394	1.7
Connecticut Light & Power Co., The	589,124,946	521,388,236	88.5	67,736,710	11.5	690,815,488	617,292,019	89.4	73,523,469	10.6
Consolidated Edison Co. of New York, Inc	3,793,233,376	3,397,324,753	89.6	202,117,779	5.3	4,090,793,486	3,676,435,807	89.9	213,450,793	4.2
Consumers Power Co	1,642,977,962	1,056,911,382	64.3	540,979,064	32.9	1,803,279,573	1,179,495,149	65.4	574,988,219	31.9
Dayton Power & Light Co., The	454,351,808	377,949,813	83.2	71,092,336	15.6	506,169,172	426,824,812	84.3	74,080,044	14.6
Delmarva Power & Light Co	277,884,733	226,406,062	81.5	34,077,162	12.3	327,049,275	269,180,860	82.3	35,937,073	11.0
Fitchburg Gas & Electric Light Co	19,274,372	15,108,296	78.4	3,538,438	18.4	20,250,779	15,724,119	77.3	3,992,366	19.6
Florida Public Utilities Co	13,754,989	5,583,484	40.6	7,403,221	53.8	14,163,743	5,811,663	41.0	7,078,378	50.0
Gulf States Utilities Co	796,268,014	757,774,762	95.2	13,045,431	1.6	879,525,887	842,318,090	95.8	13,067,445	1.5
Hartford Electric Light Co., The	324,482,770	308,209,460	95.0	16,273,309	5.0	381,498,420	364,209,015	95.5	17,283,405	4.5
Illinois Power Co	687,344,843	522,207,955	76.0	165,087,644	24.0	756,492,486	583,127,518	77.1	173,332,184	22.9
Interstate Power Co	178,319,455	166,438,109	93.3	11,448,037	6.4	181,826,413	169,247,231	93.1	12,200,845	6.7
Iowa Electric Light & Power Co	177,935,660	146,289,242	82.2	28,223,223	15.9	203,171,893	167,792,678	82.6	31,608,139	15.6
Iowa-Illinois Gas & Electric Co	264,265,051	191,533,152	72.5	67,866,346	25.7	282,401,564	203,938,063	72.2	72,117,753	25.5
Iowa Power & Light Co	225,243,909	183,748,685	81.6	35,518,063	15.8	236,253,513	192,812,365	81.6	37,327,490	15.8
Iowa Public Service Co	162,411,260	130,793,810	80.5	25,560,215	15.7	186,026,705	152,421,246	81.9	27,198,125	14.6
Iowa Southern Utilities Co	84,887,523	71,833,966	84.7	10,315,470	12.2	86,898,794	72,957,237	84.0	10,725,964	12.3
Kansas Power & Light Co., The	239,478,655	206,571,856	86.3	32,554,815	13.6	273,269,528	230,180,455	84.2	42,748,858	15.6
Lake Superior District Power Co	32,482,779	29,165,052	89.8	3,175,270	9.8	33,726,002	29,567,950	87.7	4,000,012	11.9
Long Island Lighting Co	876,381,844	666,103,615	76.0	171,629,455	19.6	972,951,775	749,591,813	77.0	184,105,976	18.9
Louisville Gas & Electric Co	295,711,403	227,106,877	76.8	62,129,625	21.0	318,907,794	245,893,479	77.1	66,182,904	20.8
Madison Gas & Electric Co	80,938,003	53,691,364	66.3	24,911,284	30.8	93,366,198	63,717,486	68.2	27,332,815	29.3
Michigan Power Co	32,664,418	13,829,713	42.3	18,711,378	57.3	34,640,817	15,043,919	43.4	19,491,916	56.3

See footnotes at end of table.

Company	Net utility plant, 1969					Net utility plant, 1970				
		Electric		Gas			Electric		Gas	
	Total plant	Plant	Percent of total	Plant	Percent of total	Total plant	Plant	Percent of total	Plant	Percent of total
Missouri Edison Co	$26, 180, 914	$20, 138, 240	76.9	$5, 042, 674	23.1	$28, 302, 799	$22, 194, 804	78.4	$6, 107, 995	21.6
Missouri Power & Light Co	69, 798, 593	56, 326, 270	80.7	13, 459, 400	19.3	72, 595, 407	58, 246, 910	80.2	14, 326, 574	19.7
Missouri Public Service Co	163, 845, 394	145, 922, 386	89.1	12, 234, 420	7.5	169, 627, 872	151, 639, 785	89.3	12, 340, 251	7.3
Missouri Utilities Co	37, 483, 307	23, 263, 947	62.1	11, 613, 278	31.0	39, 444, 024	24, 407, 276	61.9	12, 325, 524	31.2
Montana-Dakota Utilities Co.[1]	139, 306, 771	68, 860, 310	49.4	63, 873, 784	45.9	150, 237, 172	68, 888, 155	45.9	74, 571, 686	49.6
Montana Power Co., The	249, 340, 989	186, 046, 955	74.6	54, 660, 693	21.9	252, 592, 302	189, 391, 056	75.0	53, 662, 510	21.2
Mount Carmel Public Utility Co	3, 863, 122	2, 623, 714	67.9	1, 239, 408	32.1	3, 883, 670	2, 571, 376	66.2	1, 312, 294	33.8
New Bedford Gas & Edison Light Co	56, 040, 329	44, 900, 597	80.1	11, 139, 732	19.9	62, 005, 521	50, 181, 471	80.9	11, 824, 050	19.1
New Orleans Public Service Inc	226, 651, 774	182, 446, 155	80.5	33, 312, 747	14.7	230, 821, 663	186, 110, 677	80.6	34, 040, 894	14.7
New York State Electric & Gas Corp	647, 199, 898	555, 830, 474	85.9	73, 511, 617	11.4	676, 842, 075	581, 143, 821	86.3	75, 013, 246	11.1
Niagara Mohawk Power Corp	1, 431, 696, 805	1, 171, 795, 251	81.8	235, 449, 810	16.4	1, 512, 418, 249	1, 245, 579, 378	82.4	241, 288, 407	16.0
Northern Indiana Public Service Co	667, 619, 649	390, 752, 717	58.5	251, 730, 164	37.7	711, 008, 437	420, 018, 580	59.1	264, 193, 912	37.2
Northern States Power Co. (Minnesota)	935, 226, 518	821, 308, 323	87.8	79, 683, 275	8.5	1, 055, 696, 015	940, 731, 378	89.1	81, 036, 249	7.7
Northern States Power Co. (Wisconsin)	110, 125, 999	91, 502, 995	83.1	15, 123, 146	13.7	110, 735, 686	92, 188, 856	83.3	15 059, 845	13.6
Northwestern Public Service Co	47, 688, 738	33, 559, 831	70.4	14, 123, 907	29.6	50, 637 187	36, 099, 967	71.3	14, 540 239	23.7
Orange & Rockland Utilities, Inc.[1]	188, 146, 531	148, 324, 381	78.8	32, 372, 544	17.2	211, 610, 264	168, 538, 094	79.6	35, 397, 692	16.7
Otter Tail Power Co	95, 205 689	94, 909, 274	99.7	86, 593	.1	, 97, 983, 365	97, 708, 524	99.7	79, 707	.1
Pacific Gas & Electric Co	3, 746, 682, 022	2, 786, 629, 536	74.4	759, 317, 821	20.3	4, 010, 334, 093	2, 976, 886, 377	74.2	798, 615, 851	19.9
Philadelphia Electric Co	1, 607, 034, 753	1, 356, 214, 897	84.4	174, 605, 285	10.9	1, 887, 208, 376	1, 603, 527, 257	85.0	188, 523, 830	10.0
Public Service Co. of Colorado	613, 049, 783	476, 644, 265	77.7	114, 947, 511	18.8	677, 569, 675	553, 745, 790	81.7	121, 842, 171	18.0
Public Service Electric & Gas Co	2, 170, 796, 288	1, 716, 711, 437	79.1	433, 346, 248	20.0	2, 441, 370, 422	1, 978, 701, 814	81.0	442, 282, 102	18.1
Rochester Gas & Electric Corp	416, 280, 870	292, 189, 086	70.2	96, 451, 522	23.2	433, 997, 892	305, 596, 935	70.4	100, 228, 327	23.1
St. Joseph Light & Power Co	48, 533, 202	45, 533, 376	93.8	1, 417, 522	2.9	50, 010, 609	47, 005, 677	94.0	1, 480, 123	3.0
San Diego Gas & Electric Co	423, 676, 882	317, 107, 781	74.8	80, 160, 326	18.9	469, 634, 975	351, 855, 303	74.9	89, 258, 561	19.0
Sierra Pacific Power Co	154, 161, 092	116, 923, 502	75.8	13, 704, 845	8.9	171, 025, 358	126, 231 997	73.8	15, 110, 768	8.8
South Beloit Water, Gas & Electric Co	3, 113, 911	1, 551, 053	49.8	1, 147, 747	36.9	3, 280, 738	1, 674, 912	51.1	1, 182, 573	36.0
South Carolina Electric & Gas Co	430, 557, 058	365, 236, 573	84.8	59, 260, 438	13.8	511, 718, 086	432, 926, 295	84.6	72, 034, 159	14.1

Southern California Edison Co	2,812,133,437	2,809,141,516	99.9	379,616		3,029,909,440	3,026,938,225	99.9	378,703	
Southern Indiana Gas & Electric Co	113,908,981	94,140,418	82.6	18,204,986	16.0	125,624,154	104,893,851	83.5	19,094,445	15.2
Superior Water, Light & Power Co	13,196,431	6,536,327	49.5	4,111,363	31.2	13,317,614	6,548,878	49.2	4,169,513	31.3
Toledo Edison Co., The	257,188,458	254,372,924	98.9	2,348,367	.9	281,809,955	278,976,454	99.9	2,455,177	.9
Tucson Gas & Electric Co	145,265,729	125,665,320	86.5	15,242,510	10.5	159,403,064	138,488,434	85.9	15,230,480	10.2
UGI Corp	133,544,630	29,519,804	22.1	100,070,951	74.9	141,402,195	31,727,137	22.4	105,603,349	74.7
Union Electric Co	1,111,223,344	1,094,310,983	98.5	7,689,609	.7	1,223,263,505	1,206,580,127	98.6	7,892,384	.1
Union Light, Heat & Power Co., The [1]	51,843,953	29,145,593	56.2	21,904,797	42.3	57,642,940	31,554,468	57.7	24,914,673	43.2
Virginia Electric & Power Co	1,447,023,420	1,401,059,577	96.8	38,917,176	2.7	1,708,999,517	1,660,338,329	97.2	41,502,549	2.4
Washington Water Power Co., The	300,119,224	249,806,443	83.2	43,395,515	14.5	318,624,641	265,042,649	83.2	46,329,170	14.5
Wisconsin Michigan Power Co	140,662,879	126,323,004	89.8	14,339,875	10.2	161,914,606	146,928,527	90.7	14,986,079	9.3
Wisconsin Power & Light Co	262,897,634	218,347,162	83.1	36,089,135	1.4	285,684,062	235,907,319	82.6	37,264,175	13.0
Wisconsin Public Service Co	240,058,418	181,309,839	75.5	45,845,970	19.1	265,799,300	203,080,919	76.4	47,638,874	17.9
Arkansas Louisiana Gas Co	303,745,265	1,024,909	.3	302,720,356	99.7	312,659,319	955,346	.3	311,703,973	99.7
Total	30,632,431,737	30,019,861,458	81.9	5,528,358,786	15.1	49,338,778,327	33,314,646,035	82.6	5,853,726,314	14.5

[1] Companies also file annual reports, FPC form No. 2.

Source of data on these sheets: FPC form Nos. 1 and 2 for 1969 and 1970.

NET UTILITY PLANT, DEC. 31, 1969

I. Privately owned electric utilities [1]	$71,419,252,927
II. Interstate Natural Gas Pipeline companies [1]	14,647,469,463
Total	86,096,722,390
III Combination electric and gas companies:	
Net gas utility plant	$5,528,358,786
Percent of total	6.4
Net electric utility plant	$30,019,861,458
Percent of total	34.9
Total net gas and electric utility plant	$35,548,220,244
Percent of total	41.3

[1] Data for 1970 not compiled.

APPENDIX B

FEDERAL POWER COMMISSION,
Washington, D.C., July 13, 1970.

H.R. 15516—91st Congress, To transfer Public Utility Holding Company Act to Federal Power Commission

Hon. HARLEY O. STAGGERS,
Chairman, Committee on Interstate and Foreign Commerce, House of Representatives, Rayburn House Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: In response to your request of January 26, 1970, we enclose three copies of the report of the Federal Power Commission on the subject bill.

The Office of Management and Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

JOHN N. NASSIKAS, *Chairman.*

Enclosure.

FEDERAL POWER COMMISSION REPORT ON H.R. 15516—91ST CONGRESS

A BILL to provide for the transfer to the Federal Power Commission of all functions and administrative authority now vested in the Securities and Exchange Commission under the Public Utility Holding Company Act of 1935

H.R. 15516 would transfer all the functions and administrative authority vested in the Securities and Exchange Commission under the provisions of the Public Utility Holding Company Act of 1935 to the Federal Power Commission. The bill would retain in the SEC with respect to public utility holding companies, the responsibility which it now exercises with respect to publicly owned corporations generally, e.g., proxy solicitations, insider trading restrictions, and reports to investors (Securities Act of 1933 and the Securities Exchange Act of 1934).

In 1935, in response to the considerable concern over the growth of public utility holding companies, Congress enacted the Public Utility Holding Company Act and directed the Securities and Exchange Commission to undertake the task of simplifying electric and gas holding company systems. To assist it in the discharge of this responsibility the SEC was given broad authority over the operations of registered holding companies, including their subsidiaries. To prevent the possibility of duplicative regulation, the Federal Power Act was amended in 1935 to provide (in section 318) that if any person would be subject both to a requirement of the Public Utility Holding Company Act or one promulgated thereunder and a requirement of the Federal Power Act, the former alone shall apply.

As early as 1949, the first Hoover Commission's task force report on the Independent Regulatory Commissions anticipated the desirability of a reassignment of functions once the SEC had completed "the integration and corporate simplification functions which lie outside the areas paralleled by the Federal Power Commission. That work is self-liquidating, and will be completed at some foreseeable time in the future . . ." *Task Force Report on Regulatory Commissions (Appendix N) prepared for the Commission on Organization of the Executive Branch of the Government* (January 1949), p. 149. The task force concluded:

"Upon substantial completion of the integration and corporate simplification program under section 11, the remaining powers and functions of the Securities and Exchange Commission under the Holding Company Act will then largely overlap and parallel these functions of the Federal Power Commission. At that time, the functions of both agencies in this field should be reexamined, integrated and placed in a single agency. The manner of such combination of functions should not be settled now, but should be left for determination in the light of the circumstances existing when the rearrangement is made." (id., at p. 150).

We concur in the SEC's judgment, as expressed in the letter of Commissioner Owens dated December 2, 1969, to the Speaker of the House of Representatives, that the contemplated change in the nature of the principal problems arising in administration of the Public Utility Holding Company Act has

taken place, so that transfer of functions is now timely. The Federal Power Commission, therefore, supports enactment of H.R. 15516.

The Office of Management and Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

FEDERAL POWER COMMISSION,
JOHN N. NASSIKAS,
Chairman.

APPENDIX C—COMBINATION ELECTRIC AND GAS COMPANIES

Company	Revenues, 1969		Revenues, 1970	
	Electric	Gas	Electric	Gas
Arizona Public Service Co	$95, 581, 424	$35, 445, 127	$105, 817, 335	$39, 048, 948
Arkansas-Missouri Power Co	18, 295, 587	4, 383, 412	19, 724, 307	4, 874, 926
Baltimore Gas & Electric Co	208, 805, 696	88, 029, 285	229, 063, 017	95, 919, 728
Boston Gas Co	1, 715, 971	56, 816, 223	2, 001, 025	62, 663, 215
California-Pacific Utilities Co	10, 681, 315	7, 757, 095	11, 232, 236	9, 201, 095
Central Hudson Gas & Electric Co	53, 171, 837	10, 369, 958	56, 695, 912	11, 333, 465
Central Illinois Light Co	46, 198, 812	33, 301, 941	51, 526, 337	37, 734, 949
Central Illinois Public Service Co	90, 520, 889	26, 105, 903	97, 544, 004	29, 292, 348
Central Kansas Power Co., The	6, 485, 266	1, 278, 287	6, 991, 005	1, 331, 158
Central Louisiana Electric Co., The	34, 893, 292	5, 232, 640	39, 695, 159	5, 486, 532
Central Telephone & Utilities Corp	33, 608, 265	29, 201, 460	35, 545, 302	29, 512, 679
Cheyenne Light, Fuel & Power Co	4, 295, 748	3, 597, 863	4, 460, 371	4, 002, 485
Cincinnati Gas & Electric Co., The	145, 082, 739	79, 560, 034	158, 061, 896	80, 006, 902
Citizens Utilities Co	11, 497, 511	2, 613, 019	13, 078, 933	2, 671, 789
Community Public Service Co	32, 296, 724	792, 007	34, 797, 189	825, 579
Connecticut Light & Power Co., The	139, 112, 567	26, 206, 611	151, 971, 071	28, 733, 158
Consolidated Edison Co. of New York, Inc	864, 790, 997	111, 425, 495	959, 599, 550	119, 323, 369
Consumers Power Co	307, 999, 678	240, 535, 782	334, 904, 154	273, 873, 680
Dayton Power & Light Co., The	105, 030, 378	55, 696, 191	122, 140, 619	57, 878, 714
Delmarva Power & Light Co	58, 352, 991	17, 384, 402	64, 295, 317	18, 336, 942
Fitchburg Gas & Electric Light Co	6, 411, 920	2, 147, 983	6, 995, 962	2, 441, 544
Florida Public Utilities Co	3, 175, 726	4, 362, 089	3, 651, 081	4, 805, 467
Gulf States Utilities Co	167, 567, 279	5, 345, 088	178, 266, 501	5, 821, 568
Hartford Electric Light Co., The	85, 851, 286	6, 901, 818	92, 547, 360	7, 375, 016
Illinois Power Co	138, 908, 660	73, 825, 262	149, 046, 174	81, 221, 316
Interstate Power Co	44, 821, 923	11, 959, 910	47, 280, 875	12, 008, 873
Iowa Electric Light & Power Co	48, 178, 993	28, 187, 251	51, 410, 449	31, 013, 625
Iowa-Illinois Gas & Electric Co	45, 448, 376	50, 415, 371	48, 437, 753	55, 588, 574
Iowa Power & Light Co	50, 709, 094	26, 806, 157	54, 915, 334	27, 747, 625
Iowa Public Service Co	38, 301, 945	29, 125, 034	41, 004, 820	30, 431, 043
Iowa Southern Utilities Co	23, 992, 872	8, 183, 254	24, 821, 582	8, 767, 627
Kansas Power & Light Co., The	65, 019, 063	27, 948, 745	70, 675, 173	28, 746, 668
Lake Superior District Power Co	9, 976, 634	2, 491, 702	10, 501, 963	3, 020, 016
Long Island Lighting Co	205, 593, 546	79, 767, 137	220, 264, 546	84, 709, 874
Louisville Gas & Electric Co	79, 786, 241	38, 458, 218	87, 267, 973	41, 494, 237
Madison Gas & Electric Co	18, 940, 646	13, 656, 077	21, 267, 020	14, 696, 988
Michigan Power Co	5, 783, 071	12, 375, 784	6, 364, 682	14, 136, 187
Missouri Edison Co	6, 754, 264	952, 946	7, 636, 467	1, 182, 912
Missouri Power & Light Co	24, 520, 918	5, 696, 727	26, 841, 143	6, 394, 349
Missouri Public Service Co	29, 879, 936	6, 935, 749	38, 831, 229	7, 632, 311
Missouri Utilities Co	10, 874, 308	6, 288, 749	11, 612, 657	7, 743, 848
Montana-Dakota Utilities Co	23, 011, 462	28, 119, 093	24, 259, 114	31, 128, 687
Montana Power Co., the	53, 033, 002	27, 509, 839	56, 680, 676	29, 744, 669
Mt. Carmel Public Utility Co	1, 739, 535	572, 515	1, 825, 874	617, 509
New Bedford Gas & Edison Light Co	23, 796, 669	7, 556, 870	26, 411, 905	9, 261, 244
New Orleans Public Service Inc	68, 831, 345	17, 554, 190	72, 042, 548	17, 897, 903
New York State Electric & Gas Corp	137, 129, 863	37, 612, 312	156, 951, 459	40, 216, 639
Niagara Mohawk Power Corp	337, 850, 332	111, 136, 973	399, 389, 296	118, 214, 290
Northern Indiana Public Service Co	119, 699, 230	147, 658, 472	124, 513, 000	175, 272, 164
Northern States Power Co. (Minnesota)	241, 665, 546	46, 502, 304	265, 421, 925	50, 457, 762
Northern States Power Co. (Wisconsin)	36, 638, 859	6, 106, 006	39, 619, 350	6, 891, 190
Northwestern Public Service Co	11, 893, 805	9, 320, 206	13, 054, 370	10, 004, 832
Orange & Rockland Utilities, Inc	38, 825, 934	18, 143, 618	43, 995, 078	22, 277, 500
Otter Tail Power Co	31, 191, 187	36, 727	34, 153, 292	32, 324
Pacific Gas & Electric Co	672, 750, 764	443, 751, 037	704, 140, 959	474, 295, 943
Philadelphia Electric Co	351, 954, 762	75, 149, 495	408, 959, 688	80, 960, 954
Public Service Co. of Colorado	123, 069, 643	63, 134, 560	130, 908, 806	69, 279, 067
Public Service Electric & Gas Co	454, 055, 491	229, 970, 331	492, 954, 437	248, 297, 130
Rochester Gas & Electric Corp	76, 249 891	50, 014, 769	93, 076, 297	54, 004, 776
St. Joseph Light & Power Co	12, 593, 474	687, 622	14, 309, 596	790, 115
San Diego Gas & Electric Co	97, 665, 611	57, 385, 426	108, 183, 393	61, 946, 799
Sierra Pacific Power Co	27, 441, 470	4, 354, 697	30, 763, 859	4, 771, 486
South Beloit Water, Gas & Electric Co	1, 746, 443	989, 931	1, 879, 057	1, 053, 095
South Carolina Electric & Gas Co	87, 832, 375	25, 171, 942	101, 187, 424	27, 994, 375
Southern California Edison Co	642, 124, 387	146, 387	720, 661, 464	148, 785
Southern Indiana Gas & Electric Co	29, 906, 878	11, 860, 551	31, 887, 574	13, 802, 056

See footnotes at end of table.

APPENDIX C COMBINATION ELECTRIC AND GAS COMPANIES—Continued

Company	Revenues, 1969		Revenues, 1970	
	Electric	Gas	Electric	Gas
Arkansas Louisiana Gas Co	$339,080	$151,574,211	$474,254	$165,891,369
Superior Water, Light & Power Co	4,353,382	2,647,256	4,549,149	2,727,535
Toledo Edison Co, The	85,884,264	1,313,827	91,789,216	1,430,347
Tucson Gas & Electric Co	37,983,647	1,359,450	44,667,156	12,625,178
UGI Corp	9,642,076	48,496,119	11,209,395	56,461,996
Union Electric Co	252,012,034	2,824,926	282,414,537	3,158,151
Union Light, Heat & Power Co., The	18,413,671	13,497,765	20,094,120	14,042,937
Virginia Electric & Power Co	305,770,229	20,670,139	353,151,313	21,728,502
Washington Water Power Co, The	48,813,755	18,938,988	50,665,094	20,161,140
Wisconsin Michigan Power Co	32,532,768	9,016,634	35,130,908	9,345,966
Wisconsin Power & Light Co	70,455,169	21,615,623	75,169,526	22,718,842
Wisconsin Public Service Co	57,567,132	31,724,702	67,101,714	34,993,963
Total	7,969,983,779	3,030,729,977	8,832,442,299	3,303,678,549

Source of data on these sheets: FPC form Nos. 1 and 2 for 1969 and 1970.

UTILITY OPERATING REVENUES, 1969

I. Privately owned electric utilities[1]	$21,085,458,378
II. Interstate Natural Gas Pipeline Companies[1]	7,292,305,864
Total	28,377,764,242
III. Combination electric and gas companies:	
Gas utility operating revenues	$3,030,729,977
Percent of total	10.7
Electric utility operating revenues	$7,966,983,779
Percent of total	28.1
Total electric and gas operating revenues	$10,997,713,756
Percent of total	38.8

[1] Data for 1970 not compiled.

Company	Net utility operating income—1969					Net utility operating income—1970				
		Electric		Gas			Electric		Gas	
	Total income [1]	Income	Percent of total	Income	Percent of total	Total income [1]	Income	Percent of total	Income	Percent of total
Arizona Public Service Co	$28,566,463	$24,693,469	86.4	$3,940,402	13.8	$31,948,101	$28,037,700	87.8	$3,966,263	12.2
Arkansas-Missouri Power Co	2,964,505	2,562,782	86.4	401,723	13.6	3,022,513	2,671,792	88.4	350,721	11.6
Baltimore Gas & Electric Co	57,733,446	45,815,003	79.4	11,676,216	20.2	67,406,702	53,843,963	79.9	13,297,919	19.7
Boston Gas Co	4,679,452	66,940	1.4	4,612,512	98.6	5,362,840	59,727	1.1	5,303,113	98.9
California-Pacific Utilities Co	3,565,903	1,636,696	45.9	1,099,673	30.8	3,886,213	1,646,590	42.4	1,341,528	34.5
Central Hudson Gas & Electric Corp	13,937,782	11,803,906	84.7	2,133,876	15.3	12,976,325	10,919,621	84.2	2,056,704	15.6
Central Illinois Light Co	15,801,110	11,117,573	70.4	4,665,123	29.5	18,272,508	12,816,935	70.1	5,512,368	30.2
Central Illinois Public Service Co	24,845,277	20,661,584	83.2	4,183,694	16.9	26,476,330	22,190,050	83.8	4,286,280	16.2
Central Kansas Power Co., The	1,240,018	1,157,428	93.3	81,494	6.6	1,494,476	1,410,500	94.4	82,784	5.5
Central Louisiana Electric Co., Inc	11,013,811	9,887,524	89.8	811,611	7.4	12,389,909	11,062,912	89.3	926,044	7.5
Central Telephone & Utilities Corp	10,115,540	6,566,341	64.9	3,321,345	32.8	10,518,549	7,424,892	70.6	2,834,882	27.0
Cheyenne Light Fuel & Power Co	811,900	573,693	70.7	251,580	31.0	883,552	634,393	71.8	270,756	30.6
Cincinnati Gas & Electric Co., The	40,080,002	32,331,274	80.7	7,819,904	19.5	42,833,915	36,328,432	84.8	6,505,483	15.2
Citizens Utilities Co	2,520,368	1,988,726	78.9	309,766	12.3	2,876,708	2,322,691	80.7	309,717	10.8
Community Public Service Co	5,494,773	5,420,337	98.6	74,436	1.4	6,122,937	6,043,096	98.7	79,841	1.3
Connecticut Light & Power Co., The	36,392,489	33,129,595	91.0	3,262,893	9.0	36,351,773	32,395,804	89.1	3,955,969	10.9
Consolidated Edison Co. of New York, Inc	197,796,660	181,911,439	92.0	10,095,316	5.1	210,604,112	194,545,593	92.4	11,677,187	5.5
Consumers Power Co	94,859,016	62,598,806	66.0	32,651,237	3.4	103,431,499	62,778,612	60.7	40,779,643	39.3
Dayton Power & Light Co., The	31,006,834	26,130,623	84.3	5,057,247	16.3	35,115,442	30,841,267	87.8	4,418,633	12.6
Delmarva Power & Light Co	19,055,029	14,749,299	77.4	3,416,240	17.9	19,615,507	15,107,596	77.0	3,622,525	18.5
Fitchburg Gas & Electric Light Co	1,520,754	1,274,004	83.8	246,750	16.2	1,617,538	1,272,666	78.7	344,872	21.3
Florida Public Utilities Co	961,524	441,380	45.9	485,616	50.5	1,151,310	536,022	46.6	567,488	49.3
Gulf States Utilities Co	49,273,745	46,229,895	93.8	725,982	1.5	54,659,399	51,371,124	94.0	1,005,354	1.8
Hartford Electric Light Co., The	21,623,137	20,604,075	95.3	1,019,062	4.7	22,576,042	21,540,688	95.4	1,035,354	4.6
Illinois Power Co	46,959,284	34,107,161	72.6	13,211,692	28.1	53,088,561	39,048,944	73.6	14,087,406	26.4
Interstate Power Co	11,865,573	11,285,662	95.1	990,881	8.4	12,256,632	11,912,842	97.2	776,636	6.3
Iowa Electric Light & Power Co	10,628,892	9,296,237	87.5	1,251,365	11.8	11,769,938	9,698,819	78.2	2,053,664	17.4
Iowa-Illinois Gas & Electric Co	15,951,777	10,794,763	67.7	5,157,014	32.3	15,737,983	10,556,340	67.1	5,181,643	32.9
Iowa Power & Light Co	13,284,999	10,627,230	80.0	2,657,769	20.0	13,311,848	10,786,665	81.0	2,525,183	19.0
Iowa Public Service Co	9,774,483	7,492,598	76.7	2,199,127	22.5	10,824,808	8,452,628	78.1	2,333,776	21.6
Iowa Southern Utilities Co	6,790,954	5,757,765	84.8	1,033,189	15.2	7,099,982	6,125,198	86.3	974,784	13.7
Kansas Power & Light Co., The	16,539,013	14,105,264	85.3	2,471,708	14.9	18,717,519	16,130,450	86.2	2,625,155	14.0
Lake Superior District Power Co	2,128,123	1,998,287	93.9	128,415	6.0	1,818,121	1,615,222	88.8	197,565	10.9
Long Island Lighting Co	61,498,650	48,025,491	78.1	13,473,159	21.9	64,822,162	50,997,670	78.7	13,824,492	21.3
Louisville Gas & Electric Co	24,666,811	20,255,382	82.1	4,411,429	17.9	26,250,199	21,867,902	83.3	4,382,297	16.7
Madison Gas & Electric Co	4,805,599	3,371,143	70.2	1,434,456	29.8	4,953,577	3,328,643	67.2	1,624,934	32.8
Michigan Power Co	1,710,203	655,042	38.3	1,055,161	61.7	2,172,272	847,513	39.0	1,324,759	61.0
Missouri Edison Co	1,520,957	1,276,302	83.9	244,655	16.1	1,606,124	1,357,606	84.5	248,518	15.5

See footnotes at end of table.

APPENDIX D—COMBINATION ELECTRIC AND GAS COMPANIES—Continued

Company	Net utility operating income—1969					Net utility operating income—1970				
		Electric		Gas			Electric		Gas	
	Total income [1]	Income	Percent of total	Income	Percent of total	Total income [1]	Income	Percent of total	Income	Percent of total
Missouri Power & Light Co	$4,183,116	$3,578,624	85.5	$604,492	14.5	$4,587,453	$3,867,620	84.3	$719,833	15.5
Missouri Public Service Co	9,687,258	8,644,504	89.2	998,871	10.3	12,632,626	11,549,828	91.4	1,071,195	8.5
Missouri Utilities Co	2,264,484	1,565,132	69.1	587,648	26.0	2,312,313	1,466,152	63.4	723,315	31.3
Montana-Dakota Utilities Co	9,574,327	4,416,032	46.1	5,197,365	54.3	10,917,660	4,810,228	44.3	6,110,972	56.0
Montana Power Co., The	24,226,224	17,743,003	73.2	6,337,007	26.2	25,875,621	19,288,405	74.5	6,473,275	25.0
Mt. Carmel Public Utility Co	255,675	185,366	72.5	70,308	27.5	241,106	174,896	72.5	66,210	27.5
New Bedford Gas & Edison Light Co	2,811,384	2,441,146	86.8	370,238	15.2	3,535,600	2,797,916	79.1	737,684	20.9
New Orleans Public Service Inc	12,357,287	19,294,998	156.1	1,529,723	12.4	13,331,799	15,296,515	114.7	1,327,648	10.0
New York State Electric & Gas Corp	38,603,075	33,946,614	87.9	4,705,764	12.2	42,929,884	37,846,864	88.2	5,083,020	11.8
Niagara Mohawk Power Corp	75,098,956	61,202,789	81.5	13,896,167	18.5	80,751,454	65,979,713	81.7	14,771,639	18.3
Northern Indiana Public Service Co	50,004,976	28,488,182	57.0	21,516,794	43.0	55,782,676	27,277,052	48.9	28,505,624	51.1
Northern States Power Co. (Minnesota)	56,095,112	52,151,311	93.0	4,742,753	8.5	61,207,409	56,372,608	92.1	5,351,962	8.7
Northern States Power Co. (Wisconsin)	7,058,083	6,580,359	93.2	562,489	8.0	7,467,071	6,610,371	88.5	819,217	11.0
Northwestern Public Service Co	3,145,045	2,018,541	64.2	1,126,504	35.8	3,628,986	2,327,603	64.1	1,301,383	35.9
Orange & Rockland Utilities, Inc	13,165,535	11,203,558	85.1	1,961,976	14.9	14,846,647	11,756,411	79.2	3,090,235	20.8
Otter Tail Power Co	5,822,449	5,846,396	100.4	22,020	0	6,348,395	6,372,515	100.4	(34,736)	(.1)
Pacific Gas & Electric Co	232,478,762	183,317,618	78.9	50,012,397	21.5	231,292,398	186,285,615	80.5	45,158,288	19.5
Philadelphia Eectric Co	97,783,188	83,722,860	85.6	12,898,606	13.2	104,004,821	89,858,726	86.4	13,780,278	13.2
Public Service Co. of Colorado	39,323,487	32,584,866	82.9	6,795,397	17.3	41,931,409	33,740,727	80.4	8,228,130	19.6
Public Service Electric & Gas Co	143,079,771	111,019,482	77.6	32,060,289	22.4	144,119,923	109,314,569	75.8	34,805,354	24.2
Rochester Gas & Electric Corp	25,475,335	17,652,084	69.3	7,550,772	29.6	29,621,728	21,798,986	73.6	7,739,025	26.1
St. Joseph Light & Power Co	3,447,414	3,607,882	104.6	51,609	1.5	3,701,332	3,631,574	98.1	65,269	1.8
San Diego Gas & Eectric Co	28,329,248	22,259,623	78.6	6,097,139	21.5	31,467,167	25,339,186	80.5	6,191,077	19.7
Sierra Pacific PowerCo	10,080,022	7,960,367	79.0	949,927	9.4	11,603,992	8,965,037	77.3	1,052,371	9.1
South Beloit Water, Gas & Electric Co	134,148	45,033	33.6	83,756	62.4	172,782	38,003	22.0	128,773	74.5
South Carolina Electric & Gas Co	25,778,774	22,132,782	85.9	4,035,393	15.7	28,500,895	24,192,439	84.9	4,877,685	17.1
Southern California Edison Co	159,317,221	159,461,551	100.1	717	0	184,836,864	184,815,090	99.9	5,847	.1

Southern Indiana Gas & Electric Co	7,690,379	6,298,163	81.9	1,392,216	22.1	8,766,254	7,136,335	81.4	1,629,919	18.6
Superior Water, Light & Power Co	721,176	428,990	59.5	244,535	33.9	606,861	316,716	52.2	256,945	42.3
Toledo Edison Co., The	19,179,626	18,913,050	98.6	228,460	1.2	20,195,815	20,001,502	99.0	236,832	1.0
Tucson Gas & Electric Co	9,146,569	8,113,333	88.7	1,033,236	11.3	11,196,616	10,030,428	89.6	1,166,188	10.4
UGI Corp	10,075,150	2,053,169	20.4	8,021,981	79.6	11,232,483	1,954,652	17.4	9,277,831	82.6
Union Electric Co	64,114,996	63,216,696	98.6	454,442	.1	78,079,596	77,302,038	99.0	446,448	.6
Union Light, Heat & Power Co., The	3,225,850	1,861,316	57.7	1,364,534	42.3	3,726,629	2,182,613	58.6	1,544,016	41.4
Virginia Electric & Power Co	83,569,675	80,762,453	96.6	2,807,222	3.4	95,116,411	92,506,484	97.2	2,649,927	2.8
Washington Water Power Co., The	20,225,652	16,858,087	83.4	3,348,650	16.6	20,905,142	17,297,844	82.7	3,588,670	17.3
Wisconsin Michigan Power Co	6,428,111	5,415,977	84.3	1,012,134	15.7	7,012,385	5,881,218	83.9	1,131,167	16.1
Wisconsin Power & Light Co	17,243,192	14,407,703	83.6	2,647,252	15.4	19,365,872	16,318,093	84.3	2,819,410	14.6
Wisconsin Public Service Co	14,334,075	11,166,170	77.9	3,327,512	23.2	17,223,404	13,388,908	77.7	4,033,040	23.4
Arkansas Louisiana Gas Co	34,992,110	(36,487)	(.4)	35,128,597	100.4	39,162,887	(64,501)	(.2)	39,065,821	99.8
Total	2,274,511,773	1,874,830,042	82.4	397,840,780	17.5	2,406,304,322	2,026,586,088	82.2	432,693,058	17.5

[1] Include other utility income.

Source of data on these sheets: FPC form Nos. 1 and 2 for 1969 and 1970.

NET UTILITY OPERATING INCOME—1969

I. Privately owned electric utilities[1]	$4,492,915,506
II. Interstate natural gas pipeline companies [1]	1,041,096,089
Total	$5,534,011,595
III. Combination electric and gas companies:	
Net gas operating income	$397,840,780
Percent of total	7.2
Net electric operating income	$1,874,830,042
Percent of total	33.9
Total net operating income	$2,272,670,82[illegible]
Percent of total	41.

[1] Data for 1970 not compiled.

COMMENTS OF THE FEDERAL POWER COMMISSION ON A NEW REGULATORY FRAMEWORK

Report on selected independent regulatory agencies by the President's Advisory Council on Executive Organization (Ash Council), John N. Nassikas, Chairman; John A. Carver, Jr., Vice-Chairman; Albert B. Brooke, Jr., Commissioner; Lawrence J. O'Connor, Jr., Commissioner.—April 16, 1971.

THE PUBLIC UTILITY HOLDING COMPANY ACT

The Report recommends the transfer of the responsibilities for regulation under the Public Utility Holding Company Act of 1935 from the Securities and Exchange Commission to the FPC. We are already on record in support of this recommendation, but urge that such a transfer be accompanied by sufficient staff additions and funds with which to administer these responsibilities.

On July 13, 1970, the Commission transmitted to the House Committee on Interstate and Foreign Commerce a report on H.R. 15516 (Staggers), "a bill to provide for the transfer to the Federal Power Commission of all functions and administrative authority now vested in the Securities and Exchange Commission under the Public Utility Holding Company Act of 1945." This bill, which was sponsored by the SEC, received the Commission's endorsement and the report we transmitted to Congress was cleared by the Office of Management and Budget. A copy of the letter of transmittal and the report are attached as Appendix B.

(10) So-called "informal" procedures for the settlement of contested issues and the formulation of policy must be carefully insulated by strict adherence to the requirements of due process and the Administrative Procedure Act.

(11) We endorse the formation of an Administrative Court to complement the existing regulatory framework. Preferably such a court should be constituted as a constitutional court with jurisdiction over the decisions of all the independent regulatory agencies. Review of regulatory decisions by a specialized, full-time Administrative Court in lieu of eleven different Courts of Appeals would contribute to regulatory stability and mitigate the severe burden on the current judicial system.

(12) As a policy matter the Commission has already expressed its agreement with the transfer of the SEC's responsibilities pursuant to the Public Utility Holding Company Act to our jurisdiction. Accordingly, we concur in the Council's recommendation on this subject.

APPENDIX F

Combination electric and gas companies weighted average coupon rate[1]*— December 31, 1970*

	Percent
Arizona Public Service Co	4.92
Arkansas Louisiana Gas Co	6.09
Arkansas-Missouri Power Co	6.02
Baltimore Gas & Electric Co	5.28
Boston Gas Co	6.87
California-Pacific Utilities Co	5.66
Central Hudson Gas & Electric Corp	5.40
Central Illinois Light Co	5.68
Central Illinois Public Service Co	4.70
Central Kansas Power Co., the	5.93
Central Louisiana Electric Co., Inc	6.03
Central Telephone & Utilities Corp	6.06
Cheyenne Light, Fuel & Power Co	4.36
Cincinnati Gas & Electric Co., the	5.38
Citizens Utilities Co	6.78
Community Public Service Co	5.83
Connecticut Light & Power Co., the	5.51
Consolidated Edison Co. of New York, Inc	4.97
Consumers Power Co	5.53
Dayton Power & Light Co., the	5.50
Delmarva Power & Light Co	5.55
Fitchburg Gas & Electric Light Co	7.98

See footnote at end of table.

Combination electric and gas companies weighted average coupon rate[1]—*December 31, 1970*—Continued

	Percent
Florida Public Utilities Co	4.97
Gulf States Utilities Co	5.46
Hartford Electric Light Co., the	5.28
Illinois Power Co	5.24
Interstate Power Co	5.00
Iowa Electric Light & Power Co	5.77
Iowa-Illinois Gas & Electric Co	6.04
Iowa Power & Light Co	4.75
Iowa Public Service Co	5.03
Iowa Southern Utilities Co	4.32
Kansas Power & Light Co., the	4.87
Lake Superior District Power Co	4.17
Long Island Lighting Co	4.89
Louisville Gas & Electric Co	4.90
Madison Gas & Electric Co	5.96
Michigan Power Co	5.93
Missouri Edison Co	4.47
Missouri Power & Light Co	4.57
Missouri Public Service Co	5.45
Missouri Utilities Co	4.59
Montana-Dakota Utilities Co	5.74
Montana Power Co., the	4.76
Mt. Carmel Public Utility Co	3.81
New Bedford Gas & Edison Light Co	5.55
New Orleans Public Service Inc	4.34
New York State Electric & Gas Corp	5.32
Niagara Mohawk Power Corp	4.57
Northern Indiana Public Service Co	5.14
Northern States Power Co. (Minnesota)	5.30
Northern States Power Co. (Wisconsin)	4.69
Northwestern Public Service Co	5.50
Orange & Rockland Utilities Inc	5.69
Otter Tail Power Co	4.01
Pacific Gas & Electric Co	5.01
Philadelphia Electric Co	5.58
Public Service Electric & Gas Co	5.65
Public Service Co. of Colorado	4.97
Rochester Gas & Electric Corp	5.83
San Diego Gas & Electric Co	5.58
Sierra Pacific Power Co	5.89
St. Joseph Light & Power Co	5.90
South Carolina Electric & Gas Co	6.01
Southern California Edison Co	5.07
Southern Indiana Gas & Electric Co	5.16
Superior Water, Light & Power Co	3.60
Toledo Edison Co., the	5.20
Tucson Gas & Electric Co	5.27
UGI Corp	5.74
Union Electric Co	5.24
Union Light, Heat & Power Co., the	5.90
Virginia Electric & Power Co	5.59
Washington Water Power Co., the	5.48
Wisconsin Michigan Power Co	6.14
Wisconsin Power & Light Co	5.51
Wisconsin Public Service Co	5.80

[1] Adjusted for amortization of debt discount, premium and expense.

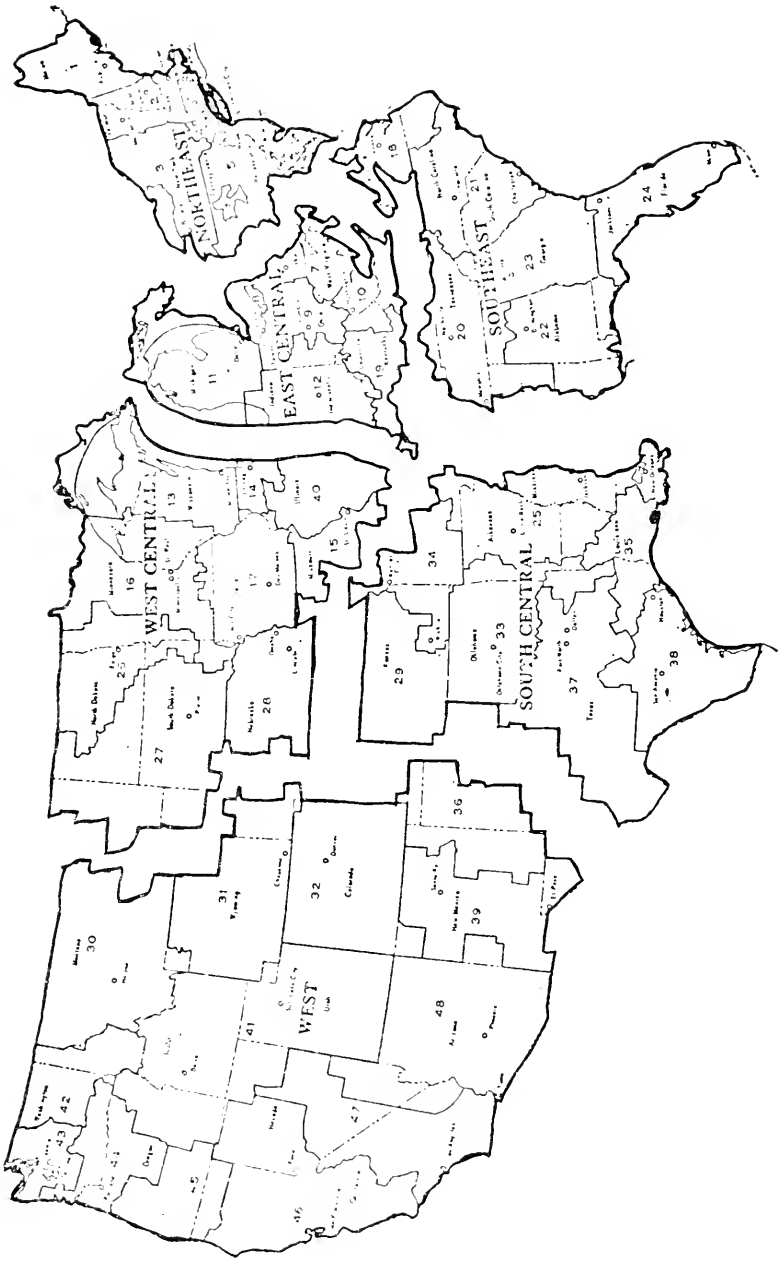
APPENDIX G—COMBINATION ELECTRIC AND GAS COMPANIES

[Computation of interest charges based on total refinancing of net gas utility plant at weighted average coupon rate and at 8 percent]

Company	Net gas utility plant Dec. 31, 1970	Interest charges based on— Weighted average coupon rate	At 8 percent	Difference
Arizona Public Service Co	$65,439,452	$3,219,621	$5,235,156	$2,015,535
Arkansas-Missouri Power Co	7,655,230	460,845	612,418	151,573
Baltimore Gas & Electric Co	152,633,184	8,059,032	12,210,655	4,151,623
Boston Gas Co.[1]	2,706,781	185,956	216,542	30,586
California-Pacific Utilities Co	19,913,764	1,127,119	1,593,101	465,982
Central Hudson Gas & Electric Corp	32,252,824	1,741,652	2,580,226	838,574
Central Illinois Light Co	89,770,791	5,098,981	7,181,663	2,082,682
Central Illinois Public Service Co	63,276,224	2,973,983	5,062,098	2,088,115
Central Kansas Power Co., The	1,566,722	92,907	125,338	32,431
Central Louisiana Electric Co., Inc	12,030,180	725,420	962,414	236,994
Central Telephone & Utilities Corp	26,269,724	1,591,945	2,101,578	509,633
Cheyenne Light, Fuel & Power Co	4,023,511	175,425	321,881	146,456
Cincinnati Gas & Electric Co., The	99,722,934	5,365,093	7,977,835	2,612,742
Citizens Utilities Co	3,614,683	245,076	289,175	44,099
Community Public Service Co	1,350,394	78,728	108,032	29,304
Connecticut Light & Power Co., The	73,523,469	4,051,143	5,881,878	1,830,735
Consolidated Edison Co. of New York, Inc	213,450,793	10,608,504	17,076,063	6,467,559
Consumers Power Co	574,988,219	31,796,849	45,999,058	14,202,209
Dayton Power & Light Co., The	74,080,044	4,074,402	5,926,404	1,852,002
Delmarva Power & Light Co	35,937,073	1,994,508	2,874,966	880,458
Fitchburg Gas & Electric Light Co	3,992,366	318,591	319,389	798
Florida Public Utilities Co	7,078,378	351,795	566,270	214,475
Gulf States Utilities Co	13,067,445	713,482	1,045,396	331,914
Hartford Electric Light Co., The	17,289,405	912,880	1,383,152	470,272
Illinois Power Co	173,332,184	9,082,606	13,866,575	4,783,969
Interstate Power Co	12,200,845	610,042	960,067	350,025
Iowa Electric Light & Power Co	31,608,139	1,823,790	2,528,651	704,861
Iowa-Illinois Gas & Electric Co	72,117,753	4,355,912	5,769,420	1,413,508
Iowa Power & Light Co	37,327,490	1,773,056	2,986,199	1,213,143
Iowa Public Service Co	27,198,125	1,368,066	2,175,850	807,784
Iowa Southern Utilities Co	10,725,964	463,362	858,077	394,715
Kansas Power & Light Co., The	42,738,868	2,081,383	3,419,109	1,337,726
Lake Superior District Power Co	4,000,012	166,801	320,001	153,200
Long Island Lighting Co	184,105,976	9,002,782	14,728,478	5,725,696
Louisville Gas & Electric Co	66,182,904	3,242,962	5,294,632	2,051,670
Madison Gas & Electric Co	27,332,815	1,629,036	2,186,625	557,589
Michigan Power Co	19,491,916	1,155,871	1,559,353	403,482
Missouri Edison Co	6,107,995	273,027	488,640	215,613
Missouri Power & Light Co	14,326,574	654,724	1,146,126	491,402
Missouri Public Service Co	12,340,251	672,544	987,220	314,676
Missouri Utilities Co	12,325,524	565,742	986,042	420,300
Montana-Dakota Utilities Co	74,571,686	4,280,415	5,965,734	1,685,319
Montana Power Co., the	53,662,510	2,554,335	4,293,001	1,738,666
Mount Carmel Public Utility Co	1,312,294	49,998	104,984	54,986
New Bedford Gas & Edison Light Co	11,824,050	656,235	945,924	289,698
New Orleans Public Service Inc	34,040,894	1,477,375	2,723,272	1,245,897
New York State Electric & Gas Corp	75,013,246	3,990,705	6,001,060	2,010,355
Niagara Mohawk Power Corp	241,288,407	11,026,880	19,303,073	8,276,193
Northern Indiana Public Service Co	264,190,912	13,579,413	21,135,273	7,555,860
Northern States Power Co (Minnesota)	81,036,249	4,294,921	6,482,900	2,187,979
Northern States Power Co. (Wisconsin)	15,050,845	705,885	1,204,068	498,183
Northwestern Public Service Co	14,540,230	799,713	1,163,218	363,505
Orange & Rockland Utilities, Inc	35,397,692	2,014,129	2,831,815	817,686
Otter Tail Power Co	79,707	3,196	6,377	3,181
Pacific Gas & Electric Co	798,615,864	40,010,655	63,889,269	23,878,614
Philadelphia Electric Co	188,523,830	10,519,630	15,081,906	4,562,276
Public Service Co. of Colorado	121,842,171	6,055,556	9,747,374	3,691,818
Public Service Electric & Gas Co	442,282,102	24,988,939	35,382,568	10,393,629
Rochester Gas & Electric Corp	100,228,327	5,843,311	8,018,266	2,174,955
St. Joseph Light & Power Co	1,480,123	87,327	118,410	31,083
San Diego Gas & Electric Co	89,258,561	4,980,628	7,140,685	2,160,057
Sierra Pacific Power Co	15,110,768	890,024	1,208,861	318,837
South Beloit Water, Gas & Electric Co	1,182,573	0	94,606	94,606
South Carolina Electric & Gas Co	72,034,159	4,329,253	5,762,733	1,433,480
Southern California Edison Co	378,703	19,200	30,296	11,096
Southern Indiana Gas & Electric Co	19,094,445	985,273	1,527,556	542,283
Superior Water, Light & Power Co	4,169,513	150,102	333,561	183,459
Toledo Edison Co., The	2,455,177	127,669	196,414	68,745
Tucson Gas & Electric Co	16,330,480	860,616	1,241,116	380,500
UGI Corp.[1]	31,727,137	1,821,138	2,538,171	717,033
Union Electric Co	7,892,384	413,561	631,391	217,830
Union Light, Heat & Power Co., The	24,914,673	1,469,966	1,993,174	523,208
Virginia Electric & Power Co	41,502,549	2,319,992	3,320,203	1,000,211
Washington Water Power Co., The	46,329,170	2,538,839	3,706,333	1,167,494
Wisconsin Michigan Power Co	14,986,079	920,145	1,198,886	278,741
Wisconsin Power & Light Co	37,264,175	2,053,256	2,981,134	927,878
Wisconsin Public Service Co	47,688,874	2,765,955	3,815,110	1,049,155
Arkansas-Louisiana Gas Co	311,703,973	18,982,772	24,936,318	5,953,546
Total		303,452,650	454,966,793	151,514,143

[1] Net electric utility plant.

FEDERAL POWER COMMISSION
NATIONAL POWER SURVEY REGIONS



Senator FONG. Have you any questions?

Mr. O'LEARY. Mr. Chairman, I believe Mr. Bangert of our staff has some questions.

Mr. BANGERT. Chairman Nassikas, on page 12(b) of your statement, you outline the Public Utility Holding Company Act of 1935 which limits the ownership of gas and electric utility properties by registered holding companies and their subsidiaries.

I am wondering whether or not their situation as contrasted with nonholding company combinations presents a double standard in terms of regulation of utilities?

Mr. NASSIKAS. In terms of what Congress has enacted?

Mr. BANGERT. Yes.

Mr. NASSIKAS. As the governing regulatory standard?

You have one standard which applies to the Holding Company Act which was adopted by the Congress in the 1930's, which has its historical origins in some of the abuses of that period, and on the other hand you have a regulatory standard and the public interest considerations and broad authority to a regulatory commission such as the Federal Power Commission in determining where the public interest lies.

To be sure, there is a difference in the standard applicable by Congress to holding companies as it applies to combination gas and electrics and the standard as it might be applied in a nonholding company situation.

Mr. BANGERT. Well, do you think that the Public Utility Holding Company Act of 1935 as it applies to the ownership of gas and electric utilities is still a viable statute or——

Mr. NASSIKAS. Oh, yes.

Mr. BANGERT. So, you would not favor——

Mr. NASSINKAS. As to holding company operations, yes.

Mr. BANGERT. So, you would not favor repeal of that statute?

Mr. NASSIKAS. By no means: no. The administration of this statute is an extremely important part of our national policy. In fact, as I have stated in appendix B to my statement, we favor the transfer, as did Hamer Budge, the Chairman of the SEC, of the holding company regulatory functions from the SEC to the Federal Power Commission where it properly belongs. My report and the Commission's report, appendix B, affirmatively advocates the granting of the regulatory responsibilities under the Holding Company Act to the FPC where they belong.

Mr. BANGERT. You mentioned the possible economies and efficiencies that can be realized by combination companies.

I am wondering to what extent has the Federal Power Commission studied the economies and efficiencies of combination companies as opposed to straight utility companies?

Mr. NASSIKAS. The Federal Power Commission over the course of the past 7 to 8 years, let us say, has had various studies conducted by staff members relative to the operating efficiencies or other criteria of companies to determine whether combination gas and electric utilities are properly serving markets. How they compare to others, in other words, has been studied. I want to state that, of course, as you know, Mr. Bangert, your committee requested a copy of a young economist's analysis of this question, a Mrs. Regina Herzlinger.

Mr. BANGERT. That is the one that was requested by Chairman Hart on March 30, 1971.

Mr. NASSIKAS. That is right. And we have supplied an updating of the Herzlinger memorandums which she presented to the Commission back in 1966 and 1967. Her report is what an earlier Commission received and is not an adoption by the Commission of the views of Mrs. Herzlinger. The Commission gave no definitiveness or authority to her conclusions, which she drew as a young graduate of some institution.

Mr. BANGERT. Well, it is my understanding that she is now getting her doctorate at Harvard and will be accepted as an associate professor this next June, so that perhaps now that she acquired more academic background, she might——

Mr. NASSIKAS. I have the utmost respect for the Harvard Business School which she attended. I am also a graduate of that institution.

Mr. BANGERT. Well, then, does the Federal Power Commission, as such, have no official position or knowledge as to whether or not there are efficiencies and economies realized by combination companies?

Mr. NASSIKAS. The issue you raise requires complete analysis and investigation. I think it would be irresponsible for me as chairman of this Commission to come in and tell this committee, based upon the limited studies that have been done, that Congress should pass a national policy mandating divestiture of 40 percent of our electric utility and gas industry in the United States.

I think, to the contrary, that it is responsible for me to come into this committee and point out to you that we do not have any conclusive evidence at this time which would warrant our recommending a congressional finding to this effect.

Mr. BANGERT. Do you think it is responsible at this juncture for the Federal Power Commission to attempt to make a determination as to whether or not there are in fact efficiencies or economies gained by combination companies?

Mr. NASSIKAS. The studies, as I say, are proceeding, are continuing. Our staff is making analyses of the question. We have various reports which are filed. We continue to analyze, and we believe that this is an aspect of the public interest which we, as a regulatory agency, should pursue in order to determine whether or not the continuance of the type of organization for service in a particular market area is consistent with the public interest. Incidentally, the public interest must be balanced if it is to benefit the consumer. This involves, as I have stated, the lowest possible reasonable price consistent with adequate service and consistent with the necessary return to investors needed to assure that the consumer will get service.

Mr. BANGERT. Well, even though you have apparently no final empirical data on the subject, I assume that perhaps you have a hunch, because in your conclusion you said:

> Economies of scale inherent in combination gas and electric utilities would not necessarily be offset by increased competition between the divested gas and electric utilities.

And I guess I really am wondering from where you get that hunch.

Mr. NASSIKAS. From my analysis, from my experience, from my analysis of the operations of these gas and electric companies, in various markets, from discussions with staff and my own investigations of this matter. I have made no final conclusions. I indicated that my views

are not necessarily complete. After all, the inherent policy of S. 403 is a congressional finding that competition is going to ultimately benefit the consumer, and, therefore, let's have compulsory divestiture. I say that Congress does not have the evidence, nor do I have the evidence, which would lead to this conclusion at this time. I would like to add that I believe that studies should continue to be made, more definitive or exhaustive studies than have been made by Mrs. Herzlinger or by some of the other people who have worked for the Federal Power Commission over the course of the past 6 or 7 years.

Mr. BANGERT. Are you familiar with the study of Mr. William Collins, a former Federal Power Commission economist, who is now at East Carolina State?

Mr. NASSIKAS. I would not say I am familiar with it from the standpoint of being able to give you a definite analysis of it. Certainly, I am acquainted with a study that was made by Mr. Collins, and this study I have attempted to review. Incidentally, Mr. Collins when he was with the staff had some type of a commentary which was critical of Mrs. Herzlinger's work at that time. I do not know whether Mrs. Herzlinger would be critical of his or not. I am not critical either way.

Mr. BANGERT. Well, are you now familiar enough with the study, and do you have an opinion that would give you a feeling one way or another about his finding that combination companies charge higher prices to all classes of electrical customers than do straight companies?

Mr. NASSIKAS. No; I would like to have my staff thoroughly examine that conclusion by Mr. Collins before I would support the conclusion. You would not want me to agree with something that I really had not studied.

Mr. BANGERT. Absolutely not. That is what I asked you if you were familiar enough with the studies.

Mr. NASSIKAS. That is right.

Mr. BANGERT. But you have an opinion, really. He also makes a finding that expenses of combination companies are higher than straight companies, and one of the specific findings that he made was with respect to the meter reader problem that we have talked about here for the last 3 days. Do you have any comment with respect to that finding?

Mr. NASSIKAS. No; you can accept all his findings. The way I like to approach a complex problem is not to approach it piecemeal in terms of meter readers or some isolated bit of evidence but rather——

Mr. BANGERT. You mentioned meter readers in your statement, that is why——

Mr. NASSIKAS. I also mentioned managements, I mentioned service efficiencies, not simply meter readers. That is not accurate, Mr. Bangert.

Mr. BANGERT. To what extent has the Federal Power Commission studied the possible anticompetitive aspects of combination companies?

Mr. NASSIKAS. As I say, there are various studies which have been made in the past and also in conjunction with cases which have come before the Commission. I cited one of these in my testimony. As Chairman Fong pointed out, the Commission as a condition of its order on a merger may compel divestiture of either a gas or an electrical phase of an operation, and the Commission has done this.

Now, obviously, on a decided litigated case of that kind, the Commission acts on evidence, exhaustive evidence, as to what the situation

was in that particular case, just as the Commission has acted on exhaustive evidence and will finally issue its conclusion with reference to the other merger case which I mentioned earlier.

Mr. BANGERT. Well, then, I assume that on a case-by-case basis you sometimes find that competition is in the public interest.

Mr. NASSIKAS. I would say that it could be found. I cited the *Great Lakes* case.

Mr. BANGERT. Right.

Mr. NASSIKAS. There, of course, we recognized there could be anticompetitive effects. Certainly, there could be anticompetitive effects. The issue of public policy which has to be weighed is: Are possible anticompetitive effects outbalanced by other public interest considerations? And I also recognize, as you may recall, that potentially inherent in a combination gas and electric utility is the idea that you do not have the incentive of free competition to the same extent that you might have with separate enterprises.

You must also recognize, and I am sure you do, that survival is another economic concept which may act as a spur to performance, and that managements of combinations of electric-gas utilities, particularly today, in competing with various energy forms in a scarcity situation, have the spur of survival to stay in business.

Mr. BANGERT. Well, again, I guess that is what I am trying to get at.

I think, as I understand your statement, you also have a hunch that there could be anticompetitive effects just by virtue of combination companies, and I am wondering whether or not the Commission has done any empirical studies that give you that hunch?

Mr. NASSIKAS. The word "hunch" is yours, not mine; so, when you suggest that I have hunches, I do not know if you are talking about intuition. My testimony is based on my knowledge, experience, my study of the utility field, spanning almost a quarter of a century. So, I am not dealing with hunches. I am dealing with considered opinions and judgments. That is the story.

So, what is your question, sir?

Mr. BANGERT. Well, my question is, again: Has the Federal Power Commission any studies with respect to the possible competitive effects of combination companies?

Mr. NASSIKAS. No definitive studies. You can analyze our cases which show where the Federal Power Commission in the past has acted and where the present Commission has acted, but, as to definitive studies, and I emphasize the word "definitive"; no.

We have studies, as I say, that were made by bright young aspiring people when they worked for the FPC, aspiring to become Ph. D.'s, or something else, which is a laudable objective.

Mr. BANGERT. Well, if we were to have a study of this type, who would do it other than bright young aspiring Ph. D.'s?

Mr. NASSIKAS. Well, we happen to have a staff which I think is an excellent staff which is fully competent and qualified within the limitations of our priorities to conduct studies of this area, and, as I indicated earlier, we have every intention within our priorities to continue a study of this situation.

Mr. BANGERT. Are you familiar, Mr. Chairman, with the studies of the Securities and Exchange Commission relative to efficiencies and economies of combination companies?

Mr. NASSIKAS. Under the Holding Company Act?

Mr. BANGERT. Yes, sir.

Mr. NASSIKAS. You say "familiar." No; I am acquainted, that studies have been made. I am rather certain that our economists—we have 17 or 18 in our organization—have examined these studies.

Incidentally, we also, from time to time, have had members of our staff of economists testify in SEC proceedings. Two requests for such testimony were made to me since I became chairman. We have no bias regarding this matter.

The point is that we should be certain that before we formulate national policy that we really know what we are talking about.

Mr. BANGERT. Well, it is my understanding that their studies—in many of these cases, starting back in the 1940's—have just about consistently found that there were very minor economies realized by combination companies. Again, I am wondering if this does not suggest that at least there should be a thorough study to determine whether the economies are real.

Mr. NASSIKAS. As a result of these "studies," to which you refer, I do not know whether SEC took action under the Public Utility Holding Company Act or whether these were in the classical realm of discussion. I would like to investigate it and examine it. I would like to know how many of these studies were followed with action by the SEC under the standards given to it under the Holding Company Act. I would like to know if companies were ordered to divest because they could not show that there were substantial economies to be effected by continuance of combined operations. I would like to know if it were found that there would be a viable and competitive enterprise by separation of gas and electric operations.

Mr. BANGERT. Well, the NEES case that Mr. O'Leary referred to the other day, I think, was the latest in that area. Again, there were minimal findings of economies in the Supreme Court's——

Mr. NASSIKAS. I am sorry, I just did not hear you.

Mr. BANGERT. The NEES case, the New England Electric System.

Mr. NASSIKAS. Yes; that went to the Supreme Court of the United States twice.

Mr. BANGERT. And in that there were findings that there were minimal economies in the combination.

Mr. NASSIKAS. Well, the Supreme Court cases which I am familiar with speak for themselves. My point referred to studies by the SEC. My immediate inquiry is how many of these studies actually culminated in legal action by the SEC.

Mr. BANGERT. Well, can we reasonably expect that there will be a full Federal Power Commission study sometimes in the future on efficiencies of scale?

Mr. NASSIKAS. When you say "a reasonable date in the future," I suppose so. It is a question of what you think is reasonable and what I think is reasonable, I guess, and what the Commission thinks is reasonable. I think that this is serious business that we are engaged in. We have a limited staff, and I would certainly intend within these limitations, as I said earlier, to pursue studies.

As to a date of submitting the results of our studies, I can't tell you that we are going to give you a definitive conclusion on a study until we have made it. As to where that study will lead, one way or the

other, whether it supports the idea of having a separation of combination utilities or whether it supports the idea of a continuance of combination, I cannot now say.

Mr. BANGERT. I assume that there is something on-going at this time, though, with respect to this type of a study.

Mr. NASSIKAS. There has been no definitive assignment, just to make this clear, to any member of the staff. The idea of making such an assignment has to be consistent with our other priorities. I am not reluctant to make the assignment. I would wish that the Congress had enough evidence as of the present time to come to a conclusion on the bill. I do not think you have it. I would like to help the Congress within the limitations of my staff and appropriations.

Mr. BANGERT. You point out in your statement that the Federal Power Commission does not enforce the antitrust laws.

Mr. NASSIKAS. Doesn't—What, sir?

Mr. BANGERT. That the Federal Power Commission does not enforce the antitrust laws. On page 2 of your statement——

Mr. NASSIKAS. That is right. It is the Justice Department that enforces laws.

Mr. BANGERT. And you further point out that when a merger involves a combination company, you will order divestiture of the gas properties unless the applicant can demonstrate that the public interest requires their retention.

Mr. NASSIKAS. Yes.

Mr. BANGERT. You then cite the Northern Natural Gas case, that the preservation of competition is overriding unless there is compelling evidence that other considerations are more important in a particular case. I am wondering whether or not your point of view is in disagreement with the court's point of view in that particular case. It seems to me that what the court is saying there is that—Well, they say: "Unless the Commission finds that other important considerations militate in favor of the joint venture and that these considerations are more beneficial to the public than additional competition, the antitrust policy should be respected." and I am wondering if putting the burden of proof, as you have described on the applicant is not reversing the order of importance as, at least, that court sees it?

Mr. NASSIKAS. You suggest that in my statement I put the burden on the applicant of demonstrating that the retention of gas properties is consistent with the public interest under the Commonwealth Edison case? The intent, yes, it is consistent with the public interest under the Commonwealth-Edison case. The decision in that case, as decided by the Commission and subsequently appealed to the courts, stated that this burden of demonstration must be imposed and is a proper imposition on the applicants.

Now, remember that in the *Great Lakes* case, the decision was written on a remand which occurred before I became chairman. I attempted, and I believe succeeded, in writing a decision which was consistent with the direction on remand of the court, and the fact that the case was not chosen to be appealed by the Justice Department, as I said earlier, is some evidence of the validity of my observation.

Now, as to whether there is a distinction between the two burdens in those cases, I can't tell you now whether there is or is not.

If you wish, I will be very happy to submit an analysis by our

general counsel of what the rationale may be between the two cases and whether they are incompatible or whether they are consistent.

Mr. BANGERT. With the chairman's permission, that would be appreciated.

Senator FONG. So ordered.

Mr. BANGERT. Would you favor a bill similar to the Public Utility Holding Company Act with respect to those combinations not covered by the act?

Mr. NASSIKAS. I do not think that a bill is necessary. That is my first position. And I have examined at great length the provisions of this bill. This bill that is before us without amendment, I do not endorse. I think I am clear on that point.

There are further problems. Now I am going to respond to your question. There are further problems with the bill. I have suggestions which should improve the bill to the extent that it might be the kind of bill which I might endorse.

Now, let me go on. In the first place, S. 403 has no standard to determine which combination utilities should be compelled to divest their gas or electric properties. It simply arbitrarily says: "all divest, if they sell over a million dollars," and, of course, that covers all companies. There is no exemption.

Second, the Federal Trade Commission has suggested that some allowance should be made where common ownership might work to the benefit of the consumer. They suggest in their testimony, as I read it early this morning, that the FPC should, after consultation with the Federal Trade Commission and Justice, decide whether or not there should be divestiture if such common ownership would not work to the benefit of the consumer.

I would say, on that particular point, that I do not think that that kind of a standard is necessary either. I personally believe that accountability to the Congress and accountability by an agency should be centered in one agency, not diluted by consultation. In the event that the power is given to us in Congress judgment to handle this matter on the holding company standards, then it seems to me that if the Justice Department or if the Federal Trade Commission have views to express, we will welcome them on the record as we welcome anyone's views.

Now, the public interest, I believe, should be the governing standard to control the issue of common ownership or independent operation.

Going to your direct question: We might pattern a regulatory standard after section 11 of the Public Utility Holding Company Act, something like the following—incidentally, I prepared this around 6:45 this morning, so it may not be worth too much. But listen to it for a minute.

The Federal Power Commission shall be empowered to require by order after notice and opportunity for hearing that electric and gas combination utility system, as defined herein—and I have not attempted to give you a definition, but it will have to be defined—shall be owned and operated as independent electric and gas utility systems upon finding by the Federal Power Commission that the public interest requires such order, and upon further finding that each such electric and gas utility system can be operated as independent systems, without the loss of substantial economies which can be secured by continuance of an electric and gas combination utility system.

In other words, my suggestion would be to take the standard of section 11(b), and broaden that standard to include a public interest

consideration in addition to the narrow test of substantial economies. This would provide the rough framework of the type of concept which would incorporate the Public Utility Holding Company Act standards and provide the standard which would have to be observed by the FPC in determining this issue.

Now, if this were done, it must be recognized that the Federal Power Commission to do this job properly would require additional staff. I have not estimated what staff would be required in order to carry out this kind of a project for 40 percent or over of the gas and electric utility systems in the United States and come up with intelligent findings and conclusions as to applying that standard in the public interest. But the point is that we would have to have substantially increased appropriations.

If Holding Company Act responsibility were to be transferred to the Federal Power Commission from the SEC and that act would remain as it is as to holding company operations as interpreted by the courts, then, a companion standard which would be very much like it but somewhat broader could be applied to this situation.

What I fundamentally object to is to have the Congress arbitrarily cut off by a certain date combination gas and electric utilities without giving this more complete review and make findings consistent with appropriate standards.

Now, the million-dollar exemption under the act is, I think, really too low; and yet if you were to increase this to $10 million, my brief analysis shows that the act would still apply to seven utilities. You would only exempt eight from a review under the standards. I throw that out for whatever it may be worth.

I have prepared an appendix C–1, which I would like to submit for the record if I may, which takes our appendix C—which lists combination companies alphabetically—and lists the companies in order of magnitude, with the largest one by revenues at the top and the lowest one at the bottom. This will then enable you to get some understanding, I think, of which are the largest companies and which are the smallest ones.

If I may submit that——

Senator Fong. It will be accepted. (See p. 150.)

Mr. Nassikas. I would also like to add that I do not think you should have an arbitrary deadline for divestiture. As I said earlier, I think you should determine the issue on a case-by-case basis.

Next, with reference to the type of additional staff, it is my opinion that implementing this legislation would necessitate a corps of expert accountants, analysts, corporate reorganization specialists, lawyers, engineers, perhaps economists, plus supporting clerical personnel.

Mr. Bangert. In view of the fact, as you indicate, combination companies do occupy 40 percent, may it be well worth the effort of the Federal Power Commission to have that staff so it can be done?

Mr. Nassikas. When I first came down here, Mr. Bangert, from the State of New Hampshire, which is one of our smaller States in the Union, I had thought that you could professionally conduct the operations of the Federal Power Commission with less help than had been assigned to it previously. I learned very early that this could not be done, primarily because, as Congress analyzes important national is-

sues and passes statutes which we must observe properly, we then have additional work which is placed on our staff for each case.

The environmental situation is one that I do not have to go into here, but simply the added burden of the environment alone, to do an intelligent job on the National Environmental Policy Act of 1969 and the regulations under it, does require additional staff. I am not adverse to being given a staff if the Congress decides that, as a matter of national policy, this is one of your priorities.

Mr. BANGERT. I do not have any further questions, Mr. Chairman.

Senator FONG. Mr. Chumbris.

Mr. CHUMBRIS. Thank you, Mr. Chairman.

Chairman Nassikas, since some of the questions by Mr. Bangert were directed to economies of scale and the general economic picture, may I suggest that you and your staff and the officials that you have with you take a look at the statements to be presented by the succeeding witnesses, particularly, a paper by Joe D. Pace, senior economist for the National Economic Research Associates, Inc., since he reviews in his paper Mr. Collins' presentation as this association views it. Also yesterday Senator Hruska had a colloquy with Professor Wilson who testified and Senator Hruska very strongly stated his views as to the conclusions reached by Professor Wilson.

Professor Wilson is included in this as Professor Owen, who has a paper in the recent antitrust bulletin.

And after you review the succeeding witnesses' testimony and review also the statements of the witnesses, the economists who may appear in favor of S. 403 and those against, perhaps you might wish to submit an additional statement for the record.

Mr. NASSIKAS. Thank you. If I may add, Mr. Chairman, for the record, so there will be no misunderstanding, I have not yet heard from my colleagues on the Commission except from Commissioner Brooke regarding my testimony here today. Commissioner Brooke concurs in my prepared statement. I do not know yet whether my other two colleagues, Commissioner John Carver and Commissioner Lawrence J. O'Connor, Jr., concur in the statement. And, if for any reason they do not, they will, of course, notify the committee to that effect.

Senator FONG. Do you have any further statement to make?

If you do, you may submit it for the record, Chairman Nassikas.

Mr. NASSIKAS. Thank you very much.

Mr. CHUMBRIS. Just one other question which is going to be a serious question raised by the succeeding witnesses, and that is on the issue of the supply of natural gas, the shortage of supply of natural gas and the impact it would have in view of the bill that is being presented before Congress. And you have had that problem before you, as we well know, you having testified before several committees of the Congress and your statement in the world import quota study has been before us. Do you wish to make any comments as to the natural gas shortage, the shortage of supply at this time, a brief statement or——

Mr. NASSIKAS. Yes. We could submit to the committee some recent analyses that we have made of the gas supply situation, and I would like to do this if I may.

Senator FONG. We would be pleased to have it.

Mr. NASSIKAS. Just very briefly on gas supply. The problem that confronts us today regarding gas supply is a problem which originated

over the course of the past 7 to 10 years. You do not get a gas supply shortage overnight. Demand has outstripped supply. There is a gap between the discernible trend of supply and demand. The gap is widening, not narrowing.

Our statistical evidence and staff evidence show that this problem exists. We find that many companies in the United States are unable to meet their incremental demands, that they are looking for supplemental resources. Liquified natural gas from foreign countries has become a potentially important element of supply. There are applications pending before the Commission for in excess of $1.5 billion of imported liquefied natural gas to the United States as a supplementary gas supply. We expect applications, once there is clearance, to develop the oil resources in Alaska, in the order of $2 billion for pipeline deliveries from Canada.

If we have this kind of investment commitment by responsible companies to supplement existing sources of gas, this is some evidence in itself that there is a shortage of gas.

So, we are attempting—and we will analyze this in our submission to you—to turn around, if we can, consistent with the public interest, a situation where we are getting resource poor from the standpoint of developed resources rather than resource rich as an energy nation. I consider it my responsibility as Chairman of this Commission—and I owe it to the consumers of the United States as well—to meet the national objectives, economic goals, under the 1946 Full Employment Act which the Congress and five administrations have endorsed, to carry out the stablization of productivity goals and full-employment goals and standard-of-living goals of the United States. Gas happens to be one-third of our total energy supply today, and I think we have to continue this supply.

Also, if we had enough gas many of our environmental problems in some of our congested areas would be met. The trouble is we do not have the gas, and we have to start allocating the gas on a most efficient use of resource basis to avoid what the economists term a misallocation of resources.

Mr. CHUMBRIS. Thank you very much, Chairman Nassikas.

Thank you, Mr. Chairman.

Senator FONG. Thank you, Chairman Nassikas, for coming.

Thank you for the presentation.

It is now almost 12:30. We will recess until 2 o'clock, in room 2228. At that time we will take up the other witnesses.

(Whereupon, at 12:28 p.m., a recess was taken until 2 p.m., this same day.)

FEDERAL POWER COMMISSION,
Washington, D.C., June 21, 1971.

Hon. PHILIP A. HART,
Chairman, Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: Enclosed is a corrected copy of my testimony given on May 13, 1971, before the Subcommittee on Antitrust and Monopoly on S. 403. I ask that these corrections be included in the record. Also enclosed are corrected copies of Appendices F and G which should be substituted for the original Appendices F and G which contained clerical errors.

At transcript page 229, Senator Fong asked me about the comparative capital intensity of electric and gas utility operations. I would like to take this opportunity to make my answer more responsive. The following data from Ap-

pendices A and C of my testimony pertaining to the 78 utilities which own both electric and gas plant shows the higher capital intensity of electric utility operations compared with gas utility operations.

	1970	
	Electric	Gas
Net utility plant (millions)	$33,315.00	$5,584.00
Operating revenues (millions)	8,832.00	3,304.00
Utility plant per dollar of operating revenue	3.77	1.77

For these combination utilities, each dollar of electric operating revenue required $3.77 of electric utility plant, while each dollar of gas operating revenue required $1.77 of gas utility plant. The chief reason for the difference is the purchased gas cost of these gas distributors. Most of the electricity sold by these companies is generated by their own plants, but virtually all of their gas is purchased from pipeline companies. The plant associated with producing and transporting natural gas is reflected in the cost of purchased gas, and in the plant accounts of natural gas pipeline companies, rather than in the gas plant of these combination utilities.

On page 232 of the transcript Senator Fong indicated that my entire prepared statement with Appendices would be admitted into the record. After the transcript page 239, of the attached corrected transcript I have inserted a corrected prepared statement and Appendices reflecting the corrections adverted to in the first paragraph of this letter. I assume that all that material will appear in the Committee's print of the hearing.

Shortly, we will furnish additional materials in response to requests made at the hearing.

Sincerely,

JOHN N. NASSIKAS, *Chairman.*

FEDERAL POWER COMMISSION,
Washington, D.C., July 14, 1971.

HON. PHILIP A. HART,
Chairman, Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: The accompanying materials are submitted in response to the request made at the hearing on May 13, 1971, of the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary. I request that they be included in the hearing record. These materials are identified in subsequent portions of this letter.

Attachment I (inquiry on the subject by Senator Fong Tr. 237–238), lists the long-term debt issued after 1965 of combination electric and gas companies as a percent of their total long-term debt outstanding as of December 31, 1970.[1] This listing indicates that on the average 40.39 percent of long-term debt outstanding on December 31, 1970 was issued after 1965.

Attachment II (inquiry on the subject by Mr. Bangert Tr. 252–254), is a legal opinion by our General Counsel on the *Commonwealth Edison Company and Central Illinois Electric and Gas Company* 36 F.P.C. 925 (1966) and *Northern Natural Gas Company* v. *Federal Power Commission*, 399 F. 2d 953 (D.C. Cir. 1968) opinions.

Attachment III is a schedule, designated Appendix C–1, which lists the companies in Appendix C in order of the magnitude of revenues of these companies. It was accepted into the record at Transcript Page 258.

Attachment IV, (inquiry on the subject by Mr. Chumbris Tr. 260–261) consists of: (A) Memorandum from the Office of Economics dated June 4, 1971, entitled, "Analysis and Review of Statement by Mr. Joe D. Pace of National Economic Research Associates, Inc. (NERA) before the Antitrust and Monopoly Subcommittee Containing Comments About the Thesis of William Collins on Combination Companies"[2]; and (B) Memorandum from Assistant to General Counsel

[1] January 1, 1966, was chosen as the cut-off point for this comparison because after that date interest rates showed marked increases.

[2] This analysis and review has not been reviewed or accepted by the Commission or any other Office or Bureau thereof except the Office of General Counsel, the comments of which constitute Attachment IV–B herein.

dated July 9, 1971, entitled, "Review of Office of Economics Memo of June 4, 1971 dealing with the Validity of the Collins Study".

Attachment V, (inquiry on the subject by Mr. Chumbris Tr. 261–262) is an analysis on the current gas supply shortage and the actions taken by the Federal Power Commission to improve it.

Attachment VI is a table which shows the range in the weighted average coupon rates for combination companies. This table shows that 94 percent of the total long-term debt-outstanding as of December 31, 1970, had a weighted average coupon rate between 4.50 percent and 5.99 percent.

If any additional questions arise in connection with my statement to the Subcommittee, I shall be happy to answer them.

Sincerely,

JOHN N. NASSIKAS, *Chairman.*

COMBINATION ELECTRIC AND GAS COMPANIES—LONG-TERM DEBT ISSUED AFTER 1965 AS A PERCENT OF TOTAL LONG-TERM DEBT OUTSTANDING DEC. 31, 1970 [1]

Company	Total long-term debt outstanding Dec. 31, 1970	Long-term debt issued after 1965	
		Amount	Percent of total
	(a)	(b)	(Col. b×col. a)
Arizona Public Service Co	$251,223,000	$55,000,000	21.89
Arkansas Louisiana Gas Co	214,862,048	145,474,027	67.70
Arkansas-Missouri Power Co	26,754,260	13,960,000	52.18
Baltimore Gas & Electric Co	520,181,445	217,387,445	41.79
Boston Gas Co	46,230,000	20,000,000	43.26
California-Pacific Utilities Co	32,066,750	15,738,750	49.08
Central Hudson Gas & Electric Corp	127,690,000	53,000,000	41.54
Central Illinois Light Co	147,175,000	76,300,000	51.86
Central Illinois Public Service Co	181,357,000	40,000,000	22.01
Central Kansas Power Co., Inc	11,059,000	5,234,000	48.14
Central Louisiana Electric Co., Inc	104,424,880	42,000,000	40.22
Central Telephone & Utilities Co	113,505,000	66,128,000	58.26
Cheyenne Light, Fuel & Power Co	3,800,250	None	----------
Cincinnati Gas & Electric Co	326,578,568	140,000,000	42.87
Citizens Utilities Co	39,360,428	20,366,428	51.74
Community Public Service Co	37,185,000	14,800,000	39.80
Connecticut Light & Power Co., The	365,600,000	170,000,000	46.50
Consolidated Edison Co., of New York, Inc	2,256,639,500	670,000,000	29.69
Consumers Power Co	937,102,060	479,934,660	51.21
Dayton Power & Light Co., The	261,850,000	130,000,000	49.65
Delmarva Power & Light Co	227,000,000	110,000,000	48.46
Fitchburg Gas & Electric Light Co	11,070,000	7,500,000	67.75
Florida Public Utilities Co	6,964,000	1,200,000	17.23
Gulf States Utilities Co	445,497,000	230,000,000	51.63
Hartford Electric Light Co	180,415,600	75,000,000	41.57
Illinois Power Co	385,600,799	180,399,572	46.78
Interstate Power Co	105,000,000	25,000,000	23.81
Iowa Electric Light & Power Co	111,521,000	60,000,000	53.80
Iowa-Illinois Gas & Electric Co	159,506,000	97,000,000	60.81
Iowa Power & Light Co	106,408,000	29,550,000	27.77
Iowa Public Service Co	88,670,000	25,000,000	28.19
Iowa Southern Utilities Co	30,472,349	8,000,000	26.25
Kansas Power & Light Co., The	117,331,000	39,000,000	33.24
Lake Superior District Power Co	16,041,000	3,000,000	18.70
Long Island Lighting Co	497,925,000	174,800,000	35.11
Louisville Gas & Electric Co	149,000,000	56,000,000	37.58
Madison Gas & Electric Co	40,769,000	20,000,000	49.05
Michigan Power Co	13,300,000	8,250,000	62.03
Missouri Edison Co	7,000,000	None	----------
Missouri Power & Light Co	38,000,000	15,000,000	39.47
Missouri Public Service Co	86,320,000	38,000,000	44.02
Missouri Utilities Co	19,445,000	6,895,000	35.46
Montana-Dakota Utilities Co	79,958,811	32,782,940	40.99
Montana Power Co	103,255,000	None	----------
Mount Carmel Public Utility Co	838,000	None	----------
New Bedford Gas & Edison Light Co	30,200,000	13,700,000	61.92
New Orleans Public Service Inc	118,233,000	35,250,000	29.81
New York State Electric & Gas Corp	398,917,339	203,052,369	50.90
Niagara Mohawk Power Corp	818,358,924	220,000,000	26.88
Northern Indiana Public Service Co	343,735,000	130,498,700	37.96
Northern States Power Co. (Minnesota)	517,895,000	240,000,000	46.34
Northern States Power Co. (Wisconsin)	54,221,000	9,800,000	18.07
Northwestern Public Service Co	26,550,000	9,500,000	35.78
Orange & Rockland Utilities, Inc	112,729,139	45,029,139	39.94
Otter Tail Power Co	36,504,000	None	----------
Pacific Gas & Electric Co	2,094,061,000	677,750,000	32.36
Philadelphia Electric Co	1,023,509,000	548,509,000	53.59
Public Service Co. of Colorado	338,928,000	130,128,000	38.39

See footnote at end of table.

COMBINATION ELECTRIC AND GAS COMPANIES—LONG-TERM DEBT ISSUED AFTER 1965 AS A PERCENT OF TOTAL LONG-TERM DEBT OUTSTANDING DEC. 31, 1970[1]—Continued

Company	Total long-term debt outstanding Dec. 31, 1970	Long-term debt issued after 1965	
		Amount	Percent of total
	(a)	(b)	(Col. b×col. a)
Public Service Electric & Gas Co	$1,379,660,600	$550,739,000	39.91
Rochester Gas & Electric Corp	236,677,000	128,000,000	54.08
St. Joseph Light & Power Co	29,183,000	13,935,000	47.75
San Diego Gas & Electric Co	229,909,548	100,109,548	43.54
Sierra Pacific Power Co	81,913,256	31,080,255	37.94
South Beloit Water, Gas & Electric Co	None	None	
South Carolina Electric & Gas Co	253,332,000	130,000,000	51.32
Southern California Edison Co	1,560,265,194	610,433,174	39.12
Southern Indiana Gas & Electric Co	60,500,000	28,000,000	46.28
Superior Water, Light & Power Co	6,720,000	None	
Toledo Edison Co., The	155,430,600	70,000,000	45.04
Tucson Gas & Electric Co	71,250,000	25,000,000	35.09
UGI Corp	73,740,036	25,000,000	33.90
Union Electric Co	633,000,000	255,000,000	40.28
Union Light, Heat & Power Co., The	30,500,000	10,000,000	32.79
Virginia Electric & Power Co	932,000,000	480,000,000	51.50
Washington Water Power Co., The	217,484,000	40,000,000	18.39
Wisconsin Michigan Power Co	80,210,000	53,281,000	66.43
Wisconsin Power & Light Co	157,813,000	74,885,000	47.45
Wisconsin Public Service Co	172,470,000	94,039,000	54.52
Total	21,307,850,784	8,605,515,007	40.39

[1] Jan. 1, 1966, was chosen as the cutoff point for this comparison because after that date interest rates showed marked increases.

FEDERAL POWER COMMISSION,
Washington, D.C., July 14, 1971.

CHARLES E. BANGERT, ESQ.,
General Counsel, Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, U.S. Senate, Washington, D.C.

DEAR MR. BANGERT: You have asked (Tr. 252–253) whether the Commission's standard for judging mergers under the Federal Power Act announced in *Commonwealth Edison Company, et al.*, 36 FPC 927 (1966), affirmed *sub nom. Utility Users League* v. *F.P.C.*, 394 F. 2d 16 (CA7 1968) certiorari denied, 393 U.S. 953 (1968), was inconsistent with the opinion of the Court in *Northern Natural Gas Company* v. *F.P.C.*, 399 F. 2d 953 (CADC 1968). In my opinion, the answer is that there is no inconsistency.

Northern dealt with an application for a certificate of public convenience and necessity under Section 7(c) of the Natural Gas Act and *Commonwealth* was an application for merger under Section 203 of the Federal Power Act. Anti-competitive effects of a proposed certificate or merger are part of the applicant's burden under each of those statutory provisions. However, the Commission decides a Section 203 case (like *Commonwealth*) under a standard of "consistent with the public interest" while a Section 7(c) case (like *Northern*) turns on a standard of present and future "public convenience and necessity." In *Pacific Power & Light Co.* v. *F.P.C.*, 111 F. 2d 1014, 1016 (CA9 1940) the Court, after quoting from Section 203(a) of the Federal Power Act, observed:

"* * * The phrase 'consistent with the public interest' does not connote a public benefit to be derived or suggest the idea of a promotion of the public interest. The thought conveyed is merely one of compatability. Congress resorted to this language rather than to the use of the stock term 'public convenience or necessity' or to such phrases as 'in furtherance of' or 'will promote the public interest' used in the interstate commerce legislation (later considered); and the language employed ought to be construed to mean no more than it says."

The Commission has decided a Section 203 merger case subsequent to the opinions in the *Commonwealth* and *Northern* cases, *Iowa Power and Light Com-*

pany and Iowa-Illinois Gas and Electric Company, decided December 24, 1970 (copy attached). In its opinion (page 6) the Commission noted arguments contending that the Court's opinion in *Northern* directly modified the standard which the Commission must use in a merger proceeding under Section 203 of the Federal Power Act. In reply to that contention, the Commission stated (page 7) as follows:

"It appears that Petitioner misunderstands the application of the public interest standard set out in Section 203 of the Act. Our statement in *Commonwealth* with reference to public benefits and alternatives to isolated operation is instructive in this regard. We stated:

"'In evaluating a merger application, a "showing that positive benefit to the public will result," is not required. *Pacific Power & Light Co.* v. *F.P.C.*, 111 F.2d 1014, 1017 (CA9 1940). At the same time, the Commission properly requires applicants to make a full disclosure of all material facts and "The burden is on them of showing affirmatively that the acquisition or merger is consistent with the public interest." (Ibid.) In other words, the ultimate determination in passing upon a merger application, is not whether in the Commission's judgment merger is the only technique by which the companies involved could accomplish the overall objectives of the Act; rather, it is enough if, upon our analysis of all the relevant factors, we conclude that the merger, in the particular circumstances of the applicants, is "consistent with the public interest. (36 FPC at 931)"'"

In summary, the "public convenience and necessity" standard in *Northern*, *supra*, imposes a different standard than the "consistent with the public interest" standard elucidated in *Pacific Power & Light Company*, *Commonwealth*, and *Iowa Power and Light Company*, *supra*. Although, *Northern* was a statement of the role of the antitrust laws when applied to pipeline certificate applications under Section 7 of the Natural Gas Act, it made no change in the legal standards applicable under Section 203 of the Federal Power Act.

Very truly yours,

GORDON GOOCH,
General Counsel.

Enclosure.

United States of America, Federal Power Commission

Opinion No. 590—Issued December 24, 1970, DC–47 and 51

IOWA POWER AND LIGHT COMPANY AND IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

Docket Nos. E–7494, CP70–73

OPINION AND ORDER AFFIRMING DECISION OF EXAMINER AUTHORIZING CONSOLIDATION, AND ISSUING CERTIFICATE AND GRANTING INTERVENTION

Appearances

Richard J. Flynn, Richard G. Clemens, Harlowe E. Bowes and *David H. Ward* for Iowa Power and Light Company and Iowa-Illinois Gas and Electric Company.

Thomas N. Bolton and *Leo J. Steffen, Jr.*, for Iowa State Commerce Commission.

Morton L. Simons and *J. F. Kinney* for Iowa Public Service Company.

Clement F. Springer and *Clement F. Springer, Jr.*, for Interstate Power Company.

Watt N. Martin and *Don C. Uthus* for the Staff of the Federal Power Commission.

CONSOLIDATION

Before Commissioners JOHN N. NASSIKAS, *Chairman*; LAWRENCE J. O'CONNOR, JR., CARL E. BAGGE, JOHN A. CARVER, JR., and ALBERT B. BROOKE, JR.

BROOKE, *Commissioner:*

1. Iowa Power and Light Company (Iowa Power) and Iowa-Illinois Gas and Electric Company (Iowa-Illinois) have applied to us for authority to consolidate into a new corporation, Iowa Energy Corporation (Iowa Energy).

2. In an initial decision issued July 2, 1970, the Presiding Examiner, Walter T. Southworth, concluded that such a consolidation would be in the public in-

terest under Section 203 of the Federal Power Act.[1] We concur in this conclusion and affirm the Examiner's decision.

3. Applicants filed their application on June 27, 1969; public notice of the application was issued July 2, 1969, and published in the Federal Register on July 10, 1969 (34 F.R. 11445). The Iowa State Commerce Commission filed a notice of intervention on July 24, 1969. By order issued September 3, 1969, the Commission granted intervention to Iowa Public Service Company and Interstate Power Company and directed that a public hearing be held on the application.

4. Applicants are combination utility companies providing both eelctric and natural gas service in non-contiguous service territories, and own and operate in the State of Iowa electric facilities subject to the Commission's jurisdiction. Each is a "public utility" as that term is defined in Part II of the Federal Power Act, 16 U.S.C. 824–824h. Iowa-Illinois, an Illinois corporation, also owns and operates in the State of Illinois facilities used in the transmission and sale of electric energy in interstate commerce, as well as facilities subject to the Commission's jurisdiction under the Natural Gas Act, 15 U.S.C. 717–717w. Under the proposed plan of consolidation. Iowa Energy would become a new Iowa corporation possessing all the rights and properties, and would be responsible for all the liabilities and obligations of the merging companies.

5. There is unanimity among the parties who participated in the hearings, as found by the Examiner, that the consolidation of Iowa Power's and Iowa-Illinois' respective electric facilities is consistent with the public interest. In the only exceptions to the Examiner's decision, however, Commission Staff urges that the Applicants be ordered to divest themselves of their gas properties as a condition of consolidation.

6. Relying on our earlier *Commonwealth*[2] decision and more recent S.E.C. cases[3] Staff contends that the proposed consolidation is inconsistent with the "integrated public utility concept" expressed in the Holding Company Act[4] applicable to combination gas and electric utilities.[5] In the absence of a showing by Applicants of overriding public benefits to counter assumed anti-competitive effects, Staff concludes that the consolidation must be conditioned upon a divestiture of the gas properties.

7. The Examiner fully responds to Staff's argument in his decision dealing with the applicability of the Holding Company Act to the exercise of this Commission's authority under Section 203 of the Federal Power Act. He finds that substantial detriment would result from divestiture of the gas properties. We need not elaborate thereon except with respect to one point.

8. In rejecting Staff's view of the applicability of the "integrated public utility concept" of the Holding Company Act, the Examiner relies primarily on *Duke Power Co.* v. *F.P.C.*, 401 F. 2d 930 (1968),[6] and the legislative history of Section 8 of the Holding Company Act.[7] In conclusion, the Examiner finds that, if the test we prescribed in *Commonwealth* with respect to combination gas and electric utilities be deemed applicable, the Applicants have sustained their burden of proof. Moreover, the Examiner states that, while it is not necessary, it is quite possible upon the record herein to find that the proven benefits of the merger would be sufficient to override the policy of the Holding

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[1] 49 Stat. 838, 16 U.S.C. 791a, *et seq.*

[2] *Commonwealth Edison Company, et al.*, 36 FPC 927 (1966); *affirmed sub nom Utility Users League* v. *F.P.C.*, 394 F.2d 16; *cert. denied*, 393 U.S. 953 (1968).

[3] *S.E.C.* v. *New England Electric System*, 384 U.S. 176 (NEES I) (1966); *S.E.C.* v. *New England Electric System*, 390 U.S. 207 (NEES II) (1968); *Illinois Power Company*, Holding Company Act Release No. 16574, January 2, 1970.

[4] Public Utility Holding Company Act of 1935, 49 Stat. 803, 15 U.S.C. 79a, *et seq.*

[5] Section 11 of the Holding Company Act limits the operations of a Holding Company to a single integrated public utility system, provided that additional systems cannot be operated independently without the loss of substantial economies which can be secured by the retention of control of such systems by the Holding Company.

[6] In *Duke Power* the court held that the Federal Power Act's complementary relation to the Holding Company Act, in combination with the language of Section 203(a), does not result in Commission jurisdiction over mergers of jurisdictional electric facilities with other electric facilities except those used in the transmission or sale at wholesale of electric energy in interstate commerce. 401 F. 2d at 942.

[7] The Examiner, indicating that the legislative history of Section 8 expressly recognizes that competition in the distribution of gas and electric energy is essentially a matter of state policy and affirms that the combination of gas and electric distributors to serve substantially the same territory is not the proper subject of Federal action except where the device of a holding company is used to circumvent state policy, found the respective positions of the states of Iowa and Illinois which do not oppose the merger and approve the retention of the gas properties to be of paramount importance.

Company Act and the S.E.C. with respect to joint operation of gas and electric distribution systems owned or controlled by holding companies.

9. In *Commonwealth* we stated that while the requirements of Title I of the Public Utility Holding Company Act are not binding upon this Commission in determining what is consistent with the public interest within the meaning of Section 203 of the Act and that the policies prescribed by the S.E.C. for dealing with holding companies are not necessarily applicable to the same degree in dealing with operating companies, we believe that the basic Congressional policies as to integrated operation embedded in the Holding Company Act are applicable considerations in passing upon a proposal for merger of operating companies and that the burden is upon applicants to demonstrate why operation of combined gas and electric facilities is consistent with the public interest.

10. In determining whether a proposed consolidation or merger under Section 203 is in the public interest, the Commission considers numerous factors.[8] Neither the *Duke Power* case nor the record in this proceeding prompt us to exclude any factors considered in *Commonwealth*. Accordingly, we hold that the test enunciated by the Commission in *Commonwealth* with respect to the merger of combination gas and electric utilities is applicable, and we concur in the Examiner's finding that the Applicants have met their burden of proof.

11. Additionally, Staff argues that the Examiner's position limits the Commission's authority in merger cases to jurisdictional facilities and that his conclusion that it is not necessary to consider whether the Commission could condition its order upon a divestiture inferentially involves an assumption that it could not. In affirming the Examiner, we recognize no limitation upon the Commission's authority to consider any matter which it deems pertinent to a public interest determination under Section 203. We perceive no error in his deferring consideration of the legality of Staff's proposed divestiture condition. The Examiner's decision made it unnecessary to reach that issue and in adopting his decision we likewise do not pass upon it. It should be clear, however, that no assumption with respect to the Commission's authority is to be drawn therefrom.

12. On December 8, 1970, the State of Iowa (Petitioner) acting through its Attorney General filed a petition to intervene in the proceedings in Docket No. E–7494, incorporating requests for 30 days within which to file a brief on exceptions and for oral argument before the Commission. Public notice of Iowa Power and Iowa-Illinois' application in Docket No. E–7494 was issued July 2, 1969, and service thereof was made upon the Governor of Iowa and the Iowa State Commerce Commission. In accordance with the notice, petitions to intervene or protests were required to be filed on or before July 25, 1969. A notice of intervention was filed by the Iowa State Commerce Commission on July 24, 1969,[9] and the Acting Superintendent of the Public Utilities Division of that Commission participated in the proceedings. Applicants filed a reply to the petition of the Iowa Attorney-General on December 11, 1970, opposing intervention.

13. We are now requested to permit the State of Iowa to intervene more than 17 months after the time for filing petitions to intervene has expired and subsequent to the completion of hearings and the Examiner's initial decision. The Attorney General states in his petition that he became aware "in the course of prosecuting *State of Iowa* v. *Iowa Power and Light Company*, an unrelated equity suit, of substantial questions concerning possible adverse effects upon the public interest of the consolidation proposed herein."

14. Although no reason is given for Petitioner's untimely filing, in view of the substantial interest of the State in this proceeding, as described in its petition, we believe it is desirable and in the public interest to allow the State of Iowa to intervene and become a party to the proceedings.

15. We turn now to Petitioner's additional requests for an opportunity to file exceptions to the Examiner's decision and to present oral argument. In passing upon them, we have considered Petitioner's contentions on the merits, set out in some detail in its petition, in support of its position in this proceeding.

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[8] As set out in *Commonwealth* these include operating costs and rate levels, the contemplated accounting treatment, reasonableness of the purchase price, whether the acquiring utility has coerced the to-be-acquired utility into acceptance of the merger, the effect the proposed action may have on the existing competitive situation, and whether the consolidation will impair effective regulation either by this Commission or the appropriate state regulatory authority.

[9] Section 1.37(f) of the Commission's Rules of Practice and Procedure provides that a State commission may intervene as a matter of right.

16. Prefacing its argument, Petitioner contends that the Commission in determining that a consolidation is consistent with the public interest under Section 203 of the Act "must weigh the purported benefits to the public resulting from the consolidation against detriments to the public interest including those detriments reflected by antitrust considerations." Furthermore, Petitioner asserts that "in balancing alleged benefits against adverse effects upon the public interest, the Commission must consider alternative means of accomplishing the benefits which would have a lesser negative impact upon the public interest." In support thereof it cites *Northern Natural Gas Co.* v. *F.P.C.*, 399 F. 2d 953 (D.C. Cir. 1968); *Scenic Hudson Preservation Conf.* v. *F.P.C.*, 354 F. 2d 608 (2d Cir. 1965); and *Udall* v. *F.P.C.*, 387 U.S. 428 (1965).

17. It appears that Petitioner misunderstands the application of the public interest standard set out in Section 203 of the Act. Our statement in *Commonwealth* with reference to public benefits and alternatives to isolated operation is instructive in this regard. We stated:

"In evaluating a merger application, a 'showing that positive benefit to the public will result,' is not required. *Pacific Power & Light Co.* v. *F.P.C.*, 111 F. 2d 1014, 1017 (CA9-1940). At the same time, the Commission properly requires applicants to make a full disclosure of all material facts and 'The burden is on them of showing affirmatively that the acquisition or merger is consistent with the public interest.' (*Ibid.*) In other words, the ultimate determination in passing upon a merger application, is not whether in the Commission's judgment merger is the only technique by which the companies involved could accomplish the over-all objectives of the Act; rather, it is enough if, upon our analysis of all the relevant factors, we conclude that the merger, in the particular circumstances of the applicants, is consistent with the public interest." (36 FPC at 931.)

18. Petitioner proceeds with arguments essentially on the following points: (1) the benefits of consolidation claimed by Applicants are conjectural and unsupported by persuasive evidence; (2) the proposed consolidation is inconsistent with the policies underlying the Public Utility Act of 1935, including Title I thereof (Holding Company Act), and antitrust laws; (3) the consolidation would have an adverse impact on competition and (4) in the event of consolidation divestiture of the gas properties should be ordered.

19. These points have been substantially covered and carefully analyzed by the parties during the course of the hearings and in briefs both to the Examiner and to the Commission on exceptions to the Examiner's initial decision. Furthermore, the Examiner deals with them at length in his decision. Particular contentions made by Petitioner regarding detriments of consolidation, which it states have not been specifically treated by the parties in their briefs or by the Examiner in his decision, have been fully considered by the Commission. These contentions are not persuasive. The possible detriments cited by Petitioner are far outweighed by the overall benefits, shown in the record, which will result from consolidation.

20. Upon consideration of the entire record herein, including Petitioner's presentation, we conclude that further briefing by the State of Iowa would be cumulative and superfluous. We shall, therefore, deny Petitioner's request for 30 days within which to file a brief on exceptions.

21. While Petitioner does not request a reopening of the record, we have *sua sponte* pursuant to Section 1.33(c), considered whether to reopen the proceeding in view of Petitioner's belated intervention. We find that there has been neither a change in conditions of fact or law nor a requirement in the public interest that would warrant a reopening of the proceedings.

22. Applicants, in a motion filed September 22, 1970, have also requested oral argument. Upon examination of the briefs of the parties in this proceeding, as well as the State of Iowa's petition, it appears that the respective positions of the parties have been fully and ably presented and that further argument before the Commission would not be useful. Accordingly, we shall deny oral argument.

23. On September 26, 1969, Applicants filed an application in Docket No. CP70–73, as amended on August 10, 1970, pursuant to Section 7(c) of the Natural Gas Act for a certificate of public convenience and necessity authorizing Iowa Energy Corporation, their proposed successor upon consolidation, to acquire from Iowa-Illinois and operate interstate natural gas transportation facilities and to transport natural gas in interstate commerce as set forth in their application. Iowa-Illinois is presently authorized in Docket Nos. G–303, G–1721, G–1899, G–2012, G–18138, G–20593, CP61–166, CP62–4, CP64–123 and CP70–192 to operate facil-

ities and transport natural gas in interstate commerce subject to the jurisdiction of this Commission. Iowa-Illinois transports natural gas in interstate commerce for sale and distribution. Iowa Power is not authorized to operate facilities or transport natural gas in interstate commerce subject to the jurisdiction of the Commission.

24. Applicants state that Iowa Energy Corporation will continue the jurisdictional interstate natural gas activities of Iowa-Illinois. The consideration for the proposed transaction is the estimated original cost of the facilities to be acquired (including land and land rights) less depreciation.

25. Notice of the application was issued October 3, 1970, and published in the Federal Register on October 10, 1969 (34 F.R. 15735). No petition to intervene or protest to the granting of the application has been filed. A notice of intervention was filed by the Iowa State Commerce Commission which does not seek a formal hearing but requests that the disposition of the application be made contingent upon and in conformity with the disposition of the application in the consolidation proceeding.

26. At a hearing held on December 17, 1970, the Commission on its own motion received and made a part of the record in the proceedings in Docket No. CP70–73 all evidence, including the application and exhibits thereto, submitted in support of the authorization sought therein, and upon consideration of the record the Commission will grant a certificate as hereinafter provided.

The Commission further finds:

(1) Although the petition to intervene filed December 8, 1970, by the State of Iowa acting through its Attorney General was not timely filed, good cause exists for permitting such intervention under Section 1.8(d) of the Commission Rules of Practice and Procedure.

(2) Upon consideration of the evidence of record in these proceedings, the briefs filed, the Examiner's decision, and Iowa's petition, we are of the opinion that the Examiner's decision and accompanying order, as clarified herein, should be affirmed and adopted as our own.

(3) The exceptions to the Examiner's decision should be denied.

(4) The State of Iowa's request for 30 days to file a brief on exceptions to the Examiner's decision should be denied.

(5) Oral argument before the Commission in Docket No. E–7494 should be denied.

(6) Iowa Energy Corporation will be an Iowa corporation created by the consolidation of Iowa Power and Light Company and Iowa-Illinois Gas and Electric Company and will be a "natural-gas company" within the meaning of the Natural Gas Act upon the consummation of the consolidation authorized herein.

(7) The natural gas facilities, more fully described in the application in Docket No. CP70–73, are used in the transportation of natural gas in interstate commerce subject to the jurisdiction of the Commission, and the operation thereof and the transportation of natural gas by Iowa Energy Corporation are subject to the requirements of subsections (c) and (e) of Section 7 of the Natural Gas Act.

(8) Iowa Energy Corporation will be able and willing properly to do the acts and to perform the service proposed and to conform to the provisions of the Natural Gas Act and the requirements, rules and regulations of the Commission thereunder.

(9) The acquisition and operation of facilities and the transportation of natural gas in interstate commerce by Iowa Energy Corporation are required by the public convenience and necessity, and a certificate therefor should be issued as hereinafter ordered and conditioned.

The Commission orders:

(A) The State of Iowa is permitted to intervene in this proceeding, subject to the rules and regulations of the Commission: *Provided, however,* that the participation of such intervenor shall be limited to matters affecting asserted rights and interests as specifically set forth in said petition for leave to intervene; and *Provided, further,* that the admission of such intervenor shall not be construed as recognition by the Commission that it might be aggrieved because of any order or orders of the Commission entered in this proceeding.

(B) The Initial Decision of the Presiding Examiner, issued on July 2, 1970, as clarified herein, is affirmed and adopted and such decision shall become effective as the decision of the Commission as of the date of this order.

(C) All exceptions to the Initial Decision of the Presiding Examiner are hereby denied.

(D) The State of Iowa's request for 30 days to file a brief on exceptions to the Examiner's decision is hereby denied.

(E) Oral argument before the Commission in Docket No. E-7494 is hereby denied.

(F) A certificate of public convenience and necessity is issued to Iowa Energy Corporation authorizing the acquisition and operation of facilities and the transportation of natural gas, all as more fully described in the application in Docket No. CP70-73, upon the terms and conditions of this order, effective upon the consummation of the consolidation authorized herein.

(G) The certificate issued in paragraph (C) above and the rights granted thereunder are conditioned upon compliance with all applicable Commission Regulations Under the Natural Gas Act and particularly compliance by Applicants with paragraphs (a), (d)(1), (e) and (f), and by Iowa Energy Corporation with paragraphs (d)(2), (d)(3), (e) and (f) of Section 157.20 of such Regulations.

(H) Upon the consummation of the consolidation, the certificates heretofore issued to Iowa-Illinois in Docket Nos. G-303, G-1721, G-1899, G-2012, G-18138, G-20593, CP61-166, CP62-4, CP64-123 and CP70-192 shall be terminated.

By the Commission. Commissioner Bagge not participating.

[SEAL] GORDON M. GRANT, *Secretary.*

ATTACHMENT III—APPENDIX C-1

COMBINATION ELECTRIC AND GAS COMPANIES

[High to low Listing based on total utility electric and gas operating revenues]

Company	Revenues—1969		Revenues—1970	
	Electric	Gas	Electric	Gas
Pacific Gas & Electric Co	$672, 750, 764	$443, 751, 037	$704, 140, 959	$474, 295, 943
Consolidated Edison Co. of New York, Inc	864, 790, 997	111, 425, 495	959, 599, 550	119, 323, 369
Public Service Electric & Gas Co	454, 055, 491	229, 970, 331	492, 954, 437	248, 297, 130
Southern California Edison Co	642, 124, 387	146, 387	720, 661, 464	148, 785
Consumers Power Co	307, 999, 678	240, 535, 782	334, 904, 154	273, 873, 680
Niagara Mohawk Power Corp	337, 850, 332	111, 136, 973	399, 389, 296	118, 214, 290
Philadelphia Electric Co	351, 954, 762	75, 149, 495	408, 959, 688	80, 960, 954
Virginia Electric & Power Co	305, 770, 229	20, 670, 139	353, 151, 313	21, 728, 502
Baltimore Gas & Electric Co	208, 805, 696	88, 029, 285	229, 063, 017	95, 919, 728
Northern States Power Co. (Minnesota)	241, 665, 546	46, 502, 304	265, 421, 925	50, 457, 762
Long Island Lighting Co	206, 598, 546	78, 767, 137	220, 264, 546	84, 709, 874
Northern Indiana Public Service Co	119, 699, 230	147, 658, 472	124, 513, 000	175, 272, 164
Union Electric Co	252, 012, 034	2, 824, 926	282, 414, 537	3, 158, 151
Cincinnati Gas & Electric Co., The	145, 082, 739	79, 560, 034	158, 061, 896	80, 006, 902
Illinois Power Co	138, 908, 660	73, 825, 262	149, 046, 174	81, 221, 316
Public Service Co. of Colorado	123, 069, 643	63, 134, 560	130, 908, 806	69, 279, 067
New York State Electric & Gas Corp	137, 129, 863	37, 612, 312	156, 951, 459	40, 216, 639
Gulf States Utilities Co	167, 567, 279	5, 349, 088	178, 266, 501	5, 821, 568
Connecticut Light & Power Co., The	139, 112, 587	26, 206, 611	151, 971, 071	28, 733, 158
Dayton Power & Light Co., The	105, 030, 378	55, 696, 191	122, 140, 619	57, 878, 714
San Diego Gas & Electric Co	97, 665, 611	57, 385, 426	108, 183, 393	61, 946, 799
Arkansas Louisiana Gas Co	539, 080	151, 574, 211	474, 254	165, 891, 369
Rochester Gas & Electric Corp	76, 249, 891	50, 014, 769	93, 076, 297	54, 004, 776
Arizona Public Service Co	95, 581, 424	35, 445, 127	105, 817, 335	39, 048, 948
South Carolina Electric & Gas Co	87, 832, 375	25, 171, 942	101, 187, 424	27, 994, 375
Louisville Gas & Electric Co	79, 786, 241	38, 458, 218	87, 267, 973	41, 494, 237
Central Illinois Public Service Co	90, 520, 889	26, 106, 903	97, 544, 004	29, 292, 348
Iowa-Illinois Gas & Electric Co	45, 448, 376	50, 415, 371	48, 437, 753	55, 588, 574
Wisconsin Public Service Co	57, 567, 132	31, 724, 702	67, 101, 714	34, 993, 963
Hartford Electric Light Co., The	85, 851, 286	6, 901, 818	92, 547, 360	7, 375, 016
Kansas Power & Light Co., The	65, 019, 063	27, 948, 445	70, 675, 173	28, 746, 668
Wisconsin Power & Light Co	70, 455, 169	21, 645, 623	75, 169, 526	22, 718, 842
Toledo Edison Co., the	85, 884, 264	1, 313, 827	91, 789, 216	1, 430, 347
New Orleans Public Service Inc	68, 831, 345	17, 554, 190	72, 042, 548	17, 897, 903
Central Illinois Light Co	46, 198, 812	33, 304, 944	51, 536, 337	37, 734, 949
Montana Power Co., The	53, 033, 002	27, 509, 839	56, 680, 677	29, 744, 669
Iowa Power & Light Co	50, 709, 094	26, 806, 157	54, 915, 334	27, 747, 625
Delmarva Power & Light Co	58, 352, 991	17, 384, 402	64, 295, 317	18, 336, 942
Iowa Electric Light & Power Co	43, 178, 993	28, 187, 251	51, 410, 449	31, 013, 625
Iowa Public Service Co	38, 301, 945	29, 125, 034	41, 004, 820	30, 431, 043
Washington Water Power Co	48, 848, 755	18, 938, 988	50, 665, 094	20, 161, 140
Central Hudson Gas & Electric Corp	53, 171, 837	10, 369, 958	56, 605, 912	11, 333, 465
UGI Corp	9, 642, 076	48, 496, 119	11, 209, 395	56, 461, 996
Orange & Rockland Utilities, Inc	38, 825, 934	18, 143, 618	43, 995, 078	22, 277, 500

COMBINATION ELECTRIC AND GAS COMPANIES—Continued

Company	Revenues—1969		Revenues—1970	
	Electric	Gas	Electric	Gas
Central Telephone & Utilities Corp	33,608,265	29,204,460	35,545,302	29,512,679
Boston Gas Co	1,715,971	56,816,223	2,001,025	62,663,215
Interstate Power Co	44,821,923	11,959,910	47,280,875	12,008,873
Tucson Gas & Electric Co	37,983,647	11,359,450	44,667,156	12,625,178
Montana-Dakota Utilities Co	23,011,462	28,119,093	24,259,114	31,128,687
Northern States Power Co. (Wisconsin)	36,638,859	6,106,006	39,619,350	6,891,190
Missouri Public Service Co	29,879,936	6,935,749	38,831,220	7,632,311
Southern Indiana Gas & Electric Co	29,906,878	11,860,551	31,887,574	13,802,056
Central Louisiana Electric Co., Inc	34,893,292	5,232,640	39,695,150	5,486,532
Wisconsin Michigan Power Co	32,532,768	9,016,631	35,130,908	9,345,966
Madison Gas & Electric Co	18,940,646	13,656,077	21,267,020	14,696,988
New Bedford Gas & Edison Light Co	23,796,669	7,556,870	26,411,905	9,261,244
Community Public Service Co	32,296,724	792,007	34,797,189	825,579
Sierra Pacific Power Co	27,441,470	4,354,697	30,763,859	4,771,486
Otter Tail Power Co	31,191,187	36,727	34,153,292	32,324
Union Light, Heat & Power Co., The	18,413,671	13,497,765	20,094,120	14,042,937
Iowa Southern Utilities Co	23,992,872	8,183,254	24,821,592	8,767,627
Missouri Power & Light Co	24,520,918	5,696,727	26,841,143	6,394,349
Arkansas-Missouri Power Co	18,295,587	4,383,412	19,724,307	4,874,926
Northwestern Public Service Co	11,893,805	9,320,206	13,054,370	10,004,832
Michigan Power Co	5,783,071	12,375,784	6,364,682	14,136,187
California-Pacific Utilities Co	10,684,315	7,757,005	11,222,236	9,201,095
Missouri Utilities Co	10,874,308	6,288,749	11,612,657	7,743,848
Citizens Utilities Co	11,407,511	2,613,019	13,078,933	2,671,789
St. Joseph Light & Power Co	12,593,574	687,622	14,309,596	790,115
Lake Superior District Power Co	9,976,634	2,491,742	10,501,963	3,020,016
Fitchburg Gas & Electric Light Co	6,411,920	2,147,998	6,995,962	2,441,544
Missouri Edison Co	6,754,264	952,946	7,636,467	1,182,912
Cheyenne Light, Fuel & Power Co	4,295,748	3,597,863	4,460,371	4,002,485
Florida Public Utilities Co	3,175,786	4,362,089	3,651,081	4,805,467
Central Kansas Power Co., the	6,485,266	1,278,287	6,991,005	1,331,158
Superior Water, Light & Power Co	4,353,382	2,647,266	4,649,149	2,727,535
South Beloit Water, Gas & Electric Co	1,746,443	989,931	1,879,057	1,053,095
Mt. Carmel Public Utility Co	1,739,535	572,515	1,825,874	617,509
Total	7,966,983,779	3,030,729,977	8,832,442,299	3,303,678,549

ATTACHMENT IV–A

[U.S. Government Memorandum]

To: Mr. Daniel Goldstein, OGC.
From: Office of Economics.
Subject: Analysis and review of statement by Mr. Joe D. Pace, of NERA, before the Antitrust and Monopoly Subcommittee, containing comments about the thesis of William Collins on combination companies.

Mr. Pace begins his review with a quote of Collins' conclusion, i.e., "no significant difference was found between straights and combinations in the examination of the gas dependent variables. The results of the examination of the electric dependent variables are sufficient to indicate that the performance of combination utilities is significantly below that of straight utilities." [1]

Mr. Pace asserts that the validity of Collins' conclusions hinges on whether or not his two groups of electric utilities are homogeneous with regard to all important cost influencing factors beyond the control of individual utilities. Although Collins demonstrated statistically that the two groups are not significantly different with regard to such factors as utility size, type of generation, percent purchased power, degree of urbanization, population density, geographic location and distance from fuel sources by application of the Mann-Whitney U test, Pace asserts that it is difficult to see how that was done. He then specifically identifies four cases of alleged bias in the Collins' thesis. These are (1) location, (2) fuel costs, (3) taxes other than income, and (4) salaries and wages. I have made an analysis of each of these factors which are questioned.

LOCATION

Since few utilities have overlapping service areas there is a potential for location bias both locally and regionally. The location is not a bias; it is the

[1] Collins, W. H., Jr., *Combination Gas-Electric Utilities*, Ph.D. Dissertation, Southern Illinois University, 1970, page 101.

inherent cost advantages of a specific area which provide a potential bias. The bias, if present, would show up in fuel costs, wages and salaries, or taxes. Mr. Pace alleges this does in fact exist. Collins' tests show it does not.

FUEL COSTS

Collins' method of control for fuel costs was to test the effect of fuel costs on his results by testing with fuel costs included and with fuel costs omitted.[2] His results were unchanged.[3] Mr. Pace cites the West South Central region as reflective of bias in the Collins' sample because this area has the lowest fuel costs and has 16.85 percent of the single service electric utilities and only 3.85 percent of the combinations. Since this area has the lowest cost of fuel the low representation of combinations in that region may be a source of bias. In fact Pace asserts that if the two groups had paid the 1967 *average fuel costs prevailing in its home state*, the combination utilities would have had an average 9.18 percent higher fuel costs due to locational differences.

A test for homogeneity of the straight group's fuel cost of 2.38 mills per kwh of generation was made by omitting the West South Central region. The results indicate fuel costs for the straight group of 2.45 mills per kwh of generation, a change of 2.9%. An additional test for homogeneity between the combination group and the straight group indicates fuel costs of 3.21 mills per kwh of generation for the combinations. When the latter is compared to the 2.38 mills per kwh of generation for the straights, the difference is 25.9%. Although the 25.9% difference between the groups appears to account for the larger operating expenses of the combinations, Collins tested his groups excluding fuel costs and also excluding power production expenses yet achieved the same result as when these were included. This demonstrated that fuel costs were not the sole cause of the combinations' higher costs that Collins' tests revealed.

TAXES OTHER THAN INCOME

Mr. Pace challenges the homogeneity within the two groups because of taxes other than income. He cites the varying tax rates in Iowa, Wisconsin, and New York of the group of combination utilities and Pennsylvania and Texas in the group of straight utilities. Specifically, he cites the fact that when Con Ed is eliminated from the combination group the *remaining part of the combination group exceeds* the *Texas-Pennsylvania* electries in the single group in taxes per kwh by 146 percent. Mr. Pace fails to identify the factors he is relating the kwh to (generation, sales, etc.) and further compares one group to part of another group (which does not provide evidence of bias). We found that the ratio of electric operating revenues per dollar of total operating expenses for the straight group was 1.34. Omitting the Pace group it was 1.33. For the combination group the ratio was 1.31 for the entire group and excluding the Pace group was 1.32. This is a difference of 2.2 percent between the straight and combination groups and 0.75 to 0.8 percent within each group.

	Straights ratio	Combinations ratio	Difference percent
Revenue:			
Total operating expenses	1.34	1.31	2.2
Total operating expenses less tax other than income	1.52	1.58	3.9
Total operating expenses less fuel costs	1.69	1.62	4.1
Total operating expenses less taxes other than income and fuel costs	1.99	2.06	3.5

SALARIES AND WAGES

The Pace statement alleges that wages in the Southwest are 10 percent below the national average. The data are cited from a U.S. Department of Labor publication showing average hourly earnings of 19 classifications of electric utility workers. Collins tested 12 categories of salaries and wages rather than a sample 19 classifications in one category. We checked the publication cited by Pace and found that it showed these 19 classifications for the whole industry, for combinations and for straights. Fifteen of the nineteen classifications were higher in combination systems and four higher in single service systems. However, the differences in these wages and salaries are 2.8 percent on the average.

[2] Ibid., page 138.
[3] Ibid., page 74.

OTHER FACTORS

We made checks on the size distribution of utilities, relative importance of customer mix, type of generation, purchased power and population density and degree of urbanization.

SIZE DISTRIBUTION OF COLLINS' STRAIGHT AND COMBINATION UTILITIES

Billions of kw.-hrs.	Combinations		Straights		Total	
	Number	Percent	Number	Percent	Number	Percent
Over 35	1	1.9	1	1.1	2	1.4
30 to 35	0	0	0	0	0	0
25 to 30	1	1.9	1	1.1	2	1.4
20 to 25	2	3.8	3	3.4	5	3.6
15 to 20	1	1.9	3	3.4	4	2.8
10 to 15	1	1.9	8	9.0	9	6.4
5 to 10	11	21.2	21	23.6	32	22.7
0 to 5	35	67.4	52	58.4	87	61.7
Total	52	100.0	89	100.0	141	100.0

You will note that there are only two brackets where the difference is greater than 5%. These are the 10–15 billions of kwhs where the combination-straight percentages are 1.9–9.0 and the 0–5 billions of kwhs where the percentages are 67.4–58.4. This would hint that the straights are on the average somewhat larger than the combinations. The average size of the straights was found to be 5.87 billions of kwhs and the average size of the combinations 5.23 billions of kwhs. This is a difference of 12.2 percent.

There is very little difference in the customer mix between combination and straight utilities. The breakdown is as follows:

RELATIVE IMPORTANCE OF CUSTOMER MIX

[In percent]

	Combinations	Straights
Customer types:		
Residential	87.5	88.0
Commercial	12.1	11.4
Industrial	.4	.6
Resale	.005	.01

There is less than 1% difference between combinations and straights in the various customer classes.

The following table depicts an array of generation mix. Quantities are important because of the size aspect of the systems we have used in the sample.

	Percent of generation		
	Combos	Straights	Total
Type of generation mix:			
Steam	87.6	92.9	91.1
Nuclear	1.0	.1	.4
Hydro	11.1	6.8	8.3
Other	.3	.2	.2
Total	100.0	100.0	100.0

If we add purchased power to this generation we get the following results.

Percent of purchased power when added to generation

Combos	14.6
Straights	13.4
Total	13.8

These results reflect very minor differences between combinations and straights. (The greatest difference is 5.3% between the steam generation.)

Using FPC Typical Electric Bills for cities of 50,000 or more population and testing for population density and degree of urbanization revealed insignificant differences.

DEGREE OF URBANIZATION—SERVICE IN CITIES OF 50,000 POPULATION AND OVER AS PER TYPICAL BILLS PUBLICATION

Size of city population (in thousands)	Combinations		Straights		Total	
	Number	Percent	Number	Percent	Number	Percent
1,000 to 2,000	5	4.5	1	0.6	6	2.3
750 to 1,000	1	.9	4	2.6	5	1.9
500 to 750	5	4.6	5	3.2	10	3.8
250 to 500	10	9.1	15	9.7	25	9.4
100 to 250	25	22.7	37	23.9	62	23.4
50 to 100	64	58.2	93	60.0	157	59.2
Total	110	100.0	155	100.0	265	100.0

The biggest difference is 3.9%.

Conclusion

In summary I have checked Mr. Pace's allegations against Collins' work and my independent analysis. The findings show that of the variables cited by Collins as a factor in determining homogeneity between the groups, only one (average size of straight versus combination) had a variance greater than 5%. Mr. Pace did not specifically challenge this factor. Of those items specifically challenged by Pace I found that these factors were within a reasonable limit for homogeneity, namely 5%.

DARWIN F. NELSON.

Approved June 4, 1971.

DAVID S. SCHWARTZ,
Assistant Chief,
Office of Economics.

ATTACHMENT IV-B

JULY 9, 1971.

Memorandum to: Daniel Goldstein, Assistant General Counsel.
From: Assistant to General Counsel.
Subject: Review of Office of Economics memo of June 4, 1971, dealing with the validity of the Collins study.

Darwin F. Nelson of the Office of Economics has prepared a memo, approved by David Schwartz, in which he analyzes the statement of Joe D. Pace and concludes that the Collins thesis emerges unscathed. He arrives at this conclusion by analyzing Pace's assertion that Collins' thesis is biased in its selection of unhomogeneous electric utilities. Pace identifies these four cases of alleged bias as (1) location, (2) fuel costs, (3) taxes other than income, and (4) salaries and wages.

I perceive three areas of weakness in the Collins study. The first is Collins' failure to state the basis for the statistical test which he claims to rely upon in determining homogeneity with regard to cost influencing factors. Pace also points out this weakness in the Collins study and although the OEC memo recognizes this, it does not respond to it.

The second point was the disproportionate geographic distribution of the groups, with the straight electrics being disproportionately represented in the West South Central region, thus resulting in lower fuel costs and wage rates. These same points were made by Pace. The OEC analysis recognizes a 25.9 percent difference in fuel costs per kwh of generation. The OEC memo then states "Collins tested his groups excluding fuel costs and also excluding power production expenses yet achieved the same result as when these were included. This demonstrated that fuel costs were not the sole cause of the combination's higher costs that Collins' tests revealed." The manner in which this explanation is stated does not appear to prove anything. The "same result" that Collins

achieved could mean merely that by excluding the fuel costs, the operating expenses of the combinations were still larger, but not by nearly the magnitude that they were when fuel costs were included. Furthermore, the conclusion of the OEC memo that fuel costs were not the "sole cause" does not preclude the possibility that they were the major cause.

As to wages, the Pace statement alleges that wages in the Southwest are 10 percent below the national average. The OEC memo claims to have analyzed the classifications for combinations and for straights and concludes that differences in wages and salaries are on the average 2.8 percent higher in combination systems.

Collins apparently ignored several potentially important cost influencing factors. The OEC memo attempts to analyze most of these and concludes that only as to average size was there a difference of over five percent. Assuming that the analysis performed by OEC is correct, the greatest question that I would raise would be in the area of fuel costs. There is no basis in the OEC memo for judging the validity of that analysis, however.

STEPHEN A. WAKEFIELD.

Attachment V

AN ANALYSIS OF THE GAS SUPPLY SITUATION AND THE ACTIONS TAKEN BY THE FEDERAL POWER COMMISSION TO IMPROVE IT

In the area of natural gas supply, the Commission's analyses of discernible demand-supply trends indicates a present and future shortage of deliverable reserves to service consumer demand. The problem of reduced reserves in relation to supply developed during the decade of the 1960's when the ratio of proved gas reserves to annual production dropped steadily. At the end of 1970, the reserve production (R/P) ratio (excluding Alaska) was 11.9 compared to an R/P of 20 in 1962, according to the American Gas Association.[1] (Table 1)

In 1968 annual reserve additions in the lower 48 states dropped below production for the first time. This condition occurred again in both 1969 and 1970. By way of comparison, during the late forties and through the mid-fifties, annual volumes of new reserve additions were generally twice the volume of annual production resulting in an average annual finding to production (F/P) ratio of 2.0. Since then, this ratio has gradually decreased and, for the last five years has averaged 0.73 (findings 27 percent smaller than production) thus contributing to the acceleration in the decline of the R/P ratio. The F/P ratios for 1968, 1969, and 1970 were 0.6, 0.4, and 0.5, respectively.

The continuing decline of the R/P and F/P ratios can be related to both the growing demand for natural gas and to the decline in the total drilling effort since 1956 (Table 2). Annual production rose from 4.9 trillion cubic feet in 1946 to 21.8 trillion cubic feet in 1970, an increase of 345 percent. This compares to a 63 percent increase in reserves during the same period (Table 1). In 1969 both the number of wells and footage drilled increased over the 1968 level. However, declines occurred in both categories again in 1970.

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[1] American Gas Association "Annual Reports on Reserves of Crude Oil, Natural Gas Liquids and Natural Gas in the United States and Canada," 1946–1970.

TABLE 1.—UNITED STATES NATURAL GAS SUPPLY EXCLUDING ALASKA [1] 1946–70

[All volumes in trillions of cubic feet at 14.73 p.s.i.a. and 60° F.]

Year	Net Production	Reserve additions	Year-end reserves	R/P ratio (4)÷(2)	F/P ratio (3)÷(2)
(1)	(2)	(3)	(4)	(5)	(6)
1946	4.9	17.6	159.7	32.6	3.6
1947	5.6	10.9	165.0	29.5	1.9
1948	6.0	13.8	172.9	28.8	2.3
1949	6.2	12.6	179.4	28.9	2.0
1950	6.9	12.0	184.6	26.8	1.7
1951	7.9	16.0	192.8	24.4	2.0
1952	8.6	14.3	198.6	23.1	1.7
1953	9.2	20.3	210.3	22.9	2.2
1954	9.4	9.5	210.6	22.4	1.0
1955	10.1	21.9	222.5	22.0	2.2
1956	10.9	24.7	236.5	21.7	2.3
1957	11.4	20.0	245.2	21.5	1.8
1958	11.4	18.9	252.8	22.2	1.7
1959	12.4	20.6	261.2	21.1	1.7
1960	13.0	13.8	262.2	20.2	1.1
1961	13.4	16.4	265.4	19.8	1.2
1962	13.6	18.8	270.6	19.9	1.4
1963	14.5	18.1	274.5	18.9	1.2
1964	15.3	20.1	279.4	18.3	1.3
1965	16.3	21.2	284.5	17.5	1.3
1966	17.5	19.2	286.4	16.4	1.1
1967	18.4	21.1	289.3	15.7	1.1
1968	19.3	12.0	282.1	14.6	.6
1969	20.6	8.3	269.9	13.1	.4
1970	21.8	11.1	259.6	11.9	.5

[1] Data represents total U.S. natural gas supply prior to 1960. Alaska's natural gas supply was not reported until 1960
Source: AGA.

TABLE 2.—HISTORICAL DRILLING TRENDS (1955–70)

Year	Total wells [1] drilled	Total footage [1] drilled (thousands)	Year	Total wells [1] drilled	Total footage [1] drilled (thousands)
1955	55,922	226,270	1963	41,361	179,885
1956	57,111	233,902	1964	42,942	185,645
1957	52,777	221,901	1965	39,473	177,238
1958	47,754	194,495	1966	36,334	161,940
1959	49,479	204,848	1967	32,223	140,994
1960	43,996	185,829	1968	30,495	143,881
1961	43,823	185,984	1969	32,124	156,447
1962	43,739	193,897	1970	28,008	138,106

[1] Excluding Alaska, service wells, stratigraphic and core tests, and miscellaneous wells.
Source: 1955–65 Oil and Gas Journal, 1966–69 American Association of Petroleum Geologists, 1970 American Petroleum Institute.

The Federal Power Commission has taken full cognizance of the existing imbalance between natural gas supply and demand and has taken a number of actions aimed toward restoring the balance. The Commission's multi-faceted actions have been undertaken for the purposes of easing the administrative burden on the regulated industry, to aid rapid development of new gas supplies, and to assure the long range strength and viability of the natural gas industry.

SUMMARY OF THE FEDERAL POWER COMMISSION ACTIONS TO IMPROVE THE GAS SUPPLY SITUATION

I. On October 3, 1969, in Opinion No. 567, the Commission revised its area rate policy to encourage the search for gas in reservoirs which underlie acreage already committed to the interstate market. Potential gas bearing sedimentary rocks up to 40,000 feet in thickness occur in the deepest basins. A large portion of the sediments below 5,000 feet remain untested. The new policy provides that under the two-price system, with higher rates for new gas-well-gas to encourage exploration, production from newly discovered reservoirs on previously dedicated acreage would be allowed the price it would have if the contract had been dated coincident with discovery.

II. On October 7, 1969, in Opinion No. 568; the Commission applied the area rate principle to pipeline company producers of natural gas. The new policy placed pipeline producers on a parity with independent producers by pricing, in future pipeline rate proceedings, gas produced by pipelines or by their affiliates from leases acquired after October 7, 1969, at the just and reasonable rate applicable to gas of a vintage corresponding to the date of completion of the first well on the lease. Natural gas reserves owned by jurisdictional pipelines have declined in recent years when Commission policy was to price their gas on an individual company cost-of-service methods. This new policy should encourage greater natural gas exploration and development by interstate pipelines so as to provide additional gas supplies to their own customers or to other pipelines. From the records of the Department of the Interior, it is clear that there has been increased gas exploration activity on the part of pipelines. This was evidenced by the participation of Consolidated Gas Supply, Texas Eastern Exploration Corp., a unit of Pennzoil United Inc. (Pennzoil Offshore Gas Operators Inc.), and a unit of Tenneco (Tenneco Oil Co.), among others, in the latest Louisiana Offshore lease auction.

III. The Commission has moved to clarify the status of research and development expenses in an effort to stimulate technological developments in the natural gas industry. The Commission issued on August 26, 1970 in Docket No. R–381, new regulations which revise and clarify the Commission's accounting treatment of research and development expenditures. These changes allow the regulated companies to recover legitimate research costs. This rulemaking resulted from the analysis of responses to the Commission's Order No. 322 which required annual reporting of research and development expenditures. These responses showed minimal research and development activity in the natural gas industry at a time when major supply problems and environmental concerns affect the industry. To provide impetus for a much needed comprehensive natural gas research effort an industry sponsored Gas Research Council has been proposed. Such an organization, drawn from all segments of the natural gas industry, could aid immeasurably in coordinating a research and development program which would benefit the entire industry. An industry sponsored Electric Research Council has been actively engaged in promoting research and development programs of benefit to the electric power industry and has effectively promoted international exchanges of research and development information of benefit to all countries.

The Commission is currently taking action to provide utility companies with a more informed basis for planning ways to meet their ever increasing operating and financial needs by reducing regulatory uncertainty and providing consistency between accounting and ratemaking wherever possible and by clarifying the existing policies in these areas, as required. For example, see Commission Order No. 420 issued January 7, 1971 (36 F.R. 507) prescribing the accounting treatment of land held for future use.

IV. The Commission set just and reasonable rates for production from Southern Louisiana, our most prolific gas producing area, by Opinions Nos. 546 and 546–A, issued on September 30, 1968, and March 20, 1969, respectively, in Docket Nos. AR61–2, *et al.* Concurrently with the latter question, the Commission initiated in Docket No. AR69–1 a limited investigation into future sales of natural gas from offshore Southern Louisiana. On December 15, 1969, the Commission enlarged that proceeding to include all gas regardless of contract date produced both onshore and offshore in the Southern Louisiana area and called for evidence with respect to the adequacy of gas supply and adequacy of service to consumers, the demand for gas, and the cause of a gas shortage, if any.

On March 19, 1970, the U.S. Court of Appeals for the Fifth Circuit sustained the orders of the Commission in Opinions Nos. 546 and 546–A, but explicitly provided that this mandate should not be interpreted to interfere with Commission action that would change the rates approved. The Court expressed concern over strong evidence that a supply deficiency is imminent. *Southern Louisiana Area Rate Cases* v. *FPC*, 428 F.2d 407 (5th Cir. 1970), cert. denied, *Municipal Distributors Group et al.* v. *FPC*. On petition for rehearing, the Fifth Circuit on June 16, 1970, affirmed its grant of authority to the Commission to reopen any part of its orders, including those affecting revenues from gas already delivered.

In light of these actions by the Courts, on December 24, 1970, the Commission reopened the proceedings in Docket No. AR61–2, *et al.* and consolidated them with the proceedings in Docket No. AR69–1 so that parties might be given an

opportunity to submit, if they so desired, relevant evidence concerning whether the rates established in Opinion Nos. 546 and 546–A should be changed in the light of the Fifth Circuit's decision.

Hearings in the consolidated proceedings concluded on March 11, 1971. In order to expedite the conclusion of these proceedings and provide for Commission evaluation of the evidence at the earliest practicable time, the Commission on March 15, 1971, ordered the omission of the intermediate decision of the hearing examiner and established a briefing schedule which would require all briefs to be filed on or before May 6, 1971.

V. On January 23, 1970, the Commission gave notice in Docket No. R–380 of a proposed rulemaking to amend its Regulations to provide for accounting and rate treatment of advance payments made to suppliers by pipelines for gas to be delivered at a future date. The receipt of such advance payments by producers is intended to encourage acquisition, exploration, and development of gas producing properties.

Subsequent to receipt of comments, on October 2, 1970, in Order No. 410 the Commission amended its Uniform System of Accounts to permit unrecovered advance payments to be included by pipelines in their rate base as part of working capital. In the Commission's view, it was not at the present time in the public interest for pipeline companies to bear the cost of assuring themselves and their customers of a future supply of natural gas.

On January 8, 1971, in response to applications for rehearing, the Commission issued Order No. 410–A and a notice of proposed rulemaking in Docket No. R–411 to permit further comments on proposed modification, but stressed that Order No. 410 treatment applied in the interim except as to advances made to affiliates for lease acquisition and exploration costs.

VI. On February 25, 1970, in Order No. 395, the Commission revised its regulations and rules under the Natural Gas Act to allow increased expenditures for budget-type gas purchase facilities. The purpose of the budget rule is to expedite numerous minor projects. The increase in allowable expenditures gives companies added flexibility and results in a decrease in the lag in deliverability time between the discovery of gas and its flow to interstate pipelines.

VII. On June 17, 1970, the Commission in Docket No. R–389 instituted an investigation and proposed rulemaking to consider the terms and conditions under which it will issue permanent certificates for, and otherwise regulate, new sales of natural gas subject to the Commission's jurisdiction in the Permian Basin area of southwestern Texas and southeastern New Mexico. On July 17, 1970, in Docket No. R–389A, the Commission expanded the scope of this investigation and proposed rulemaking to cover certificates for new sales of natural gas subject to the Commission's jurisdiction nationwide (except Alaska and Hawaii). The Commission stated it would accept for consideration applications by independent producers requesting issuance of a certificate for sales of natural gas notwithstanding that the proposed rates may be in excess of the ceiling or guideline rates.

Numerous applications for certificates have been filed pursuant to this statement by the Commission. These applications represent sizeable volumes of natural gas potentially available to interstate pipelines. Several of the applicants have already received permanent certificates permitting sales of natural gas in interstate commerce in proceedings in which no petitions to intervene were filed. On February 22, 1971, the Commission ordered consolidation of 55 applications for such certificates for a public hearing to allow the presentation, cross-examination and rebuttal of evidence concerning whether the present or future public convenience and necessity requires issuance of a permanent certificate on the terms proposed in each individual application.

Hearings in the consolidated proceedings concluded on May 7, 1971. In order to expedite the conclusion of these proceedings and provide for Commission evaluation of the evidence at the earliest practicable time, the Commission on May 28, 1971, ordered the omission of the intermediate decision of the hearing examiner and established a briefing schedule which would require all briefs to be filed on or before July 12, 1971.

VIII. On June 17, 1970, in Docket No. AR70–1 the Commission instituted a second area rate proceeding in the Permian Basin area to review the just and reasonable rates established by the Commission in 1965. In order to induce producers to dedicate supplies to the interstate market without waiting for the final price determination of the proceedings, the Commission stated that contracts dated after June 17, 1970, would have the same price ceilings as contracts entered into subsequent to a final order. A prehearing conference was held on February 23, 1971, cost questionnaires have been submitted to producers, non-

cost evidence is to be filed by June 11, 1971, and hearings for purposes of cross-examination of the direct evidence will commence on July 27, 1971. In order to expedite the proceedings, the Commission incorporated by reference all relevant evidence filed and subjected to cross-examination and rebuttal in the Southern Louisiana Area Rate Proceedings. (See IV above). The Commission stated that there should be no repetition of this testimony.

IX. On July 30, 1970, the Commission gave notice of a proposed rulemaking in Docket No. R–394 which would terminate the existing moratorium prohibitions against rate increase filings by natural gas producers in the Southern Louisiana area. Data available to the Commission indicated that circumstances had changed since the establishment of the moratoria. It was proposed that such a termination would encourage increased exploration and development efforts for natural gas and the dedication of greater volumes of gas from that area to the interstate market. The moratorium provisions were terminated by Order No. 413 on October 27, 1970, thus permitting offshore and onshore gas producers in the South Louisiana area to file for gas price increases in excess of ceiling prices, although such rate increases would be collected subject to refund. By subsequent order of December 24, 1970, the Commission limited rate increase filings made piror to June 30, 1971, to the levels set forth in the settlement proposal filed in Docket Nos. AR61–2 *et al.* and AR69–1 on November 6, 1970.

By order of February 10, 1971, the Commission denied motions for a rehearing of the December 24, 1970, order and denied a request for a stay of the December 24, 1970, order. By further order of April 13, 1971, the Commission denied an application for rehearing on the Commission's February 10, 1971, order.

X. On October 16, 1969, the Commission issued a Notice of Proposed Rulemaking in Docket No. R–371, proposing to determine just and reasonable area rates for the Appalachian and Illinois Basins through rulemaking procedures rather than the lengthy area-rate hearings which had been conducted in the major producing areas, thus hoping to assure rapid disposition of the matter and insure continued stability in the area. On October 2, 1970, the Commission, relying on written comments and reports which had been filed and on an oral conference, rather than a full-blown evidentiary hearing, issued Order No. 411 establishing area rates for these Basins.

XI. By letter dated July 9, 1970, the Commission urged the Secretary of the Interior to conduct a general oil and gas lease-sale in the Gulf of Mexico. The Commission, by letter dated August 18, 1969, had previously urged that steps necessary to the orderly marketing of Outer Continental Shelf leaseholds be accomplished at the earliest practicable time. Public hearings were held on July 14, 1970, in New Orleans, and the Chief of the Bureau of Natural Gas presented detailed testimony in further support of the sale at that hearing. The importance of the Louisiana lease-sale cannot be over-emphasized since the geological evidence would seem to indicate that this area is one of the most prolific potential sources of natural gas. Gas from Federal domain lands on the Outer Continental Shelf offshore Louisiana may then be available for dedication to the interstate market. The Offshore Louisiana Area is capable of rapid development and may be connected with existing pipeline systems to meet the threat of near term gas shortage in the Northeast and Great Lakes marketing areas. The oil and gas lease-sale was held on December 15, 1970. Involved were 1,043 bids and bonuses to the Federal Government from 116 winners totaling a record $845.8 million. Eleven high bids were rejected. The average sale price per acre was $1,434. An all-time high of $12,874.79 per acre was received for Tract No. 2153 from Pennzoil Offshore Gas Operators, Mesa Petroleum, Texas Production and Mobil. The next highest bid was $7,636.87 per acre for Tract No. 2213 by the Trans Ocean Group.

XII. In order that the Commission may improve its capability in the measurement of supply and demand and thereby enhance its ability to effectively regulate and provide a continuing reliable supply of gas to meet consumer demands, the Congress approved the Commission recommendation to undertake a National Gas Survey by providing funds for the Agency's fiscal year 1971 budget. Some of the more important questions to be examined in depth by the Survey are (a) the precise dimensions of the gas supply problems, (b) the extent to which pipeline expansion of facilities is threatened by inflation and uncertainty of new gas supplies, (c) the role of natural gas in air pollution control, (d) the supply-price-demand relationship, (e) the potential impact of interfuel competition, (f) import-export policies, (g) the role of synthetic fuels in the long-term supply of gas, and (h) the regulatory role in relation to these issues.

XIII. The Commission was advised that natural gas distributing companies, which are exempt from the provisions of the Natural Gas Act under Section 1(c) thereof, have received an increasing number of requests from distributors located in other States and interstate pipeline companies for short-term supplies of gas to meet temporary emergencies caused by weather conditions, acts of God, breakdown of facilities or other unforeseen situations or to replenish depleted storage reservoirs in order to meet consumer needs in a forthcoming heating season. In order to facilitate responses to such requests, the Commission indicated by Statements of Policy issued May 6 and June 3, 1970, Order Nos. 402 and 402–A that the recipients of such requests would not jeopardize their exempt status under the Act by making short-term sales or deliveries of natural gas in interstate commerce to the extent that such transatcions enabled those companies confronted with emergencies to meet their system requirements, subject to reporting provisions and prior Commission approval in emergencies exceeding 60 days. By Order No. 418 issued December 10, 1970, in Docket No. R–404 the Commission amended its Regulations under the Natural Gas Act to permit independent producers to sell natural gas to pipelines for emergency purchases for periods up to 60 days without first obtaining certificate authorization from the Commission. A tabulation of the short-term purchases requested to date under the terms of these orders is given in Appendix A.

XIV. The Commission on September 18, 1970, in Opinion No. 586 adopted a settlement proposal submitted by a majority of the parties to the Hugoton-Anadarko Area Rate Proceeding, Docket No. AR64–1, *et al.*, thus establishing just and reasonable rates for the area. The Commission found that the proposed settlement was fair to the consuming public and would promote certainty and stability and contribute to obtaining additional supplies of gas from this crucial area.

XV. On November 4, 1970, the FPC issued Docket No. R–405, "Policy Statement, Notice of Investigation and Proposed Rulemaking with Respect to Developing Emergency Plans." In its opening paragraph the Commission stated, "Although this proceeding is initiated for the purpose of fulfilling the responsibilities of the Commission for reliability of gas and electric service under the Federal Power Act and Natural Gas Act, the resulting information, plans and procedures will serve to aid in carrying out the overall Federal program to assure an adequate energy supply."

The notice of rulemaking stated further, "The investigation will concern matters of the natural gas and electric utility industries as are necessary to accomplish the stated purpose and shall not be limited to 'natural gas' companies and 'public utilities' within the meaning of the Natural Gas Act and Federal Power Act, respectively. This investigation shall be national in scope including Alaska and Hawaii."

The investigation was separated into two phases: Phase I concentrated on the period from November 4, 1970 (the date of the notice), through March 31, 1971. The objective of this phase was "to elicit information from those anticipating emergency situations during this phase period." Only those with such an emergency situation were required to respond and were requested to do so by December 1, 1970. One interstate pipeline company responded that it was curtailing its customers during the current winter period, a situation the Commission was aware of; one distribution company stated that it might be in difficulty due to inability to complete on time needed construction to peak shaving facilities. As events proved, this company was able to meet all of its firm obligations during the Phase I period with the assistance of its neighboring distribution company and the cooperation of its pipeline suppliers.

Phase II concentrated on the period from the date of the notice through 1975, and all gas transmission and distribution companies were asked to respond by January 7, 1971, with projections through 1975 of relevant information including but not limited to:

(a) adequacy of supplies and delivery capacity,

(b) adequacy of plans to meet emergency conditions. For this purpose, information on the following matters should be supplied:

(1) Present and projected transmission capacities of each pipeline system of all interstate (and intrastate) gas pipeline companies on a peak-day design, peak and off-peak load and average day basis;

(2) Pipeline companies current planned curtailment programs, including interruptible and firm load shedding priorities;

(3) The current interconnectability of pipeline systems as well as feasibility and advisability of further interconnections;

(4) Whether present pipeline capacity can be meaningfully increased by additional compression facilities;
(5) What reserve gas transmission capacity, if any, each pipeline has;
(6) The availability of gas from both underground and LNG storage;
(7) Present maximum hourly and maximum daily capacity of each distribution system under peak load conditions;
(8) Operating pressures of distributor's systems;
(9) Increase in pressure permissible under present design;
(10) Capacity increase resulting from pressure increase;
(11) Peak and average degree days for each system;
(12) Estimates of peak requirements of pipeline and distribution companies identified by classes; i.e., domestic, firm commercial, firm industrial, interruptible;
(13) Sources of principal supply including own production, producer purchases, gas imports and pipeline supplies;
(14) Capacity of storage and peak shaving plant maximum hour and maximum day deliverability;
(15) Alternative and supplementary energy supply and inventory;
(16) Peak and average day volumes available from each source identified in items 13, 14, and 15;
(17) Estimate of availability, desirability and cost of alternate and supplementary energy supply sources;
(18) Distribution companies planned curtailment program, including interruptible and firm load shedding priorities; and
(19) Other matters affecting reliability of service.

Replies were received from interstate and intrastate pipeline companies, privately and publicly owned distribution companies, state regulatory agencies, trade associations and the Environmental Protection Agency. These responses, totalling about 300, are currently being reviewed and analyzed by the Commission's staff.

In a separate section of the notice the Commission set up a procedure to obtain data from the producers of natural gas as to what volumes of proved natural gas reserves, if any, were held by producers, in any area, that were not contracted to pipelines or direct customers. The procedure stated, "Producers will be called upon by an investigating officer to make this information available (including any underlying data requested) on an individual company basis. This information may thereafter be composited for report by the investigating officer pursuant to paragraph 11. Information revealed to the Staff shall be treated as confidential information without public disclosure under the provisions of Section 8(b) of the Natural Gas Act [15 U.S.C. 717g] and the Freedom of Information Act [5 U.S.C. 552(b)(4)]. Compliance with the order shall not constitute nor be construed as a waiver of any claim of privilege by any producer."

To accomplish this aspect of the Commission's directive the Office of General Counsel drafted and sent letters to each large producer (those making annual jurisdictional sales of natural gas in excess of 10 million Mcf) requesting that all necessary data be supplied. All of the 75 producer addresses responded to this request and the data thus received was composited on a geographic production area basis to maintain the confidentiality of the data of individual producers. Copies of the letter, the questionnaire, the list of addressees and the composited data were placed in the public file of the Commission.

A summary page of the filed data showed that the total natural gas reserves available for sale by the large producers were 4.4 trillion cubic feet as of October 1, 1970, compared with total proved reserves in the "lower 48" of 260 trillion cubic feet on December 31, 1970, as reported by the American Gas Association. On the basis of this information it is indicated that 98.4 percent of the proved reserves were committed to existing uses.

The net effect of R–405 to date has been to provide the Commission with much needed information and projections of pipeline and distribution companies' supply/demand balances. The detailed analysis of the data currently being made by the staff will enable the Commission to locate trouble spots in the immediate and near future. Additionally, the notice of rulemaking has reemphasized to all pipeline companies, distributors and State regulatory agencies, the continuing surveillance that the Commission intends to maintain over the reliability and adequacy of electric and gas service.

XVI. The Commission on February 18, 1971, issued Order No. 423 in Docket No. R–407 establishing as a matter of General Policy a suspension period of one day from the proposed effective date of a rate change filing made by an independent producer unless the Commission imposes a longer suspension period.

The former five-month suspension period which had generally been applied to producers placed them at a disadvantage because they also were limited by contract as to when an increase might be made effective. A five-month suspension period also deprives a producer of revenues to which it would otherwise be entitled in the event the proposed rate is found to be just and reasonable.

XVII. On March 18, 1971, in Order No. 428 issued in Docket No. 393 the Commission amended its regulations covering natural gas sales by small producers, which are defined as independent producers with annual total nationwide jurisdictional sales not in excess of 10,000,000 Mcf. Although only accounting for about 15% of the total volumes of interstate gas sales, small producers comprise all except about 70 of the over 4700 natural gas producers in the United States. Their exploratory efforts are extremely valuable to the discovery of new sources of gas.

Under the new provisions, small producers may apply for a blanket certificate to cover all existing and all future jurisdictional sales. Those receiving such certificates are authorized to make small producer sales pursuant to existing and future contracts at the price specified in each such contract. Thereafter, so long as the holder of the certificate qualifies as a small producer and complies with its terms, the only filings required by the Commission are an annual statement of total jurisdictional sales and applications for abandonment of facilities or service. The Commission's purpose in thus classifying small producers was to facilitate their entry into the interstate market and to stimulate competition among producers to sell in interstate commerce as well as to encourage their exploratory efforts. Assurance is given small producers that the provisions of their contracts for the interstate sale of gas will not be subject to change. A further purpose is to relieve the small producer of the expenses and burdens relating to regulatory matters.

The Commission's action did not constitute deregulation of sales by small producers. Such sales will be regulated in pipeline rate and pipeline certificate proceedings by Commission review of the purchased gas costs of each pipeline with respect to small producer sales. The Commission's order assures adequate protection for the consumer by providing certain other safeguards against unreasonably high small producer prices.

XVIII. The Commission has authorized increased imports of gas by pipeline from Canada. The net import of natural gas from Canada in 1970 was 767.8 million Mcf, which was an annual percentage increase of 19 percent over the 1969 figure. During 1970 net Canadian imports accounted for 3.4 percent of United States consumption. The 1969 figure was 3 percent. If United States companies take advantage of all present Commission authorizations to import gas from Canada the net import could go to approximately 1 billion Mcf in 1971.

XIX. As of June 30, 1971, the Commission authorized the importation of the equivalent of 8,004 million cubic feet of liquefied natural gas, LNG, on a short-term basis from Canada and Algeria.

XX. On April 15, 1971, in Order No. 431 the Commission promulgated as a new Section of its General Policy and Interpretations Section 2.70, entitled "Measures for the Protection of Reliable and Adequate Natural Gas Service." The statement of general policy provides that jurisdictional pipeline companies shall take all steps necessary for the protection of as reliable and adequate service as present supplies and capacities will permit during the 71–72 heating season and thereafter. In order to effectuate this, the Commission:

(a) Encouraged companies to fill all storage fields;

(b) Required the filing of curtailment plans as an amendment to existing tariffs by jurisdictional companies which intended to curtail service;

(c) Indicated that additional short-term gas purchases may still be necessary to meet the 1972 demands and indicated the procedure under which this could be done;

(d) Stated that where emergency gas purchases are made and/or curtailment program is instituted, volumetric limitations should be set on sales at current levels;

(e) Indicated that the Commission will re-examine existing commodity rate levels and may redesign existing commodity demand rate relationships;

(f) Encourage pipelines to enter into exchange arrangements with other pipelines.

XXI. The Commission on May 6, 1971, in Opinion No. 595 set just and reasonable rates for sales of gas in interstate commerce from the Texas Gulf Coast, Docket Nos. AR64–2, et al. The Commission set a ceiling of 24 cents per mcf for gas sales made under contracts dated on or after October 1, 1968, whether within

the tax jurisdiction of the State of Texas or the offshore Federal domain. Rates for gas sold in interstate commerce under contracts dated prior to October 1, 1968, were established at varying levels with the ultimate rate of 19 cents established as of October 1, 1968, for all such contracts. In addition, the Commission offered incentives to producers to stimulate exploration and production by permitting credits to refund obligations through dedication of new supplies, and increased rates if new dedications reached the levels set forth in the opinion. The Texas Gulf Coast is the Nation's second largest producing area.

Enclosure: Appendix A.

SUMMARY OF EMERGENCY PURCHASES OF NATURAL GAS REQUESTED UNDER TERMS OF ORDERS 402, 402–A AND 418

[Volumes in millions of cubic feet]

Buyer and supplier(s)	Estimated volume
Consolidated Gas Supply Corp.:	
Cambridge Gas	1,032
New Bedford Gas	1,731
Providence Gas	1,174
Long Island Light	5,592
Brooklyn Union	4,907
Equitable Gas	5,703
Public Service	3,100
Industrial Gas Co	302
Texas Gas Trans. Co	3,000
Total	26,541
Kansas-Nebraska Natural Gas Co.: Cities Service	6,450
Lone Star Gas Co.: Lone Star Producing	2,700
Michigan-Wisconsin Pipe Line Co.:	
Texas Gas	1,125
Midwestern	32
Kerr-McGee	618
Cabot Corp	240
Felmont Oil Corp	240
Sun Oil Corp	120
Total	2,375
Mississippi River Transmission Corp.: R. Lacy, Inc	60
Natural Gas Pipeline Company of America:	
Pecos Grower Gas	11,918
Delhi Gas	487
Do	1,958
Texas Gas Utilities	8,827
Do	1,731
Coastal States	3,480
Diamond Shamrock	900
Michael Halbouty	180
La Vaca	2,800
Total	32,281
Northern Natural Gas Co:	
Michigan-Wisconsin	102
Midwestern	17
Great Lakes	30
LaVaca	9,500
Cities Service	77
Perry R. Bass	900
Total	10,626
Tennessee Gas Pipeline Co.:	
Consolidated Edison	30
Trans-Canada	125
National Chemical	1,800
Total	1,955
Southern Union Gathering Co.: El Paso	120

Buyer and supplier(s)	Estimated volume
Texas Eastern Transmission Corp.:	
Southern Gas	1,523
Nueces Industrial Gas	6,000
Do	3,000
Delhi Gas Pipe	827
Sunny South	300
Wenert Trich	300
Monterey Pipe	3,245
Total	15,195
Transcontinental Gas Pipe Line Co.:	
Nueces Industrial Gas	29,892
Houston Pipe	1,800
Delhi Gas	688
Pan American (Amoco)	4,500
Sun Oil Co	628
Do	300
Amoco Products Co	4,500
Atlantic Richfield	1,800
Total	44,108
Trukline Gas Co.:	
Nueces Industrial Gas	1,630
Great Southern O. & G	186
Getty Oil Co	30
Amoco Products Co	420
Douglas Marshall	240
Amoco	5,500
Total	8,006
United Fuel Gas Co.: Davis Oil Co	300
United Gas Pipe Line Co.:	
Sugar Bowl	1,680
Do	4,802
Penzoil Pipe	5,400
Crystal Oil Co	270
Forgotson	300
Amoco	2,515
Standard Oil	959
Continental Oil	720
James Forgotsnn	135
Crystal Oil & Heating Co	202
Standard Oil of Kentucky	900
LVO	420
Logue & Patterson	54
Leben Oil	18
James Forgotson	(1)
Phillips	360
Humble	1,800
Do	1,350
Louisiana Gas Interstate	(1)
Delhi Gas Pipe	(1)
Total	21,885
Grand total	172,302

[1] Unknown.

Attachment VI

TOTAL LONG-TERM DEBT AT DEC. 31, 1970, GROUPED ACCORDING TO WEIGHTED COST

Weighted average coupon rate	Number of companies	Total long-term debt outstanding Dec. 31, 1970
3.50 to 3.99 percent	2	$7,558,000
4 to 4.49 percent	6	212,050,599
4.50 to 4.99 percent	14	4,939,055,424
5 to 5.49 percent	19	8,318,490,945
5.50 to 5.99 percent	26	6,781,441,200
6 to 6.49 percent	7	952,594,188
6.50 to 6.99 percent	2	85,590,428
7 to 7.49 percent	0	
7.50 to 7.99 percent	1	11,070,000
Total	[1] 77	21,307,850,784

[1] 77 of the 78 combination companies appear in this table since 1 company, South Beloit Water, Gas & Electric Co., did not have any long-term debt outstanding on Dec. 31, 1970.

FEDERAL POWER COMMISSION,
Washington, July 16, 1971.

Mr. WILBUR SPARKS,
Assistant Counsel,
Subcommittee on Antitrust and Monopoly,
U.S. Senate,
Washington, D.C.

DEAR MR. SPARKS: In a telephone conversation several weeks ago we discussed Chairman Nassikas' testimony before the Senate Subcommittee on Antitrust and Monopoly on S. 403, the divestiture bill.

In view of Chairman Nassikas' statement on page 261 of the transcript, you requested that I state whether I concurred with the Chairman's testimony. Generally speaking, I agree with him. There has been a virtually complete turnabout in the natural gas industry in the past ten years, from a situation of plentiful supply of gas for the distribution and transmission companies at interstate sales rates low enough to be competitive with coal and residual fuel, to the present shortage situation, where there is hardly sufficient gas to meet firm contract requirements. Thus, it appears to me that the present legislation is much like "locking the barn door after the horse has been stolen." Nevertheless, had this legislation been presented ten years ago I would have supported it, and I do not believe this is entirely 20–20 hindsight.

I have long believed that problems we now face have been intensified by the combination utilities; they have been the leaders in using gas in their own electric generating boilers—not to alleviate air pollution, but on the purely economic grounds that it has been cheaper for them to use gas than coal or oil. This Commission contributed to this seeming paradox, yielding to the arguments of the so-called representatives of the consuming public. The result has been frustration of the development of a sound pricing policy for natural gas. It is and has been my opinion that the combination companies have used their gas departments in a way that supported the expansionistic programs of their electric power departments rather than maintaining competitive programs for the expansion of their gas departments.

It is noteworthy that the many difficult and controversial problems involved in pricing gas from the South Louisiana area did not approach a posture for proposed settlement until the combination utilities were segregated from the gas-only distribution utilities.

Sincerely yours,

LAWRENCE J. O'CONNOR, JR., *Commissioner.*

FEDERAL POWER COMMISSION,
Washington, May 14, 1971.

Honorable PHILIP A. HART,
Chairman, Subcommittee on Energy, Natural Resources and the Environment, Committee on Commerce, U.S. Senate, Washington, D.C.

DEAR SENATOR HART: Enclosed is a copy of the Statement and accompanying Appendices which I presented at the hearings before the Subcommittee on Communications and Power, Committee on Interstate and Foreign Commerce, House

of Representatives, on May 6, 1971. The Committee is considering various power plant siting and reliability measures.

My Statement analyzes the various bills in terms of policy and legal considerations. it reviews current projections covering electric power supply and loads throughout the Nation, and fossil fuel conditions. The general energy analysis for the projected summer conditions 1971 is based upon Commission staff reports, as well as reports of the various electric reliability councils. The latter also cover the succeeding five year period. Various appendix materials set forth a number of basic primary facts relating to the composition of the electric utility industry, existing generation and transmission resources and projected plants and lines to meet anticipated load growth over the succeeding years to 1990.

Sincerely,

JOHN N. NASSIKAS, *Chairman.*

Enclosures:

1. Detailed Basic Statement of John N. Nassikas, Chairman, Federal Power Commission, Prepared for Record Purposes, Hearings before the Subcommittee on Communications and Power, Committee on Interstate and Foreign Commerce, House of Representatives, May 5, 1971, with Appendices.

2. Summary Statement of John N. Nassikas, Chairman, Federal Power Commission, Hearings before the Subcommittee on Communications and Power, Committee on Interstate and Foreign Commerce, House of Representatives, May 5, 1971.

STATEMENT OF JOHN N. NASSIKAS, CHAIRMAN, FEDERAL POWER COMMISSION

In response to Chairman Hart's letter of April 23, 1971, I am here to present the views of the Federal Power Commission on S. 403.

Although S. 403 is in the form of an amendment to the Federal Power Act, its practical effect is to add to the antitrust laws a special provision respecting the common ownership of electric utility facilities and gas utility facilities. I believe, therefore, that it will be useful to examine the provisions of S. 403 against a background summarizing the existing powers of the Federal Power Commission, and other agencies, under the antitrust laws.

Under Section 203 of the Federal Power Act, 16 U.S.C. § 824b, approval by the Commission is required before any electric company may merge or consolidate its jurisdictional facilities with similar facilities of another. In proceedings under Section 203, in which a proposed merger involves gas utility property as well as electric utility property, the Commission has asserted its authority to require the applicants to divest the gas properties as a condition of the merger, and it has imposed upon the applicants the burden of demonstrating that the retention of gas properties is consistent with the public interest. See *Commonwealth Edison Co.*, 36 F.P.C. 927 (1966), *aff'd sub nom. Utility Users League* v. *FPC*, 394 F.2d 16 (7th Cir.), *cert. denied*, 393 U.S. 953 (1968). Thus, the Commission exercises control over combination companies where such companies seek to expand through merger or acquisition. However, there is no arbitrary rule that divestiture will automatically be required. The public interest standard is employed to make that determination based upon the facts presented in each individual case.

The Commission also has jurisdiction over the acquisition of jurisdictional facilities by natural gas companies under Section 7 of the Natural Gas Act, 15 U.S.C. § 717f. It should be noted that under present law, the Commission does not have parallel jurisdiction over stock mergers of natural gas companies. To date, the Commission has not been faced with any application to acquire facilities under section 7 involving an asset acquisition of, or by, a combination company.

Aside from its power to control certain mergers and acquisitions of public utility companies, the Commission does not have primary jurisdiction over antitrust questions, and the Commission's issuance of a license for construction of a hydroelectric project does not preclude a collateral antitrust action in the courts. *Pennsylvania W. & P. Co.* v. *Consolidated G.E.L.&P. Co.*, 184 F.2d 552 (4th Cir.), *cert. denied*, 340 U.S. 906 (1950). The Commission has no power to enforce the anti-trust laws or to declare that a certain transaction or course of conduct violates the antitrust laws. *Cf. City of Pittsburgh* v. *FPC*, 237 F.2d 741 (D.C. Cir. 1956) (involving a pipeline application under the Natural Gas Act).

Under existing law, there is no jurisdiction to alter the existing status of a combination company. Jurisdiction attaches only when the combination company seeks to acquire, or be acquired by, another utility.

In addition to the Federal Power Commission's authority over combination companies, the ownership of gas and electric utility properties by registered

holding companies and their subsidiaries is regulated by the Securities and Exchange Commission under the Public Utility Holding Company Act of 1935. I shall refer to the statute and proceedings under it in greater detail later in my testimony. Further, anticompetitive acts and practices by a combination utility which are violative of the Federal Trade Commission Act, the Sherman Act or the Clayton Act may be subject to investigation and court action by the Antitrust Division of the Department of Justice or to administrative action by the Federal Trade Commission.

A blanket statutory prohibition against the continued operation of combination gas-electric utilities as joint enterprises would have far-reaching consequences. It would entail a massive restructuring of the operations of companies which account for more than two-fifths of total electricity sales by private utilities and for a substantial part of total gas sales by utilities and pipelines making direct sales to ultimate consumers. The impact of compulsory divestiture of every combination utility's gas or electric operations would be felt in varying degrees by their customers, employees, stockholders, and bondholders. Whether the overall effect would tend to be favorable or adverse to the public interest can only be determined by a careful and detailed analysis of each company's operations and the territory served.

It is necessary to examine the proposed bill in the context of national policy issues. National policy fosters a strong energy industry dedicated to technological progress and economic growth compatible with the highest attainable environmental standards consistent with adequate service and reasonable price to the consumer. The encouragement of competitive enterprise is one of our important national goals, but in the case of regulated electric and gas utilities it is a goal which has always been conditioned upon other public interest considerations. We recognize that some economies of joint electric gas operations could not be attained if the electric and gas operations of the enterprise were divested from single to multiple ownership and control.

S. 403 is premised on the belief that separately managed gas and electric utilities will out-perform combination utilities. This is a proposition requiring empirical investigations, case by case. On the one hand, we must consider the various possible sources of cost savings with combined operations: for example, one meter reader for gas and electricity, combined inspection and service departments, joint accounting, purchasing, and billing departments, and a common management. Importantly, diversification of combined gas and electric operations may contribute to revenue stability and a lower cost of capital. These advantages, if realized, can be passed on to the utility's customers in the form of lower rates or better service, or both. On the other hand, we should not deny the possibility that direct competition between gas and electricity may induce greater efficiency of performance and effort by each utility to economize on labor and capital and give better service. Competition may also provide more freedom of consumer choice and it will eliminate the danger that one service, either gas or electricity, will be neglected wherever there are advantages for a combination utility to promote one service at the expense of the other.

In the absence of compelling evidence that combination gas and electric utilities do not operate contrary to the public interest, I would not advocate a Congressional mandate for automatic divestiture.

A further consideration is that the existing supply shortages for both gas and electricity limit the opportunities for meaningful gas-electric competition in several sections of the country. Some utilities are being forced to curtail their promotional activities. Moreover, the electric utilities face huge capital requirements to meet environmental standards, while many gas utilities are finding it necessary to seek supplemental supplies and to take other steps to minimize the risk of service interruptions. The problems of adjusting to the persistent inflation must also be considered. In these unsettling circumstances it would seem inadvisable, by compulsory divestiture, to compound the difficulties which have been multiplying for both classes of utilities in recent years and for which there is no early relief in sight.

The bill would amend the Federal Power Act by inserting at the end thereof a new Part IV pertaining to the prohibition of certain combinations of ownership or control in electric and gas utilities. Specifically, Section 403 of the bill provides that after December 31, 1972, it shall be unlawful for any electric utility directly or indirectly to own or operate any facilities used in the production, generation, distribution, or sale of natural or manufactured gas, for heat, light or power, and for any gas utility to own or operate facilities used for the generation, transmission, distribution, or of electric energy for sale.

What will be the impact of enactment of S. 403? In most cases, electric plant owned by combination electric and gas utilities will far exceed gas plant. Consequently, it is reasonable to assume that if this bill is enacted, most combination utilities would elect to dispose of their gas properties.

The debt securities of combination companies consist principally of bonds which are issued and secured by mortgage indentures covering all of the properties. From the limited examinations which staff has made, it appears that most of the indentures contain provisions for release and substitution of property covered by the mortgage but not for division of debt between the combination gas and electric utility and any subsequent purchaser of its gas properties. Usually the provisions require that cash or other property be turned over to the trustee for the bondholders as compensation for the release of property subject to a mortgage indenture. Generally, the indentures provide several alternatives to the utility for the use of proceeds from the sale of property, including the right to withdraw cash to finance property additions, and the use by the trustee of the sales proceeds to redeem bonds. In either event, there should not be any significant impact on the selling combination utility's cost of debt.

On the other hand, there is likely to be a significant impact upon the cost of debt of the purchasing utility which is compelled to finance the acquisition of gas properties with new debt offerings. Several of the combination companies have outstanding bonds with interest rates as low as 2¾ percent. Separation of the gas properties could require financing by the purchaser at substantially higher rates. Thus, the gas consumer might be burdened with substantially higher rates reflecting the higher cost of new financing.

In addition, the bill would prohibit "common control"[1] of any electric utility and any gas utility. The words "electric utility" and "gas utility" and "control" are new to the Federal Power Act and are defined for the purposes of the proposed new Part IV in Section 402.

Appendix A lists electric and gas net plant as of December 31, 1969 and 1970 for 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plants. Appendix A includes subsidiaries of registered public utility holding companies[2] and one nonregistered public utility holding company which owns gas and electric property,[3] but does not include holding company systems in which gas distribution activities are handled by separate distribution companies exempted from the Natural Gas Act by Section 1(c) (15 U.S.C. § 717(c)). The total net gas and electric utility plant of combination electric and gas companies as of December 31, 1969, in relation to the total net utility plant of privately owned electric utilities and interstate natural gas pipeline companies, was 41.3%.

The net electric utility plant portion of total plant was 34.9% of the net utility plant of all privately owned electric utilities and interstate natural gas pipeline companies and the net gas utility plant portion was 6.4% (Appendix A).

The size of the utilities listed in Appendix A varies greatly. The 20 largest companies listed in Appendix A had as of December 31, 1970, total electric net plant of $25,623,719,612, total gas net plant of $3,819,424,780, and total gas and electric net plant of $29,443,144,392.

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[1] Under Section 403(c) and Section 402(c) at least one personal interest group may be affected. The Tenney family owns a large stock interest in Orange and Rockland Utilities, Inc.; Fitchburg Gas and Electric Light Co.; and Brockton Taunton Gas Co. C. H. Tenney II is Chairman of the Board of each of those companies. Orange and Rockland Utilities, Inc. supplies electricity in its entire service area extending for about 37 miles along the west shore of the Hudson River and it distributes natural gas in a smaller area consisting of 38 communities. In addition, Orange and Rockland Utilities, Inc. owns all the stock of two subsidiaries: Rockland Electric Company, an electric distributor in northeastern New Jersey, and Pike County Light & Power Co., an electric distributor in northeastern Pennsylvania. Brockton Taunton Gas Company is a gas distributor in a 1000-square mile-area of east central Massachusetts. Fitchburg Gas & Electric Light Company is a combination gas and electric utility which serves Fitchburg and several surrounding communities in Massachusetts.

[2] H.R. 15516, 91st Congress would have transferred administration of the Public Utility Holding Company Act of 1935 to the Power Commission. The Commission reported in favor of that legislation which was proposed by the Securities and Exchange Commission. A copy of the Commission report is Appendix B.

[3] These companies are: The Connecticut Light and Power Company and the Hartford Electric Light Company (both subsidiaries of Northeast Utilities); New Bedford Gas and Edison Light Company (a subsidiary of New England Gas and Electric Association); New Orleans Public Service, Inc. (a subsidiary of Middle South Utilities, Inc.); Delmarva Power and Light Company; and Michigan Power Company (a subsidiary of American Electric Power Company, Inc.).

Appendix C shows electric and gas revenues for the years 1969 and 1970 of the 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant. As of December 31, 1969, total electric and gas revenues of combination electric and gas companies were 38.8% of total utility operating revenues of all privately owned electric utilities and interstate natural gas pipeline companies. Electric utility operating revenues were 28.1% and gas utility operating revenues were 10.7% of the total (Appendix C). The 20 largest companies listed in Appendix C had for the year 1970 total electric operating revenues of $6,542,784,412, total gas operating revenues of $2,109,517,696, and total electric and gas operating revenues of $8,652,302,108.

Appendix D lists net utility operating income for the years 1969 and 1970 for 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant. As of December 31, 1969, total net operating income of combination gas and electric companies was 41.1% of the net utility operating income of all privately owned electric utilities and interstate natural gas pipeline companies, with net electric operating income representing 33.9% and net gas operating income representing 7.2% of the total (Appendix D). The 20 largest companies listed in Appendix D had for the year 1970 total electric operating income of $1,482,545,127, total gas operating income of $302,986,791, and total electric and gas operating income of $1,785,531,918.

The Public Utility Holding Company Act of 1935[4] limits ownership of gas and electric utility properties by registered holding companies and their subsidiaries. Under the provisions of Section 11(b)(1)(A) of the Public Utility Holding Company Act (15 U.S.C. § 79k(b)(1)(A) a registered holding company is limited to a single (gas or electric) integrated public utility system unless the Securities and Exchange Commission finds, *inter alia*, that an additional system (gas or electric) cannot be operated independently "without the loss of substantial economies". *Securities and Exchange Commission* v. *New England Electric System*, 384 U.S. 176 (1966). Therefore, even if S. 403 is not enacted, there already is a remedy under which the gas properties of registered holding company systems can be divested.[5]

Five registered holding companies and one holding company exempt from registration own gas and electric properties. The five regulated companies are: Michigan Power Company, Delmarva Power and Light Company, the eight gas distribution companies in the New England Electric System, The Connecticut Light and Power Company, and The Hartford Electric Light Company (subsidiaries of Northeast Utilities), New Orleans Public Service, Inc. (subsidiary of Middle South Utilities), and the six subsidiaries of New England Gas and Electric Association, an exempt holding company system (36th Annual Report, Securities and Exchange Commission, page 159). Northeast Utilities has announced that it is negotiating for the sale of the gas properties of The Connecticut Light and Power Company and The Hartford Electric Light Company (Annual Report of Northeast Utilities, 1970, page 14).

Michigan Power Company has been trying to dispose of its gas properties for nearly 4 years. An SEC order of July 24, 1967 authorized the sale of those properties to Michigan Gas Utilities Company (MGU). However, in 1969 MGU informed Michigan Power that it was unable to go through with the acquisition. Michigan Power is "currently exploring alternate methods of accomplishing the divestment of its gas utility assets" (Michigan Power Company FPC Form No. 1, 1970, page 108).

The New England Electric System (NEES) is negotiating with prospective purchasers for the sale of its four smallest gas distribution companies: Central Massachusetts Gas Company, North Hampton Gas Light Company, Norwood Gas Company, and Wachusett Gas Company (1970 Annual Report, New England Electric System, page 11). It should be noted that NEES owns five larger gas

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[4] Registered holding companies and their subsidiaries would not be affected by S. 403 because Section 318 (16 U.S.C. 825q) of the Power Act would preclude Federal Power Act jurisdiction.

[5] In January of 1971, the Ash Council rendered its report on selected regulatory agencies: *A New Regulatory Framework*. Among other things the Ash Council report (page 112) recommends transfer of the administration of the Public Utility Holding Company Act to the FPC. Appendix E consists of selected pages from the FPC's Ash Council comment relating to transfer of the administration of the Public Utility Holding Company Act.

subsidiaries: Central Massachusetts Gas Company, Lawrence Gas Company, Lynn Gas Company, Mystic Valley Gas Company, and North Shore Gas Company.[6]

All of the gas properties of the Delmarva System are owned by Delmarva Power & Light Company. Delmarva Power & Light Company of Maryland and Delmarva Power & Light Company of Virginia distribute electricity on the eastern shore of Maryland and Virginia. I am not aware at this time of any proceeding before the Securities and Exchange Commission under Section 11(b)(1)(A) to divest the gas properties of Delmarva Power & Light Company.

New Orleans Public Service, Inc. distributes electricity and gas in the City of New Orleans and it also operates the public transit system in that city and two motor coach lines which extend for short distances into the adjacent Parishes of St. Bernard and Jefferson. I am not aware at this time of any proceeding before the Securities and Exchange Commission under Section 11(b)(1)(A) to divest the gas properties of New Orleans Public Service.

On May 5, 1971, the Securities and Exchange Commission issued Holding Company Act Release No. 17116 authorizing the acquisition of Arkansas-Missouri Power Company (a combination utility) by Middle South Utilities, Inc. A condition of that order requires Middle South to dispose of Arkansas-Missouri's gas properties within one year.

Since New England Gas and Electric Association is not a registered holding company the Securities and Exchange Commission does not have jurisdiction to order divestment of a second system. In addition to New Bedford Gas and Edison Light Company (listed in Appendix A) New England Gas and Electric Association owns the following subsidiaries: Cambridge Steam Corp., Canal Electric Company (a generating company which owns a 560-Mw steam-electric plant situated on the Cape Cod Canal) and Worcester Gas Light Company, a gas distributor. Presumably S. 403 would apply to New England Gas and Electric Association.

ANTI-TRUST POLICY AND REGULATED UTILITIES

Congress and the courts have indicated that antitrust policy is directed not only towards economic goals, but also contains both social and political aims. The historical ethic of local control and small business establishments is steeped in our heritage. "* * * Competition is our fundamental national policy * * *". *U.S.* v. *Philadelphia National Bank*, 374 U.S. 321 (1963). In order to achieve the "desirable" objective of increased competition, certain sacrifices in efficiency may be necessitated. (See Legislative History of the 1950 Amendments to Section 7 of the Clayton Act. Also, *Brown Shoe Co.* v. *U.S.*, 370 U.S. 294 (1962)). It is not clear to us, however, that such social and political aims should override a broader "public interest".

Competition has not been deemed desirable for all segments of the economy. We recognize that certain industries, among them the electric utility and gas industries, are ones in which Congress has decided that the public interest is best served, not by free competition but rather by direct and uniform regulation of certain phases of their interstate operations. The Supreme Court has indicated that in the area of public utilities, competition may not itself be a national policy. *F.C.C.* v. *RCA Communications, Inc.*, 346 U.S. 86 (1953) at 91–96.

Justice Brandeis, in his eloquent dissent in *New State Ice Co.* v. *Liebman*, 285 U.S. 262 (1932) at 281, summaried the advantages of regulating certain types of industries:

[The certificate of public convenience and necessity] was unknown to the common law. It is a creature of the machine age, in which plants have displaced tools and businesses are substituted for trades. The purpose of requiring it is to promote the public interest by preventing waste. Particularly in those businesses in which interest and depreciation charges on plant constitute a large element in the cost of production, experience has taught that the financial burdens incident to unnecessary duplication of facilities are likely to bring high rates and poor

[6] By Securities and Exchange Commission order of March 19, 1964, New England Electric System, Holding Company Act Release No. 15035 (not reported with Commission opinion 41 S.E.C. 888), NEES was directed to dispose of the gas properties controlled by it. The S.E.C.'s order has been twice affirmed by the Supreme Court: *S.E.C.* v. *New England Electric System*, 384 U.S. 176 (1966) and *S.E.C.* v. *New England Electric System*, 390 U.S. 207 (1968).

service. There, cost is usually dependent, among other things, upon volume; and division of possible patronage among competing concerns may so raise the unit cost of operation as to make it impossible to provide adequate service at reasonable rates. The introduction in the United States of the certificate of public convenience and necessity marked the growing conviction that under certain circumstances free competition might be harmful to the community and that, when it was so, absolute freedom to enter the business of one's choice should be denied.

In order to sacrifice the benefits of competition, there must be some paramount public interest.

The Commission has attempted to harmonize, when possible, antitrust and regulatory policies, guided by the mandates of the legislature and the judiciary. In *Northern Natural Gas Co.* v. *Federal Power Commission*, 399 F. 2d 958, 959, 971 (D.C. Cir. 1968), the court observed:

> . . . it appears that the basic goal of direct governmental regulation through administrative bodies and the goal of indirect governmental regulation in the form of antitrust law is the same—to achieve the most efficient allocation of resources possible . . . This analysis suggests that the two forms of economic regulation complement each other.
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> * * * * * * *
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> Unless the Commission finds that other important considerations militate in favor of the joint venture and that these considerations are more beneficial to the public than additional competition, the antitrust policies should be respected * * *.

On remand, the Commission concluded:

> * * * even though it were assumed that there could be potential competition between American Natural and Great Lakes and this competition was affected adversely to some degree by joint ownership and that American Natural was in a position to foreclose to some extent Canadian gas supplies that might be available through Great Lakes, it is our opinion that these benefits of United States ownership relating to operations and financing would override any limited adverse effects on competition.

CONCLUSION

I believe that the forced divestment of the gas or electric properties of combination utilities (which would be required by S. 403) could result in a significant increase in rates to the ultimate consumers and other undesirable disruptions in utility service, as well as in the national economy, for the following reasons:

1. Economies of scale inherent in combination gas and electric utilities would not necessarily be offset by increased competition between the divested gas and electric utilities.

2. It is questionable whether dividing managements and technological skills will improve management capacity to provide the same level of service to the consumer as an integrated combination utility.

3. Refinancing may sharply increase capital costs.

4. It would require vast adjustments in utility structures and capital markets, with a possible adverse impact on the national economy and our economic productivity goals, if over 40% of the electric and gas utility industries were compelled to divest their combined electric and gas properties into separate operations.

5. In the absence of compelling evidence that the public interest is not being served by the combination gas and electric utilities, it is undesirable as a matter of congressional policy to mandate divestiture.

Divestiture of the gas or electric assets and replacement of existing debt structures ranging from 2.5 to 6 percent with new debt at 8 percent will increase the affected utilities' cost of debt. Appendix F lists the weighted average coupon rate as of December 31, 1970 for all utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant. Appendix G shows the annual difference in interest charges which would result if the gas property shown on Appendix A is refinanced at 8 percent instead of the weighted average coupon rate shown in Appendix F. Since it is not possible to predict whether future purchases of divested gas properties would be by existing gas distribution companies, natural gas pipeline companies, or new corporate entities, it is impossible to predict the percentages of debt and equity in the capitalization of a purchasing company in any specific case.

As I have previously indicated, I would be opposed to S. 403 even if prevailing interest rates were not at substantially higher levels than historical embedded debt costs. Regardless of interest rates, there will probably be an adverse impact on service to the public arising from dismantling and reorganizing over 40 percent of the Nation's gas and electric utility industry. The present state of the capital market is an additional complicating factor that counsels against enactment of the proposed legislation.

List of Appendices to the prepared statement of John N. Nassikas, Chairman, Federal Power Commission, presented to the Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, United States Senate, May 13, 1971.

Appendix A: Electric and gas net utility plant as of December 31, 1969 and 1970 for 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant.

Appendix B: Commission report in favor of H.R. 15516, 91st Congress, a bill to transfer administration of the Public Utility Holding Company Act of 1935 to the Federal Power Commission.

Appendix C: Electric and gas revenues for the years 1969 and 1970 of the 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant.

Appendix D: Net utility operating income for the years 1969 and 1970 for 78 utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant.

Appendix E: Selected pages from the Federal Power Commission's comment on the Ash Council Report.

Appendix F: The weighted average coupon rate as of December 31, 1970 for all utilities filing FPC Form Nos. 1 or 2 which own both gas and electric plant.

Appendix G: Annual difference in interest charges which would result if the gas property shown on Appendix A is refinanced at 8 percent instead of the weighted average coupon rate shown in Appendix F.

Company	Net utility plant, 1969					Net utility plant, 1970				
		Electric		Gas			Electric		Gas	
	Total plant	Plant	Percent of total	Plant	Percent of total	Total plant	Plant	Percent of total	Plant	Percent of total
Arizona Public Service Co	$481,534,756	$406,301,993	84.4	$61,288,002	12.7	$508,490,968	$427,129,724	84.0	$65,439,452	12.9
Arkansas-Missouri Power Co	41,725,775	34,320,430	82.3	7,405,345	17.7	42,807,319	35,152,089	82.1	7,655,230	17.9
Baltimore Gas & Electric Co	854,951,264	674,888,182	78.9	145,311,773	17.0	1,033,810,460	841,731,866	81.4	152,633,184	14.8
Boston Gas Co	86,682,847	2,419,842	2.8	84,263,005	97.2	97,162,207	2,706,781	2.8	94,455,426	97.2
California-Pacific Utilities Co	57,012,852	26,323,330	46.2	17,237,121	30.2	62,139,193	27,605,704	44.4	19,913,764	32.0
Central Hudson Gas & Electric Corp	211,743,564	171,177,997	80.8	31,884,159	15.1	232,446,803	191,559,157	82.4	32,252,824	13.9
Central Illinois Light Co	251,340,377	178,963,183	71.2	68,883,240	27.4	299,660,535	206,466,224	68.9	89,770,791	30.0
Central Illinois Public Service Co	351,858,034	291,548,928	82.9	60,309,106	17.1	396,130,875	332,854,651	84.0	63,276,224	16.0
Central Kansas Power Co., The	18,078,928	16,478,636	91.1	1,525,795	8.4	20,026,615	18,385,710	91.8	1,566,722	7.8
Central Louisiana Electric Co., Inc	174,002,098	154,978,405	89.1	11,660,811	6.7	194,637,863	174,108,898	89.5	12,030,180	6.2
Central Telephone & Utilities Corp	132,207,089	102,597,714	77.6	25,505,533	19.3	134,312,805	103,101,255	76.8	26,269,724	19.6
Cheyenne Light, Fuel & Power Co	12,788,183	7,703,864	60.2	4,008,372	31.3	12,794,188	7,733,085	60.4	4,023,511	31.4
Cincinnati Gas & Electric Co., The	549,777,220	433,470,026	78.8	95,775,436	17.4	627,918,432	503,601,479	80.2	99,722,934	15.9
Citizens Utilities Co	40,451,529	33,339,050	82.4	3,329,285	8.2	44,216,300	35,511,100	80.3	3,614,683	8.2
Community Public Service Co	76,674,844	75,370,089	98.3	1,304,755	1.7	80,007,205	78,656,811	98.3	1,350,394	1.7
Connecticut Light & Power Co., The	589,124,946	521,388,236	88.5	67,736,710	11.5	690,815,438	617,292,019	89.4	73,523,469	10.6
Consolidated Edison Co. of New York, Inc	3,793,299,376	3,397,324,753	89.6	202,117,779	5.3	4,090,793,485	3,676,435,887	89.9	213,450,793	4.2
Consumers Power Co	1,642,977,962	1,056,911,382	64.3	540,979,064	32.9	1,803,279,573	1,179,495,149	65.4	574,988,219	31.9
Dayton Power & Light Co., The	454,351,808	377,949,813	83.2	71,092,336	15.6	506,169,172	426,824,812	84.3	74,080,044	14.6
Delmarva Power & Light Co	277,834,733	226,406,062	81.5	34,077,162	12.3	327,049,275	269,180,860	82.3	35,937,073	11.0
Fitchburg Gas & Electric Light Co	19,274,372	15,108,296	78.4	3,538,433	18.4	20,350,779	15,724,119	77.3	3,992,366	19.6
Florida Public Utilities Co	13,754,989	5,583,484	40.6	7,493,221	53.8	14,153,743	5,811,663	41.0	7,078,378	50.0
Gulf States Utilities Co	736,268,014	757,774,762	95.2	13,045,431	1.6	879,525,887	842,318,090	95.8	13,067,445	1.5
Hartford Electric Light Co., The	321,432,770	308,299,460	95.0	16,273,309	5.0	381,498,420	364,209,015	95.5	17,289,405	4.5
Illinois Power Co	687,344,843	522,207,955	76.0	165,087,644	24.0	756,492,486	583,127,518	77.1	173,332,184	22.9
Interstate Power Co.[1]	178,319,455	166,438,109	93.3	11,443,037	6.4	181,826,413	169,247,231	93.1	12,200,845	6.7
Iowa Electric Light & Power Co	177,935,660	146,289,242	82.2	28,223,223	15.9	203,171,893	167,792,678	82.6	31,608,139	15.6
Iowa-Illinois Gas & Electric Co.[1]	264,265,061	191,539,152	72.5	67,866,316	25.7	292,401,554	203,938,063	72.2	72,117,753	25.5
Iowa Power & Light Co	225,243,999	183,748,685	81.6	35,518,063	15.8	236,253,513	192,812,365	81.6	37,327,490	15.8
Iowa Public Service Co.[1]	162,411,260	130,793,810	80.5	25,560,215	15.7	186,026,705	152,421,246	81.9	27,198,125	14.6
Iowa Southern Utilities Co	84,887,523	71,889,966	84.7	10,315,470	12.2	85,898,794	72,957,237	84.0	10,725,964	12.3
Kansas Power & Light Co., The	239,478,655	206,571,856	86.3	32,554,815	13.6	273,269,523	230,180,455	84.2	42,738,868	15.6
Lake Superior District Power Co	32,482,779	29,165,052	89.8	3,175,270	9.8	33,726,002	29,557,950	87.7	4,000,012	11.9
Long Island Lighting Co	876,381,844	666,103,615	76.0	171,629,455	19.6	972,951,775	749,591,813	77.0	184,105,976	18.9
Louisville Gas & Electric Co	295,711,403	227,106,877	76.8	62,129,625	21.0	318,907,794	245,893,479	77.1	66,182,904	20.8
Madison Gas & Electric Co	80,938,003	53,691,364	66.3	24,911,284	30.8	93,366,198	63,717,486	68.2	27,332,815	29.3
Michigan Power Co	32,664,418	13,829,713	42.3	18,711,378	57.3	34,640,817	15,043,919	43.4	19,491,916	56.3
Missouri Edison Co	26,180,914	20,138,240	76.9	6,042,674	23.1	28,302,799	22,194,804	78.4	6,107,995	21.6

Missouri Power & Light Co	69,798,593	56,326,270	80.7	13,450,400	19.3	72,595,407	58,246,910	80.2	14,326,574	19.7
Missouri Public Service Co	163,845,394	145,922,386	89.1	12,234,420	7.5	169,627,872	151,639,785	89.3	12,340,251	7.3
Missouri Utilities Co	37,483,307	23,263,947	62.1	11,613,278	31.0	39,444,024	24,407,276	61.9	12,325,524	31.2
Montana-Dakota Utilities Co.[1]	139,306,771	68,860,310	49.4	63,873,784	45.9	150,237,172	68,888,155	45.9	74,571,686	49.6
Montana Power Co., The	249,340,989	186,046,955	74.6	54,660,693	21.9	252,592,302	189,391,056	75.0	53,662,510	21.2
Mount Carmel Public Utility Co	3,863,122	2,623,714	67.9	1,239,408	32.1	3,883,670	2,571,376	66.2	1,312,294	33.8
New Bedford Gas & Edison Light Co	56,040,329	44,900,597	80.1	11,139,732	19.9	62,005,521	50,181,471	80.9	11,824,050	19.1
New Orleans Public Service Inc	226,651,774	182,446,155	80.5	33,312,747	14.7	230,821,663	186,110,677	80.6	34,040,894	14.7
New York State Electric & Gas Corp	647,199,898	555,830,474	85.9	73,511,617	11.4	676,842,975	584,148,821	86.3	75,013,246	11.1
Niagara Mohawk Power Corp	1,431,696,805	1,171,795,251	81.8	235,449,810	16.4	1,512,418,249	1,245,579,378	82.4	241,288,407	16.0
Northern Indiana Public Service Co	667,619,649	393,752,717	58.5	251,730,164	37.7	711,008,437	420,018,580	59.1	264,190,912	37.2
Northern States Power Co. (Minnesota)	935,226,518	821,308,323	87.8	79,683,275	8.5	1,055,696,015	949,751,878	89.1	81,036,249	7.7
Northern States Power Co. (Wisconsin)	110,125,999	91,502,995	83.1	15,123,146	13.7	119,735,686	92,188,856	83.3	15,050,845	13.6
Northwestern Public Service Co	47,688,738	33,559,831	70.4	14,123,907	29.6	50,637,197	36,096,967	71.3	14,540,230	28.7
Orange & Rockland Utilities, Inc.[1]	188,146,531	148,324,381	78.8	32,372,544	17.2	211,610,264	168,538,094	79.6	35,397,692	16.7
Otter Tail Power Co	95,205,689	94,909,274	99.7	86,593	.1	97,983,365	97,708,524	99.7	79,707	.1
Pacific Gas & Electric Co	3,746,682,022	2,786,629,536	74.4	759,317,821	20.3	4,010,334,093	2,976,886,377	74.2	798,615,684	19.9
Philadelphia Electric Co	1,607,034,753	1,356,214,897	84.4	174,605,285	10.9	1,887,208,376	1,603,527,257	85.0	188,523,830	10.0
Public Service Co. of Colorado	613,049,783	476,644,265	77.7	114,947,511	18.8	677,569,675	553,745,750	81.7	121,812,171	18.0
Public Service Electric & Gas Co	2,170,796,288	1,716,711,437	79.1	433,346,248	20.0	2,441,370,422	1,978,704,814	81.0	442,282,102	18.1
Rochester Gas & Electric Corp	416,280,870	292,180,086	70.2	96,451,522	23.2	433,997,892	305,596,935	70.4	100,228,327	23.1
St. Joseph Light & Power Co	48,533,202	45,533,376	93.8	1,417,522	2.9	50,010,609	47,005,677	94.0	1,480,123	3.0
San Diego Gas & Electric Co	423,676,882	317,107,781	74.8	80,160,326	18.9	469,634,975	351,855,303	74.9	89,258,561	19.0
Sierra Pacific Power Co	154,161,002	116,923,502	75.8	13,704,845	8.9	171,025,368	126,231,997	73.8	15,110,768	8.8
South Beloit Water, Gas & Electric Co	3,113,911	1,551,053	49.8	1,147,747	36.9	3,280,738	1,674,912	51.1	1,182,573	36.0
South Carolina Electric & Gas Co	430,557,058	365,236,573	84.8	59,260,438	13.8	511,718,086	432,926,295	84.6	72,034,159	14.1
Southern California Edison Co	2,812,133,437	2,809,141,516	99.9	379,616		3,029,909,440	3,026,938,225	99.9	378,703	
Southern Indiana Gas & Electric Co	113,908,981	94,140,418	82.6	18,204,986	16.0	125,624,154	104,893,851	83.5	19,094,445	15.2
Superior Water, Light & Power Co	13,196,431	6,536,327	49.5	4,111,363	31.2	13,317,614	6,548,878	49.2	4,169,513	31.3
Toledo Edison Co., The	257,188,458	254,372,924	98.9	2,348,367	.9	281,800,955	278,976,454	99.9	2,455,177	.9
Tucson Gas & Electric Co	145,265,729	125,665,320	86.5	15,242,510	10.5	159,403,064	138,488,434	86.9	16,330,480	10.2
UGI Corp	133,544,630	29,519,804	22.1	100,070,951	74.9	141,402,195	31,727,137	22.4	105,603,349	74.7
Union Electric Co	1,111,223,344	1,094,310,983	98.5	7,689,609	.7	1,223,263,505	1,206,580,127	98.6	7,892,384	.1
Union Light, Heat & Power Co., The[1]	51,843,953	29,145,593	56.2	21,904,797	42.3	57,642,940	31,554,468	57.7	24,914,673	43.2
Virginia Electric & Power Co	1,447,023,420	1,401,059,577	96.8	38,917,176	2.7	1,708,999,517	1,660,338,329	97.2	41,502,549	2.4
Washington Water Power Co., The	300,119,224	249,806,443	83.2	43,395,515	14.5	318,624,641	265,042,649	83.2	46,329,170	14.5
Wisconsin Michigan Power Co	140,662,879	126,323,004	89.8	14,339,875	10.2	161,914,606	146,928,527	90.7	14,986,079	9.3
Wisconsin Power & Light Co	262,897,634	218,347,162	83.1	36,089,135	1.4	285,684,062	235,907,319	82.6	37,264,175	13.0
Wisconsin Public Service Co	240,058,418	181,309,839	75.5	45,845,970	19.1	265,759,300	203,080,919	76.4	47,688,874	17.9
Arkansas Louisiana Gas Co	303,745,265	1,024,909	.3	302,720,356	99.7	312,659,319	955,346	.3	311,703,973	99.7
Total	36,632,431,737	30,019,861,458	81.9	5,528,358,786	15.1	40,338,778,327	33,314,646,035	82.6	5,853,726,314	14.5

[1] Companies also file annual reports, FPC form No. 2.

Source of data on these sheets: FPC form Nos. 1 and 2 for 1969 and 1970

NET UTILITY PLANT, DEC. 31, 1969

I. Privately owned electric utilities	$71,449,252,927
II. Interstate Natural Gas Pipeline companies [1]	14,647,469,463
Total	86,096,722,390
III. Combination electric and gas companies:	
Net gas utility plant	5,528,358,785
Percent of total	6.4
Net electric utility plant	$30,019,861,458
Percent of total	34.9
Total net gas and electric utility plant	$35,548,220,244
Percent of total	41.3

[1] Data for 1970 not compiled.

Appendix B

FEDERAL POWER COMMISSION,
Washington, D.C., July 13, 1970.

H.R. 15516, 91st Congress. To transfer Public Utility Holding Company Act to Federal Power Commission.

Hon. HARLEY O. STAGGERS,
Chairman, Committee on Interstate and Foreign Commerce, House of Representatives, Rayburn House Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: In response to your request of January 26, 1970, we enclose three copies of the report of the Federal Power Commission on the subject bill.

The Office of Management and Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

JOHN N. NASSIKAS, *Chairman.*

FEDERAL POWER COMMISSION REPORT ON H.R. 15516—91ST CONGRESS

A bill to provide for the transfer to the Federal Power Commission of all functions and administrative authority now vested in the Securities and Exchange Commission under the Public Utility Holding Company Act of 1935.

H.R. 15516 would transfer all the functions and administrative authority vested in the Securities and Exchange Commission under the provisions of the Public Utility Holding Company Act of 1935 to the Federal Power Commission. The bill would retain in the SEC with respect to public utility holding companies, the responsibility which it now exercises with respect to publicly owned corporations generally, e.g. proxy solicitations, insider trading restrictions, and reports to investors (Securities Act of 1933 and the Securities Exchange Act of 1934).

In 1935, in response to the considerable concern over the growth of public utility holding companies, Congress enacted the Public Utility Holding Company Act and directed the Securities and Exchange Commission to undertake the task of simplifying electric and gas holding company systems. To assist it in the discharge of this responsibility the SEC was given broad authority over the operations of registered holding companies, including their subsidiaries. To prevent the possibility of duplicative regulation, the Federal Power Act was amended in 1935 to provide (in section 318) that if any person would be subject both to a requirement of the Public Utility Holding Company Act or one promulgated thereunder and a requirement of the Federal Power Act, the former alone shall apply.

As early as 1949, the first Hoover Commission's task force report on the Independent Regulatory Commissions anticipated the desirability of a reassignment of functions once the SEC had completed "the integration and corporate simplification functions which lie outside the areas paralleled by the Federal Power Commission. That work is self-liquidating, and will be completed at some foreseeable time in the future . . ." *Task Force Report on Regulatory Commissions (Appendix N) prepared for the Commission on Organization of the Executive Branch of the Government* (January 1949), p. 149. The task force concluded:

Upon substantial completion of the integration and corporate simplification program under section 11, the remaining powers and functions of the Securities and Exchange Commission under the Holding Company Act will then largely overlap and parallel these functions of the Federal Power Commission. At that time, the functions of both agencies in this field should be reexamined, integrated and

placed in a single agency. The manner of such combination of functions should not be settled now, but should be left for determination in the light of the circumstances existing when the rearrangement is made. (id., at p. 150)

We concur in the SEC's judgment, as expressed in the letter of Commissioner Owens dated December 2, 1969, to the Speaker of the House of Representatives, that the contemplated change in the nature of the principal problems arising in administration of the Public Utility Holding Company Act has taken place, so that transfer of functions is now timely. The Federal Power Commission, therefore, supports enactment of H.R. 15516.

The Office of Management and Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

JOHN N. NASSIKAS, *Chairman.*

APPENDIX C—COMBINATION ELECTRIC AND GAS COMPANIES

Company	Revenues, 1969		Revenues, 1970	
	Electric	Gas	Electric	Gas
Arizona Public Service Co	$95, 581, 424	$35, 445, 127	$105, 817, 335	$39, 048, 948
Arkansas-Missouri Power Co	18, 295, 587	4, 383, 412	19, 724, 307	4, 874, 926
Baltimore Gas & Electric Co	238, 805, 696	88, 029, 785	229, 063, 017	95, 919, 728
Boston Gas Co	1, 715, 971	56, 816, 223	2, 001, 925	62, 663, 215
California-Pacific Utilities Co	10, 584, 315	7, 757, 005	11, 222, 236	9, 201, 095
Central Hudson Gas & Electric Co	53, 171, 837	10, 369, 958	56, 605, 912	11, 333, 465
Central Illinois Light Co	46, 198, 812	33, 304, 944	51, 536, 337	37, 734, 949
Central Illinois Public Service Co	90, 520, 889	26, 106, 903	97, 544, 004	29, 292, 348
Central Kansas Power Co., The	6, 485, 266	1, 278, 287	6, 991, 005	1, 331, 158
Central Louisiana Electric Co., The	34, 893, 292	5, 232, 640	39, 695, 150	5, 486, 532
Central Telephone & Utilities Corp	33, 508, 265	29, 204, 460	35, 545, 302	29, 512, 679
Cheyenne Light, Fuel & Power Co	4, 295, 748	3, 597, 863	4, 460, 371	4, 002, 435
Cincinnati Gas & Electric Co., The	145, 082, 739	79, 560, 034	158, 061, 896	80, 006, 902
Citizens Utilities Co	11, 407, 511	26, 13, 019	13, 078, 933	2, 671, 789
Community Public Service Co	32, 296, 724	792, 007	34, 797, 189	825, 579
Connecticut Light & Power Co., The	139, 112, 587	26, 206, 611	151, 971, 071	28, 733, 158
Consolidated Edison Co. of New York, Inc	854, 790, 997	111, 425, 495	959, 599, 550	119, 323, 369
Consumers Power Co	307, 999, 678	240, 535, 782	334, 904, 154	273, 873, 680
Dayton Power & Light Co., The	105, 030, 378	55, 696, 191	122, 140, 619	57, 878, 714
Delmarva Power & Light Co	58, 352, 991	17, 384, 402	64, 295, 317	18, 336, 942
Fitchburg Gas & Electric Light Co	6, 411, 920	2, 147, 998	6, 995, 962	2, 441, 544
Florida Public Utilities Co	3, 175, 786	4, 362, 089	3, 651, 081	4, 805, 467
Gulf States Utilities Co	167, 567, 279	5, 349, 088	178, 266, 501	5, 821, 568
Hartford Electric Light Co., The	85, 851, 286	6, 901, 818	92, 547, 360	7, 375, 016
Illinois Power Co	138, 908, 660	73, 825, 262	149, 046, 174	81, 221, 316
Interstate Power Co	44, 821, 923	11, 959, 910	47, 280, 875	12, 008, 873
Iowa Electric Light & Power Co	48, 178, 993	28, 187, 251	51, 410, 449	31, 013, 625
Iowa-Illinois Gas & Electric Co	45, 448, 376	50, 415, 371	48, 437, 753	55, 588, 574
Iowa Power & Light Co	50, 709, 094	26, 806, 157	54, 915, 334	27, 747, 625
Iowa Public Service Co	38, 301, 945	29, 125, 034	41, 004, 820	30, 431, 043
Iowa Southern Utilities Co	23, 992, 872	8, 183, 254	24, 821, 592	8, 767, 627
Kansas Power & Light Co., The	65, 019, 063	27, 948, 445	70, 675, 173	28, 746, 668
Lake Superior District Power Co	9, 976, 634	2, 491, 742	10, 501, 963	3, 020, 016
Long Island Lighting Co	205, 598, 546	78, 767, 137	220, 264, 546	84, 709, 874
Louisville Gas & Electric Co	73, 786, 241	38, 458, 218	87, 267, 973	41, 494, 237
Madison Gas & Electric Co	18, 940, 646	13, 656, 077	21, 267, 020	14, 696, 988
Michigan Power Co	5, 783, 071	12, 375, 784	6, 364, 682	14, 136, 187
Missouri Edison Co	6, 754, 264	952, 946	7, 636, 467	1, 182, 912
Missouri Power & Light Co	24, 520, 918	5, 696, 727	26, 841, 143	6, 394, 349
Missouri Public Service Co	29, 879, 936	6, 935, 749	38, 831, 220	7, 632, 311
Missouri Utilities Co	10, 874, 308	6, 288, 749	11, 612, 657	7, 743, 848
Montana-Dakota Utilities Co	23, 011, 462	28, 119, 093	24, 259, 114	31, 128, 687
Montana Power Co., the	53, 033, 002	27, 509, 839	56, 680, 676	29, 744, 669
Mt. Carmel Public Utility Co	1, 739, 535	572, 515	1, 825, 874	617, 509
New Bedford Gas & Edison Light Co	23, 796, 669	7, 556, 870	26, 411, 905	9, 261, 244
New Orleans Public Service Inc	68, 831, 345	17, 554, 190	72, 043, 548	17, 897, 903
New York State Electric & Gas Corp	137, 129, 863	37, 612, 312	156, 951, 459	40, 216, 639
Niagara Mohawk Power Corp	337, 850, 332	111, 136, 973	399, 389, 296	118, 214, 290
Northern Indiana Public Service Co	119, 699, 230	147, 658, 472	124, 513, 000	175, 272, 164
Northern States Power Co. (Minnesota)	241, 665, 546	46, 502, 304	265, 421, 925	50, 457, 762
Northern States Power Co. (Wisconsin)	36, 638, 859	6, 106, 006	39, 619, 350	6, 891, 190
Northwestern Public Service Co	11, 893, 805	9, 320, 206	13, 054, 370	10, 004, 832
Orange & Rockland Utilities, Inc	38, 825, 934	18, 143, 618	43, 995, 078	22, 277, 500
Otter Tail Power Co	31, 191, 187	36, 727	34, 153, 292	32, 324
Pacific Gas & Electric Co	672, 750, 764	443, 751, 037	704, 140, 959	474, 295, 943
Philadelphia Electric Co	351, 954, 762	75, 149, 495	408, 959, 688	80, 960, 954
Public Service Co. of Colorado	123, 069, 643	63, 134, 560	130, 908, 806	69, 279, 067
Public Service Electric & Gas Co	454, 055, 491	229, 970, 331	492, 954, 437	248, 297, 130
Rochester Gas & Electric Corp	76, 249, 891	50, 014, 769	93, 076, 297	54, 004, 776
St. Joseph Light & Power Co	12, 593, 474	687, 622	14, 309, 596	790, 115

APPENDIX C—COMBINATION ELECTRIC AND GAS COMPANIES—Continued

Company	Revenues, 1969		Revenues, 1970	
	Electric	Gas	Electric	Gas
San Diego Gas & Electric Co	$97,665,611	$57,385,426	$108,183,393	$61,946,779
Sierra Pacific Power Co	27,441,470	4,354,697	30,763,859	4,771,486
South Beloit Water ,Gas & Electric Co	1,746,443	989,931	1,879,057	1,053,095
South Carolina Electric & Gas Co	87,832,275	25,171,942	101,187,424	27,994,375
Southern California Edison Co	642,124,387	146,387	720,661,464	148,785
Southern Indiana Gas & Electric Co	29,976,878	11,860,551	31,887,574	13,802,056
Superior Water, Light & Power Co	4,353,382	2,647,266	4,649,149	2,727,535
Toledo Edison Co., The	85,884,264	1,313,827	91 789,216	1,430,347
Tucson Gas & Electric Co	37,983,647	11,359,450	44,667,156	12,625,178
UGI Corp	9,642,076	48,496,119	11,209,395	56,461,996
Union Electric Co	252,012,034	2,824,926	282,414,537	3,158,151
Union Light, Heat & Power Co., The	18,413,671	13,497,765	20,094,120	14,042,937
Virginia Electric & Power Co	305,770,229	20,670,139	353,151,313	21,728,502
Washington Water Power Co., The	48,848,755	18,938,983	50,665,094	20,161,140
Wisconsin Michigan Power Co	32,532,768	9,016,631	35,130,908	9,345,966
Wisconsin Power & Light Co	70,455,169	21,645,623	75,169,526	22,718,842
Wisconsin Pubic Service Co	57,567,132	31,724,702	67,101,714	34,993,963
Arkansas Louisiana Gas Co	539,080	151,574,211	474,254	165,891,369
Total	7,966,983,779	3,030,729,977	8,832,442,299	3,303,678,549

Source : FPC form Nos. 1 and 2 for 1969 and 1970.

UTILITY OPERATING REVENUES, 1969

I. Privately owned electric utilities [1]	$21,085,458,378
II. Interstate natural gas pipeline companies [1]	7,292,305,864
Total	28,377,764,242
III. Combination electric and gas companies:	
Gas utility operating revenues	$3,030,729,977
Percent of total	10.7
Electric utility operating revenues	$7,966,983,779
Percent of total	28.1
Total electric and gas operating revenues	$10,977,713,756
Percent of total	38.8

[1] Data for 1970 not compiled.

Company	Net utility operating income 1969					Net utility operating income 1970				
		Electric		Gas			Electric		Gas	
	Total income[1]	Income	Percent of total	Income	Percent of total	Total income[1]	Income	Percent of total	Income	Percent of total
Arizona Public Service Co	$28,566,463	$24,693,469	86.4	$3,940,402	13.8	$31,948,101	$28,037,700	87.8	$3,966,263	12.2
Arkansas-Missouri Power Co	2,964,536	2,562,782	86.4	401,723	13.6	3,022,513	2,671,792	88.4	350,721	11.6
Baltimore Gas & Electric Co	57,723,335	45,815,003	79.4	11,676,216	20.2	67,406,702	53,843,963	79.9	13,297,919	19.7
Boston Gas Co	4,679,457	66,940	1.4	4,612,512	98.6	5,362,840	59,727	1.1	5,303,113	98.9
California-Pacific Utilities Co	3,569,303	1,636,696	45.9	1,099,673	30.8	3,886,213	1,646,590	42.4	1,341,528	34.5
Central Hudson Gas & Electric Corp	13,937,787	11,803,965	84.7	2,133,876	15.3	12,976,325	10,919,621	84.2	2,056,704	15.6
Central Illinois Light Co	15,781,119	11,117,573	70.4	4,665,123	29.5	18,272,508	12,816,935	70.1	5,512,368	30.2
Central Illinois Public Service Co	24,856,277	20,661,584	83.2	4,183,694	16.9	26,476,330	22,190,050	83.8	4,286,280	16.2
Central Kansas Power Co, The	1,750,035	1,157,428	93.3	81,494	6.6	1,494,476	1,410,500	94.4	82,784	5.5
Central Louisiana Electric Co, Inc	11,013,634	9,837,524	89.8	811,611	7.4	12,389,909	11,062,912	89.3	926,044	7.5
Central Telephone & Utilities Corp	10,115,540	6,566,341	64.9	3,321,345	32.8	10,518,549	7,424,892	70.6	2,834,882	27.0
Cheyenne Light, Fuel & Power Co	841,580	575,693	70.7	251,580	31.0	883,552	634,393	71.8	270,756	30.6
Cincinnati Gas & Electric Co., The	43,050,012	32,331,274	80.7	7,819,904	19.5	42,833,915	36,328,432	84.8	6,505,483	15.2
Citizens Utilities Co	2,537,353	1,928,746	78.9	309,766	12.3	2,876,708	2,322,691	80.7	309,717	10.8
Community Public Service Co	5,495,773	5,420,337	98.6	74,436	1.4	6,122,937	6,043,096	98.7	79,841	1.3
Connecticut Light & Power Co, The	36,332,409	33,129,505	91.0	3,262,893	9.0	36,351,773	32,395,804	89.1	3,955,969	10.9
Consolidated Edison Co. of New York, Inc	197,796,609	181,911,429	92.0	10,095,316	5.1	210,604,112	194,545,593	92.4	11,677,187	5.5
Consumers Power Co	93,859,015	62,938,806	66.0	32,651,237	3.4	103,431,499	62,778,612	60.7	40,779,613	39.3
Dayton Power & Light Co., The	31,096,833	26,130,673	84.3	5,057,247	16.3	35,115,442	30,841,267	87.8	4,418,633	12.6
Delmarva Power & Light Co	18,055,029	14,749,299	77.4	3,416,240	17.9	19,615,507	15,107,596	77.0	3,622,525	18.5
Fitchburg Gas & Electric Co	1,520,751	1,274,004	83.8	246,750	16.2	1,617,538	1,272,666	78.7	344,872	21.3
Florida Public Utilities Co	961,573	411,330	45.9	485,616	50.5	1,151,310	536,022	46.6	567,488	49.2
Gulf States Utilities Co	19,273,716	46,228,836	93.8	725,982	1.5	54,659,399	51,371,124	94.0	1,006,354	1.8
Hartford Electric Light Co., The	21,623,137	20,604,075	95.3	1,019,062	4.7	22,576,042	21,540,688	95.4	1,035,354	4.6
Illinois Power Co	46,949,284	33,107,161	72.6	13,211,692	28.1	53,088,561	39,048,944	73.6	14,087,406	26.4
Interstate Power Co	11,865,573	11,285,662	95.1	990,881	8.4	12,256,632	11,912,842	97.2	776,636	6.3
Iowa Electric Light & Power Co	10,628,892	9,296,237	87.5	1,251,365	11.8	11,769,938	9,698,819	78.2	2,053,664	17.4
Iowa-Illinois Gas & Electric Co	15,961,777	10,731,763	67.7	5,157,014	32.3	15,737,983	10,556,340	67.1	5,181,613	32.9
Iowa Power & Light Co	13,281,999	10,627,230	80.0	2,657,769	20.0	13,311,848	10,786,665	81.0	2,525,183	19.0
Iowa Public Service Co	9,771,483	7,492,598	76.7	2,199,127	22.5	10,824,808	8,452,628	78.1	2,333,776	21.6
Iowa Southern Utilities Co	6,798,974	5,757,765	84.8	1,033,189	15.2	7,099,982	6,125,198	86.3	971,784	13.7
Kansas Power & Light Co., The	16,539,013	14,105,264	85.3	2,471,708	14.9	18,717,519	16,130,450	86.2	2,625,155	14.0
Lake Superior District Power Co	2,128,123	1,993,227	93.9	128,415	6.0	1,818,121	1,615,222	88.8	197,565	10.9
Long Island Lighting Co	61,498,650	48,025,491	78.1	13,473,159	21.9	64,822,162	50,997,670	78.7	13,821,492	21.3
Louisville Gas & Electric Co	21,666,811	20,255,382	82.1	4,411,429	17.9	26,250,199	21,867,902	83.3	4,382,297	16.7
Madison Gas & Electric Co	4,805,599	3,371,143	70.2	1,434,456	29.8	4,953,577	3,328,643	67.2	1,621,934	32.8
Michigan Power Co	1,710,203	655,012	38.3	1,055,161	61.7	2,172,272	847,513	39.0	1,324,759	61.0
Missouri Edison Co	1,520,957	1,276,302	83.9	244,655	16.1	1,606,124	1,357,606	84.5	248,518	15.5

APPENDIX D COMBINATION ELECTRIC AND GAS COMPANIES Continued

Company	Net utility operating income -1969					Net utility operating income -1970				
		Electric		Gas			Electric		Gas	
	Total income [1]	Income	Percent of total	Income	Percent of total	Total income [1]	Income	Percent of total	Income	Percent of total
Missouri Power & Light Co	$4,183,116	$3,578,624	85.5	$604,492	14.5	$4,587,453	$3,867,620	84.3	$719,833	15.5
Missouri Public Service Co	9,687,258	8,644,504	89.2	998,871	10.3	12,632,626	11,549,828	91.4	1,074,195	8.5
Missouri Utilities Co	2,264,484	1,565,132	69.1	587,648	26.0	2,312,343	1,466,152	63.4	723,345	31.3
Montana-Dakota Utilities Co	9,574,327	4,416,032	46.1	5,197,365	54.3	10,917,660	4,840,228	44.3	6,110,972	56.0
Montana Power Co., the	24,226,224	17,743,003	73.2	6,337,007	26.2	25,875,621	19,288,406	74.5	6,473,275	25.0
Mt. Carmel Public Utility Co	255,675	185,366	72.5	70,308	27.5	241,106	174,896	72.5	66,210	27.5
New Bedford Gas & Edison Light Co	2,811,384	2,441,146	86.8	370,238	15.2	3,535,600	2,797,916	79.1	737,684	20.9
New Orleans Public Service Inc	12,357,287	19,291,998	156.1	1,529,723	12.4	13,331,799	15,296,515	114.7	1,327,648	10.0
New York State Electric & Gas Corp	38,603,075	33,946,614	87.9	4,705,764	12.2	42,929,884	37,846,864	88.2	5,083,020	11.8
Niagara Mohawk Power Corp	75,098,956	61,202,789	81.5	13,896,167	18.5	80,751,454	65,979,713	81.7	14,771,639	18.3
Northern Indiana Public Service Co	50,001,976	28,488,182	57.0	21,516,791	43.0	55,782,676	27,277,052	48.9	28,505,624	51.1
Northern States Power Co (Minnesota)	56,095,112	52,151,311	93.0	4,742,753	8.5	61,207,409	56,372,608	92.1	5,351,962	8.7
Northern States Power Co. (Wisconsin)	7,058,083	6,580,359	93.2	562,489	8.0	7,467,071	6,610,371	88.5	819,217	11.0
Northwestern Public Service Co	3,145,045	2,018,541	64.2	1,126,504	35.8	3,628,986	2,327,603	64.1	1,301,383	35.9
Orange & Rockland Utilities, Inc	13,165,535	11,203,558	85.1	1,961,976	14.9	14,846,647	11,756,411	79.2	3,090,235	20.8
Otter Tail Power Co	5,822,449	5,846,396	100.4	22,020	0	6,348,395	6,372,515	100.4	(34,736)	(.1)
Pacific Gas & Electric Co	232,478,762	183,317,618	78.9	50,012,397	21.5	231,292,398	186,285,615	80.5	45,158,288	19.5
Philadelphia Electric Co	97,783,188	83,722,860	85.6	12,898,606	13.2	104,004,821	89,858,726	86.4	13,780,278	13.2
Public Service Co. Colorado	39,323,487	32,584,866	82.9	6,795,397	17.3	41,931,409	33,740,727	80.4	8,228,130	19.6
Public Service Electric & Gas Co	143,079,771	111,019,482	77.6	32,060,289	22.4	144,119,923	109,314,569	75.8	34,805,354	24.2
Rochester Gas & Electric Corp	25,475,335	17,652,084	69.3	7,550,772	29.6	29,621,728	21,798,986	73.6	7,739,025	26.1
St. Joseph Light & Power Co	3,447,414	3,607,882	104.6	51,609	1.5	3,701,332	3,631,574	98.1	65,269	1.8
San Diego Gas & Electric Co	28,329,248	22,259,623	78.6	6,097,139	21.5	31,467,167	25,339,186	80.5	6,191,077	19.7
Sierra Pacific Power Co	10,080,022	7,960,367	79.0	949,927	9.4	11,603,992	8,965,037	77.3	1,052,371	9.1
South Beloit Water, Gas & Electric Co	134,148	45,033	33.6	83,756	62.4	172,782	38,003	22.0	128,773	74.5
South Carolina Electric & Gas Co	25,778,774	22,132,782	85.9	4,035,393	15.7	28,500,895	24,192,439	84.9	4,877,685	17.1
Southern California Edison Co	159,317,221	159,461,551	100.1	717	0	184,836,864	184,815,090	99.9	5,847	.1
Southern Indiana Gas & Electric Co	7,690,379	6,298,163	81.9	1,392,216	22.1	8,766,254	7,136,335	81.4	1,629,919	18.6
Superior Water, Light & Power Co	721,176	428,990	59.5	244,335	33.9	606,861	316,716	52.2	256,945	42.3
Toledo Edison Co., The	19,179,626	18,913,050	98.6	228,460	1.2	20,195,815	20,001,502	99.0	236,832	1.0

Tucson Gas & Electric Co	9,146,569	8,113,333	88.7	1,033,236	11.3	11,196,616	10,030,428	89.6	1,166,188	10.4
UGI Corp	10,075,150	2,053,169	20.4	8,021,981	79.6	11,232,483	1,954,652	17.4	9,277,831	82.6
Union Electric Co	64,114,996	63,216,696	98.6	454,442	.1	78,079,596	77,302,038	99.0	446,448	.6
Union Light, Heat & Power Co., The	3,225,850	1,861,316	57.7	1,364,534	42.3	3,726,629	2,182,613	58.6	1,544,016	41.4
Virginia Electric & Power Co	83,569,675	80,762,453	96.6	2,807,222	3.4	95,156,411	92,506,484	97.2	2,649,927	2.8
Washington Water Power Co., The	20,225,652	16,858,087	83.4	3,348,890	16.6	20,905,142	17,297,844	82.7	3,588,670	17.3
Wisconsin Michigan Power Co	6,428,111	5,415,977	84.3	1,012,134	15.7	7,012,385	5,881,218	83.9	1,131,167	16.1
Wisconsin Power & Light Co	17,243,192	14,407,703	83.6	2,647,292	15.4	19,365,872	16,318,093	84.3	2,819,410	14.6
Wisconsin Public Service Co	14,334,075	11,166,170	77.9	3,327,512	23.2	17,223,404	13,388,908	77.7	4,033,040	23.4
Arkansas Louisiana Gas Co	34,992,110	(136,487)	(.4)	35,128,597	100.4	39,162,887	(64,501)	(.2)	39,065,821	99.8
Total	2,274,511,773	1,874,830,042	82.4	397,840,780	17.5	2,446,304,322	2,026,586,088	82.2	432,693,058	17.5

[1] Includes other utility income.

Source of data on these sheets: FPC form Nos. 1 and 2 for 1969 and 1970.

NET UTILITY OPERATING INCOME, 1969

I. Privately owned electric utilities[1]	$4,492,915,506
II. Interstate natural gas pipeline companies[1]	1,041,096,089
Total	5,534,011,595
III. Combination electric and gas companies:	
Net gas operating income	$397,840,780
Percent of total	7.2
Net electric operating income	$1,874,830,042
Percent of total	33.9
Total net operating income	$$2,272,670,822
Percent of total	41.1

Data for 1970 not compiled.

Appendix E

Comments of the Federal Power Commission on a New Regulatory Framework

Report on Selected Independent Regulatory Agencies by the President's Advisory Council on Executive Organization (Ash Council).

John N. Nassikas, Chairman; John A. Carver, Jr., Vice-Chairman; Albert B. Brooke, Jr., Commissioner; Lawrence J. O'Connor, Jr., Commissioner.

April 16, 1971.

THE PUBLIC UTILITY HOLDING COMPANY ACT

The Report recommends the transfer of the responsibilities for regulation under the Public Utility Holding Company Act of 1935 from the Securities and Exchange Commission to the FPC. We are already on record in support of this recommendation, but urge that such a transfer be accompanied by sufficient staff additions and funds with which to administer these responsibilities.

On July 13, 1970, the Commission transmitted to the House Committee on Interstate and Foreign Commerce a report on H.R. 15516 (Staggers), "a bill to provide for the transfer to the Federal Power Commission of all functions and administrative authority now vested in the Securities and Exchange Commission under the Public Utility Holding Company Act of 1935." This bill, which was sponsored by the SEC, received the Commission's endorsement and the report we transmitted to Congress was cleared by the Office of Management and Budget. A copy of the letter of transmittal and the report are attached as Appendix B.

(10) So-called "informal" procedures for the settlement of contested issues and the formulation of policy must be carefully insulated by strict adherence to the requirements of due process and the Administrative Procedure Act.

(11) We endorse the formation of an Administrative Court to complement the existing regulatory framework. Preferably such a court should be constituted as a constitutional court with jurisdiction over the decisions of all the independent regulatory agencies. Review of regulatory decisions by a specialized, full-time Administrative Court in lieu of eleven different Courts of Appeals would contribute to regulatory stability and mitigate the severe burden on the current judicial system.

(12) As a policy matter the Commission has already expressed its agreement with the transfer of the SEC's responsibilities pursuant to the Public Utility Holding Company Act to our jurisdiction. Accordingly, we concur in the Council's recommendation on this subject.

Appendix F

Combination Electric and Gas Companies Weighted Average Coupon Rate[1]—December 31, 1970

	Percent
Arizona Public Service Co	4.92
Arkansas Louisiana Gas Co	6.09
Arkansas-Missouri Power Co	6.02
Baltimore Gas & Electric Co	5.28
Boston Gas Co	6.87
California-Pacific Utilities Co	5.66
Central Hudson Gas & Electric Corp	5.40
Central Illinois Light Co	5.68

Footnote at end of table, p. 182.

APPENDIX F

COMBINATION ELECTRIC AND GAS COMPANIES WEIGHTED AVERAGE COUPON RATE[1]—DECEMBER 31, 1970—Continued

	Percent
Central Illinois Public Service Co	4.70
Central Kansas Power Co., The	5.93
Central Louisiana Electric Co., Inc	6.03
Central Telephone & Utilities Corp	6.06
Cheyenne Light, Fuel & Power Co	4.36
Cincinnati Gas & Electric Co., The	5.36
Citizens Utilities Co	6.78
Community Public Service Co	5.83
Connecticut Light & Power Co., The	5.51
Consolidated Edison Co. of New York, Inc	4.97
Consumers Power Co	5.53
Dayton Power & Light Co., The	5.50
Delmarva Power & Light Co	5.55
Fitchburg Gas & Electric Light Co	7.98
Florida Public Utilities Co	4.97
Gulf States Utilities Co	5.46
Hartford Electric Light Co., The	5.28
Illinois Power Co	5.24
Interstate Power Co	5.00
Iowa Electric Light & Power Co	5.77
Iowa-Illinois Gas & Electric Co	6.04
Iowa Power & Light Co	4.75
Iowa Public Service Co	2.49
Iowa Southern Utilities Co	4.32
Kansas Power & Light Co., The	3.38
Lake Superior District Power Co	4.17
Long Island Lighting Co	4.89
Louisville Gas & Electric Co	4.90
Madison Gas & Electric Co	5.96
Michigan Power Co	5.93
Missouri Edison Co	4.47
Missouri Power & Light Co	4.57
Missouri Public Service Co	5.45
Missouri Utilities Co	4.59
Montana-Dakota Utilities Co	5.74
Montana Power Co., The	4.76
Mt. Carmel Public Utility Co	3.81
New Bedford Gas & Edison Light Co	5.55
New Orleans Public Service Inc	4.34
New York State Electric & Gas Corp	5.35
Niagara Mohawk Power Corp	4.57
Northern Indiana Public Service Co	5.14
Northern States Power Co. (Minnesota)	5.30
Northern States Power Co. (Wisconsin)	4.69
Northwestern Public Service Co	5.50
Orange & Rockland Utilities Inc	5.69
Otter Tail Power Co	4.01
Pacific Gas & Electric Co	5.01
Philadelphia Electric Co	5.58
Public Service Electric & Gas Co	5.65
Public Service Co. of Colorado	4.97
Rochester Gas & Electric Corp	5.62
San Diego Gas & Electric Co	5.58
Sierra Pacific Power Co	5.89
St. Joseph Light & Power Co	5.90
South Carolina Electric & Gas Co	6.14
Southern California Edison Co	5.07
Southern Indiana Gas & Electric Co	5.16
Superior Water, Light & Power Co	3.60
Toledo Edison Co., The	5.20
Tucson Gas & Electric Co	5.27
UGI Corp	5.74
Union Electric Co	5.24
Union Light, Heat & Power Co., The	5.90

Footnote at end of table, p. 183.

APPENDIX F

COMBINATION ELECTRIC AND GAS COMPANIES WEIGHTED AVERAGE COUPON RATE [1]—DECEMBER 31, 1970—Continued

	Percent
Virginia Electric & Power Co	5.59
Washington Water Power Co., The	4.79
Wisconsin Michigan Power Co	6.14
Wisconsin Power & Light Co	5.51
Wisconsin Public Service Co	5.80

[1] Adjusted for the amortization of debt discount, premium and expense.

APPENDIX G—COMBINATION ELECTRIC AND GAS COMPANIES

[Computation of interest charges based on total refinancing of net gas utility plant at weighted average coupon rate and at 8 percent]

Company	Net gas utility plant Dec. 31, 1970	Interest charges based on— Weighted average coupon rate	At 8 percent	Difference
Arizona Public Service Co	$65,439,452	$3,219,621	$5,235,156	$2,015,535
Arkansas-Missouri Power Co	7,655,230	460,845	612,418	151,573
Baltimore Gas & Electric Co	152,633,184	8,059,032	12,210,655	4,151,623
Boston Gas Co.[1]	2,706,781	185,956	216,542	30,586
California-Pacific Utilities Co	19,913,764	1,127,119	1,593,101	465,982
Central Hudson Gas & Electric Corp	32,252,824	1,741,652	2,580,226	838,574
Central Illinois Light Co	89,770,791	5,098,981	7,181,663	2,082,682
Central Illinois Public Service Co	63,276,224	2,973,983	5,062,098	2,088,115
Central Kansas Power Co., The	1,566,722	92,907	125,338	32,431
Central Louisiana Electric Co., Inc	12,030,180	725,420	962,414	236,994
Central Telephone & Utilities Corp	26,269,724	1,591,945	2,101,578	509,633
Cheyenne Light, Fuel & Power Co	4,023,511	175,425	321,881	146,456
Cincinnati Gas & Electric Co., The	99,722,934	5,345,149	7,977,835	2,632,686
Citizens Utilities Co	3,614,683	245,076	289,175	44,099
Community Public Service Co	1,350,394	78,728	108,032	29,304
Connecticut Light & Power Co., The	73,523,469	4,051,143	5,881,878	1,830,735
Consolidated Edison Co. of New York, Inc	213,450,793	10,608,504	17,076,063	6,467,559
Consumers Power Co	574,988,219	31,796,849	45,999,058	14,202,209
Dayton Power & Light Co., The	74,080,044	4,074,402	5,926,404	1,852,002
Delmarva Power & Light Co	35,937,073	1,994,508	2,874,966	880,458
Fitchburg Gas & Electric Light Co	3,992,366	318,591	319,389	798
Florida Public Utilities Co	7,078,378	351,795	566,270	214,475
Gulf States Utilities Co	13,067,445	713,482	1,045,396	331,914
Hartford Electric Light Co., The	17,289,405	912,880	1,383,152	470,272
Illinois Power Co	173,332,184	9,082,606	13,866,575	4,783,969
Interstate Power Co	12,200,845	601,042	960,067	360,025
Iowa Electric Light & Power Co	31,608,139	1,823,790	2,528,651	704,861
Iowa-Illinois Gas & Electric Co	72,117,753	4,355,912	5,769,420	1,413,508
Iowa Power & Light Co	37,327,490	1,773,056	2,986,199	1,213,143
Iowa Public Service Co	27,198,125	677,233	2,175,850	1,498,617
Iowa Southern Utilities Co	10,725,964	463,362	858,077	394,715
Kansas Power & Light Co., The	42,738,868	1,444,574	3,419,109	1,974,535
Lake Superior District Power Co	4,000,012	166,801	320,001	153,200
Long Island Lighting Co	184,105,976	9,002,782	14,728,478	5,725,696
Louisville Gas & Electric Co	66,182,904	3,242,962	5,294,632	2,051,670
Madison Gas & Electric Co	27,332,815	1,629,036	2,186,625	557,589
Michigan Power Co	19,491,916	1,155,871	1,559,353	403,482
Missouri Edison Co	6,107,995	273,027	488,640	215,613
Missouri Power & Light Co	14,326,574	654,724	1,146,126	491,402
Missouri Public Service Co	12,340,251	672,544	987,220	314,676
Missouri Utilities Co	12,325,524	565,742	986,042	420,300
Montana-Dakota Utilities Co	74,571,686	4,280,415	5,965,734	1,685,319
Montana Power Co., the	53,662,510	2,554,335	4,293,001	1,738,666
Mount Carmel Public Utility Co	1,212,294	49,998	104,984	54,986
New Bedford Gas & Edison Light Co	11,824,050	656,235	945,924	289,689
New Orleans Public Service Inc	34,040,894	1,477,375	2,723,272	1,245,897
New York State Electric & Gas Corp	75,013,246	4,013,209	6,001,060	1,987,851
Niagara Mohawk Power Corp	241,288,407	11,026,880	19,303,073	8,276,193
Northern Indiana Public Service Co	264,190,912	13,579,413	21,135,273	7,555,860
Northern States Power Co. (Minnesota)	81,036,249	4,294,921	6,482,900	2,187,979
Northern States Power Co. (Wisconsin)	15,050,845	705,885	1,204,068	498,183
Northwestern Public Service Co	14,540,230	799,713	1,163,218	363,505
Orange & Rockland Utilities, Inc	35,397,692	2,014,129	2,831,815	817,686
Otter Tail Power Co	79,707	3,196	6,377	3,181
Pacific Gas & Electric Co	798,615,864	40,010,655	63,889,269	23,878,614
Philadelphia Electric Co	188,523,830	10,519,630	15,081,906	4,562,276
Public Service Co. of Colorado	121,842,171	6,055,556	9,747,374	3,691,818
Public Service Electric & Gas Co	442,282,102	24,988,939	35,382,568	10,393,629
Rochester Gas & Electric Corp	100,228,327	5,632,832	8,018,266	2,385,434
St. Joseph Light & Power Co	1,480,123	87,327	118,410	31,083
San Diego Gas & Electric Co	89,258,561	4,980,628	7,140,685	2,160,057
Sierra Pacific Power Co	15,110,768	890,024	1,208,861	318,837
South Beliot Water, Gas & Electric Co	1,182,573	0	94,606	94,606
South Carolina Electric & Gas Co	72,034,159	422,897	5,762,733	1,339,836
Southern California Edison Co	378,703	19,200	30,296	11,096

APPENDIX G—COMBINATION ELECTRIC AND GAS COMPANIES—Continued

[Computation of interest charges based on total refinancing of net gas utility plant at weighted average coupon rate and at 8 percent]

Company	Net gas utility plant Dec. 31, 1970	Interest charges based on— Weighted average coupon rate	At 8 percent	Difference
Southern Indiana Gas & Electric Co	$19,094,445	$985,273	$1,527,556	$542,283
Superior Water, Light & Power Co	4,169,513	150,102	333,561	183,459
Toledo Edison Co., The	2,455,177	127,669	196,414	68,745
Tucson Gas & Electric Co	16,330,480	860,616	1,241,116	380,500
UGI Corp.[1]	31,727,137	1,821,138	2,538,171	717,033
Union Electric Co	7,892,384	413,561	631,391	217,830
Union Light, Heat & Power Co., The	24,914,673	1,469,966	1,993,174	523,208
Virginia Electric & Power Co	41,502,549	2,319,992	3,320,203	1,000,211
Washington Water Power Co., The	46,329,170	2,219,167	3,706,333	1,487,166
Wisconsin Michigan Power Co	14,986,079	920,145	1,198,886	278,741
Wisconsin Power & Light Co	37,264,175	2,053,256	29,81,134	927,878
Wisconsin Public Service Co	47,688,874	2,765,955	3,815,110	1,049,155
Arkansas Louisiana Gas Co	311,703,973	18,982,772	24,936,318	5,953,546
Total		381,681,061	454,966,793	153,285,732

[1] Net electric utility plant.

FEDERAL POWER COMMISSION,
Washington, D.C., May 11, 1971.

Senator PHILIP A. HART,
U.S. Senate,
Washington, D.C.

DEAR SENATOR HART: This is in response to your letter of March 30, 1971, requesting the updating of certain staff memoranda dated October 1966 and March 1967 made by Mrs. Regina E. Herzlinger, a former member of the Federal Power Commission's Office of Economics from February of 1966 until June 1967.

The development of staff studies regarding the performance of combination companies is a research function and provides a basis of general information which aids the Commission in the fulfillment of its regulatory responsibilities.

However, it must be made clear that the Commission has not passed on the validity of either the original or the updated versions of the Herzlinger memoranda. These memos only represent Mrs. Herzlinger's work and do not necessarily reflect the views of the Office of Economics, other staff officers, or the Commission.

The enclosed tables, designated Appendix A and Appendix B, have been updated to the extent requested in your letter. Appendix A corresponds to Mrs. Herzlinger's memorandum of October 11, 1966, on electric sales. Appendix B corresponds to her memorandum of March 14, 1967, on gas sales.

Some changes in methodology were made by the staff in updating the data. For example, in regard to the 1966 report, the comparison of fuel costs per Kwh of sales has been changed to a comparison of fuel costs per kwh of net steam electric generating. This more accurately reflects actual fuel costs. Mrs. Herzlinger's comparison of fuel expense to Kwh's of sales includes purchased power, interchanges, and hydro generation, none of which directly affects the companies' fuel expense per kwh of sales for generation. Several other minor changes are footnoted in Tables 2, 7, 8 and 9.

With regard to the updated 1967 tables, the data presented includes information on 78 privately owned combination electric utilities in the United States as shown in Brown's Director rather than the sample of 38 companies used by Mrs. Herzlinger. The reason for this change is that staff did not know which 38 companies were in Mrs. Herzlinger's sample, nor did staff know what criteria for sampling were used by her.

With respect to page 7 of the 1966 Herzlinger memorandum, it is important to evaluate the figures shown in light of the composition of the 500 kilowatt hours of usage shown per month. The bills for the individual companies assume in all cases where a hot water heating rate is offered that 250 kwh of usage is taken under this relatively lower rate schedule unless otherwise stated. This "typical bill" is designed to depict the lowest bill available for 500 kwh of residential

service. Therefore, this hypothetical bill for 500 kwh that is used in the Herzlinger memo may be materially less than the actual bill paid for this usage because a large number of residential customers may not choose electric hot water heating in their actual consumption.

To measure the bias of the hot water heating rate a computation was made using residential bills for 250 kwh rather than 500 kwh. The results indicate that combination company bills exceed straight electric bills for 6 out of the 12 pairs of combination companies rather than 9 of the 12 pairs of companies as shown under the Herzlinger assumptions.

Page 6 of the 1967 update for gas rate consumption may also be misleading. In making the original comparison, Mrs. Herzlinger apparently arrived at her average usage figure of 9,000 cubic feet per month by dividing total residential sales in the United States by the total number of residential customers. In order to understand the problems inherent in using such an average, it is necessary to make some fundamental observations about residential gas usage.

Residential customers basically fall into two categories, i.e., those who use gas for household heat and those who do not. The average residential customer with gas range, water heater and dryer but no household heating will have an average monthly consumption of 4,540 cubic feet. With the same appliances and household heating, average monthly consumption would increase to 16,600 cubic feet. Hence, the monthly average of 9,000 cubic feet used by Mrs. Herzlinger is not representative of either class of residential customer. This is important in comparing unit cost because companies usually design different rate schedules for the two different classes of residential users and give a cost break to the class using gas for household heat. As a result, if the user (excluding household heat) whose rate was based on a designed use of 4,540 cubic feet of gas actually averaged 9,000 cubic feet, his unit cost would be greater than that of the user of the same amount of gas whose rate was based on a designed household heating rate of 16,600 cubic feet. Moreover, 9,000 cubic feet is not representative because an average user without household gas heat would not have that much usage monthly and a user with household gas heat would average higher. Comparison of residential gas rates should make a distinction between the average heating customer and the average non-heating customer. In addition, comparisons should be based on a specific number of degree days and take into consideration such factors as: (1) regional markets; (2) regulatory policy; (3) whether the companies have uniform rates throughout the territory served; (4) the reasons for lack of uniformity, if any; (5) whether companies have special house heating or air conditioning rates; (6) whether rates are less for prompt payment; (7) what is the relative degree of saturation of heating customers; and (8) what are the relative load densities.

It should be noted that the Herzlinger memos did not analyze combination electric and gas companies in terms of such important factors as company load characteristics, density of service, rate schedules, managements, or technologies.

Comparison of original with updated memo is also subject to qualification because the companies selected for the original analyses of 1966 and 1967 are not the same companies included in the updated reports. Although there are still 78 combination companies, they are not all the same companies as those used by Mrs. Herzlinger. Some new companies have been formed while others have merged. Management, supply and demand, and other facets of the gas and electric industries have also changed during the time lapse between the original and updated memos.

Sincerely yours,

JOHN N. NASSIKAS, *Chairman.*

Appendix A

Update of Herzlinger Memo of October 11, 1966, on Electric Sales

1. Electric Sales (See table 1).

RELATIVE IMPORTANCE OF ELECTRIC SALES (IN KILOWATT-HOURS) BY PRIVATELY OWNED COMBINATION AND STRAIGHT UTILITIES

Region [1]	Percentage distribution of U.S. totals		Percentage distribution of regional totals		Total
	Combination utilities	Straight electric utilities	Combination utilities	Straight electric utilities	
New England	2.7	8.9	16.4	83.6	100
Middle Atlantic	26.9	8.3	67.4	32.6	100
South Atlantic	9.2	21.4	21.4	78.6	100
East-north-central	17.9	28.9	23.3	71.7	100
East-south-central	1.6	7.1	12.3	87.7	100
West-north-central	11.7	2.2	17.8	82.2	100
West-south-central	5.6	16.4	77.0	23.0	100
Mountain	4.5	2.5	52.9	47.1	100
Pacific	19.9	4.3	74.5	25.5	100
Total, United States	100.0	100.0	38.8	61.2	100

[1] Major geographic divisions as reported in Edison Electric Institute Statistical Yearbook.

Source: Based on data in Statistics of Electric Utilities, Privately Owned, 1969.

2. Operating Revenues and Kilowatt-Hour Sales by Size Categories Used in the Herzlinger Survey. (See Table 2.)

1969

Class I: Companies with sales larger than 10 billion Kwh.[1]

Class II: Companies with sales larger than 1 billion but less than 10 billion Kwh.[1]

Class III: Companies with sales less than 1 billion Kwh.

See footnote at end of table.

	Combination electric utilities				Straight electric utilities				All classes A and B electric utilities privately owned			
	Class				Class				Class			
	I	II	III	Total	I	II	III	Total	I	II	III	Total
Number of companies	12	48	18	78	26	61	42	129	38	109	60	207
Kilowatt-hour sold (percent)	38.0	40.7	28.5	38.8	62.0	59.3	71.5	61.2	100	100	100	100
Electric operating revenues (percent)	44.9	45.8	31.9	44.9	55.1	54.2	68.1	55.1	100	100	100	100
Electric operating revenues (cents per kilowatt-hour)	1.72	1.69	2.11	1.71	1.30	1.37	1.79	1.33	1.46	1.50	1.88	1.48

[1] 10,000,000,000 kilowatt-hour of sales in class I and 1,000,000,000 kilowatt-hour sales in class II.

3. Operating revenues by the same size categories (See Table 3).

OPERATING REVENUES AND EXPENSES, 1969, BY SIZE CATEGORIES [1]

	Combination utilities, class—				Straight utilities, class—				All classes A and B companies privately owned, class—			
	I	II	III	Total	I	II	III	Total	I	II	III	Total—
Total operating revenues (cents per kilowatt-hour)	2.22	2.40	5.05	2.34	1.30	1.41	1.80	1.35	1.65	1.81	2.72	1.73
Total operating expenses (cents per kilowatt-hour)	1.75	1.92	4.31	1.86	1.01	1.09	1.53	1.05	1.29	1.43	2.32	1.36
Percentage of total operating expenses to total operating revenues	78.9	79.9	85.3	79.5	77.4	77.8	85.2	77.8	78.2	79.0	85.3	78.7

[1] See table 2 for definition of size categories.

4. Fuel and distribution expenses by size categories. (See table 4.)

ELECTRIC UTILITIES, 1969

	Fuel expenses (cents per kilowatt hour of net fueled generation)		Distribution expenses (cents per kilowatt hour of sales)	
	Combination	Straight	Combination	Straight
Class I	0.33	0.27	0.12	0.07
Class II	.30	.26	.11	.08
Class III	.40	.48	.14	.13
Total	.32	.27	.12	.08

5. Sales by class of customers (residential, commercial, industrial, resale, and miscellaneous). (See table 6.)

SALES BY CUSTOMER CLASSES 1969

[In millions of kw.-hr.]

	Combination electric utilities	Straight electric utilities	All classes A and B privately-owned electric utilities
Residential	129,501	174,379	303,880
Commercial	109,453	126,195	235,648
Industrial	174,050	262,450	436,500
Resale	37,465	162,655	200,120
Miscellaneous	21,725	17,929	39,654
All sales	472,194	743,608	1,215,802

6. Distribution of sales by customer classes and size categories. (See table 5.)

PERCENTAGE DISTRIBUTION OF SALES BY CUSTOMER CLASSES AND SIZE CATEGORIES, 1969

	Residential sales, electric utilities		Commercial sales, electric utilities		Industrial sales, electric utilities	
Size category	Combination	Straight	Combination	Straight	Combination	Straight
Class I	41.4	58.6	48.0	52.0	38.0	62.0
Class II	45.1	54.9	44.2	55.8	43.8	56.2
Class III	31.6	68.4	34.8	65.2	26.8	73.2
Total	42.6	57.4	46.4	53.6	39.9	60.1

7. Prices charged by a number of pairs of combination and straight utilities such as those in tables 5, 6, 7 of the Herzlinger Survey. (See tables 7, 8, 9.)

Company and area	Residential		Commercial		Industrial	
	Price	Ratio price (a/b)	Price	Ratio price (a/b)	Price	Ratio price (a/b)
(a) Pacific Gas & Electric (c): San Francisco, Calif.	$9.40	102	$46.77	102	$947	104
(b) Southern California Edison (c) [1]: Alhambra, Calif.[2]	9.19		45.80		912	
(a) Consumers Power (c): Pontiac, Mich.[3]	8.94	131	47.22	100	1,244	101
(b) Detroit Edison: Detroit, Mich	6.84		47.22		1,232	
(a) Public Service Electric & Gas (c): Newark, N.J.	10.35	103	60.19	94	1,245	97
(b) Commonwealth Edison: Chicago, Ill	10.08		64.36		1,288	
(a) Virginia Electric & Power (c): Richmond, Va.	10.30	109	45.50	121	978	122
(b) Duke Power Co.: Charlotte, N.C.[2]	9.44		37.50		804	
(a) Baltimore Gas & Electric: Baltimore, Md	12.59	142	51.25	128	1,392	123
(b) Potomac Electric Power: Washington, D.C.	8.85		40.09		1,134	
(a) Northern Indiana Public Service (c): Gary, Ind.	10.45	108	55.70	135	1,120	60
(b) Indianapolis Power & Light Co. (c) [1]: Indianapolis, Ind.	9.65		41.30		1,866	
(a) Washington Water Power Co. (c): Spokane, Wash.[3]	7.90	114	30.63	----------	859	----------
(b) Puget Sound Power & Light: Anacortes, Wash.	6.93		----------		----------	
(a) Dayton Power & Light (c): Dayton, Ohio	10.11	91	55.01	114	1,032	82
(b) Columbus & Southern Ohio Electric: Columbus, Ohio	11.17		48.20		1,265	
(a) Kansas Power & Light (c): Topeka, Kansas	9.17	118	47.48	84	1,017	79
(b) Kansas Gas and Electric: Wichita, Kans.[3]	7.75		56.64		1,289	
(a) New Bedford Gas & Ed. Lgt. (c): New Bedford, Mass.	10.42	105	54.50	102	1,123	89
(b) Cambridge Electric Light: Cambridge, Mass.	9.97		53.60		1,258	
(a) Michigan Power Co. (c): Dowagia, Mich.	9.22	96	----------		----------	
(b) Edison Sault Co.: Manistique, Mich.	9.59					
(a) Superior Water Light & Power Co. (c): Superior, Wis.	10.40	100	----------		----------	
(b) Lake Superior District Power (c) : Ashland, Wis.	10.40					

[1] Would now be classified as a combination electric utility by Herzlinger criteria.
[2] Changed to more specifically identify data.
[3] Changed because of lack of data for city in 1969 report.

Appendix B

Update of Herzlinger Memo of March 14, 1967, on Gas Sales

Request for data from Senator Hart by memo of March 30, 1971, regarding Herzlinger memo of March 14, 1967

1. Geographical distribution of gas sales and gas operating revenues by region, showing the percentage distribution of the United States total and the percentage distribution of the regional totals (See Table 1).

RELATIVE IMPORTANCE OF GAS SALES (MCF) BY PRIVATELY OWNED COMBINATION ELECTRIC UTILITIES AND OTHER GAS UTILITIES, 1969

Region	Percentage distribution of U.S. total		Percentage distribution of regional totals		
	Combinations	Others	Combinations	Others	Total
New England	1.7	1.3	27.8	72.2	100
Middle Atlantic	14.3	9.1	32.2	67.8	100
South Atlantic	4.3	8.7	12.8	87.2	100
East north-central	29.9	22.4	28.7	71.3	100
East south-central	2.2	7.5	8.2	91.8	100
West north-central	15.6	9.4	33.5	66.5	100
West south-central	2.2	24.1	2.4	97.6	100
Mountain	8.2	4.9	32.9	67.1	100
Pacific	21.6	12.6	34.1	65.9	100
Total, United States	100.0	100.0	23.1	76.9	100

2. Comparison of average operating revenues per Mcf by regions (See Table 3).

COMPARISON OF AVERAGE OPERATING REVENUES PER THOUSAND CUBIC FEET BY U.S. REGIONS, 1969

[In dollars per thousand cubic feet]

Region	Combination electric utilities privately owned	Other gas utilities	All U.S. utilities
New England	1.61	1.58	1.589
Middle Atlantic	1.34	.929	1.062
South Atlantic	1.048	.695	.74
East north-central	.748	.731	.736
East south-central	.673	.492	.506
West north-central	.568	.552	.557
West south-central	.561	.343	.349
Mountain	.516	.486	.496
Pacific	.713	.496	.570
Total, United States	.803	.587	.637

3. Percentage distribution of gas sales by customer classes and regions for combination and straight utilities (See Table 4).

PERCENTAGE DISTRIBUTION OF GAS SALES BY CUSTOMER CLASSES AND U.S. REGIONS, 1969

Region and type of company	Residential sales	Commercial sales	Industrial sales	Total
New England:				
Combination	58.6	19.0	22.4	100
Other gas	58.2	18.6	23.2	100
Middle Atlantic:				
Combination	55.1	17.5	27.4	100
Other gas	47.7	13.5	38.8	100
South Atlantic:				
Combination	43.0	12.7	44.3	100
Other gas	27.2	12.9	59.9	100
East north-central:				
Combination	40.5	17.4	42.1	100
Other gas	42.0	15.1	42.9	100
East south-central:				
Combination	55.9	19.3	24.8	100
Other gas	20.3	10.8	68.9	100
West north-central:				
Combination	37.4	18.9	43.7	100
Other gas	29.2	12.6	58.2	100
West south-central:				
Combination	54.4	21.2	24.4	100
Other gas	14.7	6.5	78.8	100
Mountain:				
Combination	46.1	28.3	25.6	100
Other gas	19.5	8.6	71.9	100
Pacific:				
Combination	38.9	13.0	48.1	100
Other gas	29.4	10.2	60.4	100
Total, United States:				
Combination	43.3	17.4	39.3	100
Other gas	29.4	11.3	59.3	100

4. Percentage distribution of gas revenues by customer classes and regions (See Table 5).

PERCENTAGE DISTRIBUTION OF GAS REVENUES BY CUSTOMER CLASSES AND U.S. REGIONS, 1969

Region and type of company	Residential sales	Commercial sales	Industrial sales	Total
New England:				
Combination	67.2	18.5	14.3	100
Other gas	69.0	18.0	13.0	100
Middle Atlantic:				
Combination	64.1	16.9	19.0	100
Other gas	63.5	16.0	20.5	100
South Atlantic:				
Combination	61.5	13.9	24.6	100
Other gas	46.9	16.9	36.2	100
East north-central:				
Combination	54.7	19.0	26.3	
Other gas	64.1	18.6	17.3	
East south-central:				
Combination	60.6	19.2	20.2	100
Other gas	39.5	14.8	45.7	100
West north-central:				
Combination	51.8	23.1	25.1	100
Other gas	50.4	14.9	34.7	100
West south-central:				
Combination	68.4	17.4	14.2	100
Other gas	35.9	10.0	54.1	100
Mountain:				
Combination	55.2	24.3	20.5	100
Other gas	39.9	14.2	45.9	100
Pacific:				
Combination	53.0	14.6	32.4	100
Other gas	51.6	13.4	35.0	100
Total, United States:				
Combination	57.6	18.2	24.2	100
Other gas	50.8	14.8	34.4	100

5. Breakdown of average revenues (residential, commercial, industrial) by customer classes and regions (See Table 6).

AVERAGE REVENUES PER THOUSAND CUBIC FEET BY CUSTOMER CLASSES AND U.S. REGIONS, 1969

Region and type of company	Average residential revenues	Average commercial revenues	Average industrial revenues
New England:			
Combination	2.045	1.730	1.141
Other gas	1.825	1.490	.861
Middle Atlantic:			
Combination	1.593	1.321	.951
Other gas	1.235	1.093	.490
South Atlantic:			
Combination	1.495	1.115	.581
Other gas	1.201	.913	.422
East north-central:			
Combination	1.019	.824	.472
Other gas	.960	.771	.253
East south-central:			
Combination	.716	.655	.539
Other gas	.960	.677	.327
West north-central:			
Combination	.814	.718	.336
Other gas	.954	.654	.331
West south-central:			
Combination	.826	.537	.381
Other gas	.841	.532	.236
Mountain:			
Combination	.734	.528	.489
Other gas	.935	.752	.291
Pacific:			
Combination	.853	.706	.422
Other gas	1.024	.579	.337
Total, United States:			
Combination	1.077	.843	.497
Other gas	1.036	.784	.347

6. Illustrative rate comparisons for combination and straight utilities (See Table 7).

ILLUSTRATIVE RATE COMPARISONS FOR COMBINATION AND STRAIGHT UTILITIES, 1969

Company	Location	Type of service	Average monthly bill[1]
Pacific Gas & Electric Co.[2]	San Francisco, Calif.	General	$5.60
Southern California Gas Co.	Los Angeles, Calif.	do.	9.75
Consolidated Edison Co. of New York[2]	Manhattan, New York City	Residential	15.45
Bronklyn Union Gas Co.	Brooklyn, N.Y.	do.	[3] 17.76
Baltimore Gas & Electric[2]	Baltimore, Md.	General	12.58
Washington Gas Light Co.	District of Columbia	do.	13.48
Michigan Gas & Electric[2]	Marquette, Mich.	do.	11.12
Southeastern Michigan Gas Co.	Port Huron, Mich.	do.	11.25
Public Service Electric & Gas Co.[2]	Newark, N.J.	Residential	14.08
New Jersey Natural Gas Co.	Asbury Park, N.J.	do.	17.45
Northern States Power[2]	Eau Claire, Wis.	General	13.20
Milwaukee Gas Light Co.	Wisconsin Rapids, Wis.	do.	13.18
Central Kansas Power Co.[2]	Hays, Kans.	do.	6.18
Gas Service Co.	Pittsburg, Kans.	do.	6.23
Fitchburg Gas & Electric[2]	Fitchburg, Mass.	do.	14.65
Gas Service, Inc.	Nashua, N.H.	do.	16.05
Wisconsin Public Service Corp.[2]	Green Bay, Wis.	Residential	9.90
Minnesota Valley Natural Gas Co.[4]	Alexandria, Wis.	do.	13.70
Virginia Electric & Power Co.[2]	Norfolk, Va.	do.	14.38
Department of Public Utilities	Richmond, Va.	do.	13.40

[1] The average bill is based on an average usage of 9,000 cu. ft. per month.
[2] Indicates a combination company.
[3] Brooklyn Union bills on a bimonthly basis; therefore, the monthly bill shown by Mrs. Herzlinger is overstated.
[4] Shown as in Mrs. Herzlinger's memorandum. Correct name is Minnesota Natural Gas Co. and correct location is Alexandria, Minn.
Source: Calculated from AGA Gas Rate Service.

The Social Desirability of Combination Gas-Electric Utilities

A study by a staff economist, W. A. Collins, of the Office of Economics, Federal Power Commission*

I. Schools of Thought on Combinations

As an increasing amount of thought has been going into the social desirability of combination gas-electric utilities, two schools of thought appear to be evolving. One school, which might be called the *straight utility school*, maintains that public interest will be best served if separately managed gas and electric utilities actively compete for household, commercial, and industrial markets such as space heating, water heating, cooking, air conditioning, refrigeration, and clothes drying. This thesis is based on the conventional argument that greater competition leads industries which are forced into competition to lower prices, expand output (or expand rates of increase in output), improve service, attain greater management efficiency, economize on labor and capital equipment expenditures, engage in more intensive research and promotional activities, and provide greater freedom of consumer choice. Further, since elasticity of demand is likely to be smaller (in absolute terms) for gas and electricity combined than for either gas or electricity taken separately, the incentive to hold down costs and prices in order to attract new sales may be significantly stronger for straight utilities than for combinations.

A second and related argument for straight utilities which this school gives involves the decreasing cost nature of the utility industries with the possibility for economies of scale. As increased competition leads to an expansion of output, average or unit costs fall. This fall in unit cost allows for a decrease in prices greater than that which would be possible in a constant or increasing cost industry. Under combination utility conditions, management may concern itself with the welfare of both the gas and the electric operations and will be

*The views expressed herein are those of the author and do not necessarily reflect the views of the Office of Economics. No other bureau or office of the Federal Power Commission has reviewed this study prior to publication, and thus this study is not a staff report. The Commission has not reviewed or passed on this study.

motivated to insure that each receives a fair return. For example, electric space heating prices may be maintained at a high level so as not to compete with gas space heating. The higher electric space heating prices will result in a reduction of electric output and higher average costs, which will tend to reinforce the upward bias in electric prices. A second and different motivational argument is that if the gas operations contribute a very small percentage to revenues of the entire utility, then the gas operations will be neglected wherever gas and electric interests conflict.

Finally, the straight utility school argues that the expansion in output resulting from greater competition creates a multiplier effect on the entire economy by stimulating demand for electric and gas production equipment as well as providing demand for appliances and other energy using equipment. Employment and income are increased in these areas and the rest of the economy through the multiplier (assuming less than full employment). In this case, a macro argument is being used to justify a micro policy.

The other school, which might be called the *combination utility school*, maintains that combinations can outperform straight utilities. They point to economies of joint operation such as a single meter reader for both gas and electric operations, a single appliance inspector, a single service department, single headquarters with common management and overlapping sales, accounting, purchasing, billing, collecting, and engineering departments, use of a single trench for underground distribution, sales promotion emphasis in the area where the marginal profit is greatest, and taking advantage of the differences in peak load times for the two services by using idle workers in one service during the off peak load time of that service in the peak load times of the other service. In addition, peak load problems can be reduced by promoting gas air conditioning to reduce electric peak load in summer and electric heat to reduce gas peak load in winter.

This school also claims that combinations will provide consumers with unbiased information concerning the comparative advantages and disadvantages of using gas and electricity for different applications so that the consumer will have all the information necessary to make the best decision concerning the better form of energy to use. The customer also benefits from the convenience of dealing with one utility.

An additional benefit would be that any revenue instability occurring in gas and electric utility operations would tend to be less in a combination utility than in a straight utility if revenue fluctuations for gas and for electricity are not correlated. The diversification of the combination would cause the total revenue from both the gas and electric operations to be more stable than the revenue from either the electric operations or the gas operations taken separately and would therefore result in a greater stability in overall rate of return compared to straight utilities. The advantage of greater revenue stability could be passed on to the consumer in the form of lower prices because, for example, since unexpected revenue reductions are less likely, less emergency cash reserves would be required to meet normal operating expenses. Finally, the combination utility school claims that financial stability provided by diversification and the absence of competition benefits the stockholders and results in cost savings for the utility on capital market financing.

Clearly, two sets of forces, competitive forces and forces associated with joint economies of operation, can act and the existence and intensity of the individual forces are a function of whether or not the utility is straight or combination. Under straight utility conditions, but not under combination utility conditions, competitive forces between gas and electricity will exert a downward pressure on prices, a pressure for expansion of output, and pressure for improvement in the quality of service. Assuming that most utilities operate on the decreasing sections of their average cost curves, expanded output results in lower unit cost which allows a greater decrease in price than that which could occur in a constant or increasing cost industry. However, in the case of straight utilities, there are no economies of joint gas and electric operation acting to lower average cost and thereby allowing a fall in prices, as would be possible under a combination utility situation.

Three possibilities exist in this institutional framework. *First*, competitive forces may have a greater impact on lowering price, increasing output, and improving quality of service than joint operation economies. *Second*, joint operation economies may have a greater impact on lowering average cost and thereby lowering price, increasing output, and improving quality of service than com-

petitive forces. *Third*, the possibility exists that the two forces offset one another, leaving a net impact of zero, or nearly so, from a shift from a combination utility to a straight utility situation. Each possibility would call for a different regulatory policy. If an institutional framework which is different from the existing one were found to be more compatible with the public interest—that is, if the gross social benefit resulting from the change would be greater than the total cost to society of making the change—society would benefit from shifting to the new institutional framework.

Great difficulty is encountered in formulating a universal prima facie case supporting a policy favoring either combinations or straight utilities or supporting a policy of *laissez faire*. Examining empirical evidence of the performance of individual utilities is necessary in order to answer the question, "Are combination utilities in the public interest"?

II. EXPERIMENTAL PROCEDURE

A very brief outline of the procedure used to test the claims made by the schools of thought will now be presented. The first step in this experiment is to set forth definitions of the population under investigation—for straight electric utilities, straight gas utilities, and combination gas-electric utilities. In the preceding discussion a utility was implicitly defined as a combination if it engaged in selling both gas and electricty, and a utility was implicitly defined as straight electric (gas) if it engaged in selling no gas (electricity). These definitions, while satisfactory for a theoretical discussion, are not suitable for classifying utilities for empirical testing. For example, under these definitions a utility would be classified as a combination even though it may obtain less than 1% of its total gas plus electric revenue from its gas operations. Such a utility would not be likely to exhibit any detectable combination characteristics as set forth by the schools of thought and in fact is likely to behave as a straight electric utility. Thus a more restrictive set of definitions had to be established to facilitate empirical testing.

A skeleton presentation of the conditions which utilities must satisfy to be included in the study and to be defined for the purpose of the study as straight electric or combination is as follows.

First, the population includes only a privately-owned operating electric utilities in the contiguous U.S., with electric operating revenue of at least $1,000,000, serving residential customers, and deriving no more than 26% of its revenue from wholesale electric sales.

Second, to be defined and classified as a straight electric utility, the utility must not own or be owned by any company which sells or owns any company which sells gas in the same service area of the utility under consideration, must not have been combined or otherwise associated with gas operations in its recent past, must have gas utilities serving at least 60% of its service area, and if the utility has gas operations, it must have a ratio of gas operating revenue to gas plus electric operating revenue of less than 2%.

A comparable definition was established for straight gas utilities.

Third, if a utility sells both gas and electricity, the utility is classified as a combination if the ratio of gas operating revenue to gas plus electric operating revenue is greater than 10% but less than 90%, and the utility must serve at least 35% of its electric service area with gas and vice versa.

The second step in the experimental procedure involves minimizing to the utmost extent the effects of the independent variables on the dependent variables, so that the effect of only whether or not a utility is straight or combination can be studied. Which variables are independent and which are dependent in this study will be determined according to the following criteria. An independent variable is one which would not be expected (according to any recognized hypothesis) to vary according to whether or not a utility is straight or combination but which could affect the dependent variables under consideration. A dependent variable is one which according to a specified hypothesis should vary according to whether or not a utility is straight or combination. The arguments of the straight utility school and those of the combination utility school serve as a basis for the hypotheses concerning the behavior of all the variables and thus determine either explicitly or implicitly which variables are independent and which are dependent.

A few examples may be helpful to illustrate the value of independent variable control. If straight electric utilities happen to have a much larger percentage of

generation from hydro than do the electric divisions of combination utilities, the tests involving expenses may be detecting differences resulting from this factor rather than whether or not a utility is straight or combination. Or for example, if straight electric utilities happen to have in general much larger kwh sales than do the electric divisions of combination utilities, the tests may be detecting differences resulting from the comparatively larger size of the straight utilities rather than whether or not the utilities are straight or combination. Since there appears to be no hypothesis which infers a relationship between whether or not a utility is straight or combination and the percentage generation from hydro or the size of the utility, and since these variables could affect the dependent variables under consideration, these variables are considered to be independent and are therefore subjected to control.

Space prohibits providing a complete list of all the independent variables examined. The minimization of the effects of independent variables is accomplished primarily through the process of elimination and pairing. For the Mann-Whitney U test, which involves group comparisons, homogeneity with respect to the independent variables is accomplished by eliminating utilities with extreme values for particular independent variables until the null hypothesis, which states that no significant difference exists between the two groups, is accepted (at the 5% level) for each of the independent variables under examination. For the Wilcoxon Matched-Pairs Signed-Ranks test, which involves pairing of utilities, homogeneity with respect to the independent variables is accomplished by pairing a straight electric utility with a combination utility whose electric portion of its operations is acceptably like that of the straight utility with respect to the independent variables. Similarly, a straight gas utility is paired with a combination utility whose gas portion of its operations is acceptably like that of the straight utility with respect to the independent variables.

The third step in the experimental procedure involves selecting and describing the appropriate tests to be employed. The Z test (a group test) and the Student-Fisher T test (a paired observation test) were candidates for testing whether or not a significant difference exists between straights and combinations for the variable under consideration. Both of these tests are common in the literature. Both have the drawback of dependence on normal distributions in order to yield meaningful results. Preliminary examination indicated that many of the variables have substantially skewed distributions. Some idea concerning the normality of each distribution was obtained by examining certain characteristics of the distribution (mean, median, third and fourth moments with respect to the mean, and mean deviation). Since the normality of the distributions appears to be a substantial problem, two nonparametric tests, the Mann-Whitney U test (a group test) and the Wilcoxon Matched-Pairs Signed-Ranks test (a paired observation test) are employed, and the results of these tests are used for analysis in place of the two parametric tests.

Since natural pairs are unavailable and since pairing of utilities for the Wilcoxon test involves a reduction in sample size from the group test, the gain in control of independent variables by pairing could possibly be lost. Therefore, the results of the group test (the Mann-Whitney U test) may be more reliable than the results of the paired observation test (the Wilcoxon Matched-Pairs Signed-Ranks test).

III. HYPOTHESES AND RESULTS OF TESTS FOR ELECTRIC DEPENDENT VARIABLES

The results of the Mann-Whitney U test indicated that all relevant electric independent variables were homogeneous for the two groups. Thus, all 52 of the utilities initially defined as combinations and all 89 utilities initially defined as straight electric were included in the Mann-Whitney U test on the electric dependent variables.[1] The pairing of utilities according to the procedure outlined previously for the Wilcoxon Matched-Pairs Signed-Ranks tests resulted in 33 pairs.[2]

The following discussion specifies the hypotheses concerning the behavior of the electric dependent variables, based on the claims made by the two schools of thought, and comments upon the experimental results presented in Table 1. The results were derived by testing the reported data for 1967 for the companies selected in accordance with the procedures described above.

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[1] In the case of 15 of the 40 variables tested, the tests are based on somewhat fewer than 52 combinations and 89 straight electrics. The elimination was necessary because of gaps in the available data.

[2] In the case of 6 of the 40 variables tested, the tests are based on 31 or 32 pairs instead of 33 pairs, because of data deficiencies.

Both the Mann-Whitney U test and the Wilcoxon test are designed to estimate the probability that the observed differences in the values of the dependent variables for combination utilities, on the one hand, and straight utilities, on the other, are statistically significant differences rather than random differences. For the first test, the utilities from both samples were combined into a single sample and ranked in ascending order according to the observed values of the particular variable selected for testing. Counts were then made of the number of times the values for straight utilities were larger (or smaller) than the values for combination utilities. It is possible to calculate a probability distribution of an infinitely large number of such counts for the hypothetical case in which both samples are from the same population (i.e., for the case in which no significant difference exists between combinations and straights). Such a distribution can be used to estimate the probability that the results obtained by analyzing the actual ranking could have been observed if the two samples had been drawn from the same population. Column Z in the table is an index of the difference between the actual counts from the rankings for each observed variable and the mean value if the hypothesis of no significant difference were true. Column A indicates the statistical probability, expressed as a percentage, that the number under Z, or a larger number, could have been obtained if the two samples did not differ in performance as measured by the variable being studied. Probability values below 5.0 percent were accepted as indicating an acceptable risk level for concluding that the two samples did *not* come from the same population and, therefore, that the observed difference between straights and combinations is statistically significant.

The Wilcoxon test follows a similar procedure except that the differences are determined for each matched pair of companies, one combination and one straight, and then ranked.

TABLE 1.—RESULTS OF STATISTICAL TESTING OF ELECTRIC DEPENDENT VARIABLES

No. and variable	Mann-Whitney			Wilcoxon		
	Result	A	Z	Result	A	Z
1. Average revenue: Total kw.-hr. sales	C*	0.30	2.97	C*	1.04	2.56
2. Average revenue: Kw.-hr. sales to ultimate consumers	C*	.16	3.17	C*	.58	2.76
3. Average revenue: Residential, commercial, and industrial kw.-hr. sales	C*	.20	3.08	C*	.44	2.85
4. Average revenue: Residential kw.-hr. sales	C*	.06	3.45	C*	.80	2.65
5. Average revenue: Commercial kw.-hr. sales	C*	1.83	2.35	C	11.88	1.55
6. Average revenue: Industrial kw.-hr. sales	C*	1.41	2.45	C	10.10	1.64
7. Operating revenue less operating and maintenance expenses per unit total kw.-hr. sales	C*	.14	3.18	C*	.20	3.08
8. Operating revenue less operating and maintenance expenses less taxes per unit total kw.-hr. sales	C*	.28	2.98	C*	.46	2.83
9. Operating and maintenance expenses per unit total kw.-hr. sales	C	6.14	1.87	C	64.56	.46
10. Operating and maintenance expenses less cost of fuel and purchased power per unit total kw.-hr. sales	C	13.10	1.51	C	64.56	.46
11. Operating and maintenance expenses less power production expenses less transmission expenses per kw.-hr. sales to ultimate consumers	C	20.80	1.26	C	22.62	1.21
12. Distribution expenses per unit kw.-hr. sales to ultimate consumers	C*	.56	2.77	C*	.20	3.10
13. Distribution supervision and engineering expenses per unit kw.-hr. sales to ultimate consumers	C*	1.60	2.41	C*	3.16	2.15
14. Underground distribution line expenses per mile underground electric distribution line [1]	S	10.20	−1.27	C	(96.80)	.40
15. Meter expenses per unit kw.-hr. sales to ultimate consumers [1]	C	(9.30)	1.68	C	(7.02)	1.81
16. Customer installation expenses per unit kw.-hr. sales to ultimate consumers [1]	C	(82.58)	.22	S	46.81	−.08
17. Customer accounts expenses per unit kw.-hr. sales to ultimate consumers [1]	C	(14.98)	1.44	C	(14.42)	1.46
18. Customer accounts supervision expenses per unit kw.-hr. sales to ultimate consumers	C	62.42	.49	S	85.72	−.18
19. Meter reading expenses per unit kw.-hr. sales to ultimate consumers [1]	C	(2.26)	2.23	C	(2.14)	2.30
20. Meter plus meter reading expenses per unit kw.-hr. sales to ultimate consumers [1]	C	(2.58)	2.10	C	(2.72)	2.21

See footnote at end of table.

TABLE 1.—RESULTS OF STATISTICAL TESTING OF ELECTRIC DEPENDENT VARIABLES—Continued

No. and variable	Mann-Whitney			Wilcoxon		
	Result	A	Z	Result	A	Z
21. Customer records and collection expenses per unit kw.-hr. sales to ultimate consumers [1]	C	(33.70)	.96	C	(36.82)	.90
22. Total sales expenses per unit kw.-hr. sales to ultimate consumers [1]	S*	0	−3.92	S*	.52	−2.56
23. Sales supervision expenses per unit kw.-hr. sales to ultimate consumers	S*	1.98	2.33	S	9.70	−1.66
24. Demonstrating and selling expenses per unit kw.-hr. sales to ultimate consumers [1]	S*	0	−4.12	S*	2.50	−1.96
25. Advertising expenses pr unit kw.-hr. sales to ultimate consumers [1]	S*	1.74	−2.11	S*	2.62	−1.94
26. Total administrative and general expenses per unit total kw.-hr. sales	C	32.22	.99	S	28.92	−1.06
27. Administrative and general salaries per unit total kw.-hr. sales	C	44.72	.76	S	7.34	−1.76
28. Total salaries and wages per unit total kw.-hr. sales	C*	3.94	2.06	C	27.14	1.10
29. Production and transmission salaries and wages per unit total kw.-hr. sales	C*	1.82	2.36	C	90.44	.12
30. Distribution salaries and wages per unit kw.-hr. sales to ultimate consumers	C*	1.28	2.49	C*	.04	3.48
31. Customer accounts salaries and wages per unit kw.-hr. sales to ultimate consumers	C	16.76	1.33	C	19.02	1.31
32. Sales salaries and wages per unit kw.-hr. sales to ultimate consumers	S*	.78	−2.66	S	73.38	−.34
33. Administrative and general salaries and wages per unit total kw.-hr. sales	S	71.88	−.36	S	9.70	−1.66
34. Total supervision and engineering expenses per unit total kw.-hr. sales	C	19.36	1.30	C	59.62	.53
35. Distribution, customer accounts, and sales supervision and engineering expenses per unit kw.-hr. sales to ultimate consumers	C	13.36	1.50	C	21.50	1.24
36. Total electric department employees per unit total kw.-hr. sales [1]	C	(9.50)	1.67	C	(11.18)	1.59
37. Residential plus commercial plus industrial kw.-hr. sales per residential plus commercial plus industrial electric customer	S*	.52	−2.79	S*	1.74	−2.39
38. Residential kw.-hr. sales per residential electric customer	S*	.06	−3.42	S	16.56	−1.42
39. Commercial kw.-hr. sales per commercial electric customer	S	27.14	−1.10	S	24.20	−1.17
40. Industrial kw.-hr.. sales per industrial electric customer	C	80.26	.25	S	33.20	−.97

[1] Tests were performed for only 1 behavioral hypothesis (i.e., values of the respective variables are lower for combinations than for straight electrics). In all other instances, tests were performed for alternative hypotheses (i.e., values of the respective variables are either higher or lower for combinations than for straights).

Source: The results are based on data from the Federal Power Commission's publication, Statistics of Privately Owned Electric Utilities in the United States, 1967.

KEY TO INFORMATION IN TABLE

C=Combinations had higher values than straights.
C*=Combinations had significantly higher values than straights at a 5-percent level.
S=Straights had higher values than combinations.
S*=Straights had significantly higher values than combinations at a 5-percent level.
A=Percent probability of obtaining a Z as extreme as that observed if no difference existed between straights and combinations. Parentheses around A indicate that the difference was not in the direction hypothesized and A was changed in order to indicate the probability of obtaining a value of Z as extreme as that calculated if no difference existed between the 2 groups.
Z=The number of standard deviations by which the sample statistic deviates from the sample mean. (If there is no difference between the 2 groups, the statistic should equal the mean.)

AVERAGE REVENUE AND USE VARIABLES

Average revenue (on a per kwh sales basis) for residential, commercial, and industrial sales and composite average revenue variables (1–6) could be expected to be higher for combinations than for straights as a result of the absence of competition between gas and electric operations or could be expected to be lower for combinations than for straights as a result of lower expenses following from economies of joint (gas-electric) operation. These variables were tested for both possibilities.

Referring to Table 1, average revenue for residential electric sales was significantly higher for combinations under both tests. If no difference exists between straights and combinations for this variable, the probability of obtaining a value as extreme as the Z observed would be only 0.06% under the Mann-

Whitney test and 0.8% under the Wilcoxon test. Since Z values having a probability of occurrence less than 5% are considered to be too extreme for acceptance of the hypothesis that no difference exists between straights and combinations for this variable, we conclude that an alternative hypothesis is indicated. In fact, combinations are significantly higher under the Mann-Whitney test for all variables 1–6. In addition, combinations are significantly higher for variables 1–4 and higher (but not significantly) for variables 5 and 6 under the Wilcoxon test. Therefore, the conclusion must be drawn that if combinations obtain economies of joint operations, these economies are not passed on to the electric consumer in the form of lower prices. Instead consumers served by combination utilities are generally paying more per unit than are consumers served by straight utilities.

Residential, commercial, and industrial kwh sales per residential, commercial, and industrial customer (variables 37–40) could be expected to be higher for combinations than for straights, for if combinations achieve economies of joint operation and pass these economies along to the consumer, consumers can be expected to purchase more at lower prices than at higher prices. On the other hand, each of these variables could be expected to be higher for straights than for combinations if competition between gas and electricity plays an important role in the utilities' decision making process so that straights charge lower prices and/or engage in more aggressive promotional activities in order to encourage greater use of their product. Both possibilities were therefore tested for these variables.

Each of these use variables except for kwh sales per industrial electric customer was higher for the straight group (significantly so for variables 37 and 38) under the Mann-Whitney test. Combinations tended to have somewhat (but not significantly) higher values for kwh sales per industrial electric customer under this test. Under the Wilcoxon test, all four use variables were higher for straights than for combinations, and the composite use variable (37) was significantly higher for straights.

These results coupled with the results of the tests on the average revenue variables indicate that electric customers served by combinations tend to pay higher prices and use less electricity than customers of straight utilities. Such a situation would be predicted by a conventional downward sloping demand curve. Thus the results of the tests on the use variables are consistent with the results of the tests on the average revenue variables.

NET RETURN VARIABLES

Operating revenue less operation and maintenance expenses per unit total electric sales (variable 7) gives the amount per unit which is available for depreciation, amortization, taxes and profit. Tests were applied to determine whether this ratio is higher for combinations than for straights or vice versa.

This variable is significantly higher for combinations under both the Mann-Whitney and the Wilcoxon tests. Eliminating taxes from the numerator of variable 7 to obtain variable 8 made no difference in this result—combinations were still significantly higher than straights for variable 8. Whether or not economies of joint operation, acting to lower costs, is a factor in obtaining this finding is indicated by the results of tests on the variables described below.

OPERATION AND MAINTENANCE EXPENSE VARIABLES

Operation and maintenance expenses per unit total electric sales (variable 9) could be expected to be higher for combinations than for straights as a result of the lack of competitive pressure between gas and electric operations to force costs downward, or could be expected to be lower for combinations than for straights as a result of economies of joint operation. Operation and maintenance expenses less cost of fuel and purchased power per unit total electric sales (variable 10) is examined since, although the possibility exists that straights would be inclined to bargain more vigorously than combinations for better fuel and purchased power agreements, less discretion may be available to the utility in these areas compared to others. Moreover, variations found in costs of fuel and purchased power, more so than in other expenses, may be a function of factors other than whether or not a utility is straight or combination. Thus, the elimination of these factors could magnify any differences resulting from whether or not a utility is straight or combination.

Consideration of operation and maintenance expenses less power production expenses (power production expenses include cost of fuel and purchased power) less transmission expenses per kwh sales to ultimate consumers (variable 11) allows for control of variation in method generation, load factor, heat rate, and other factors related to the efficiency of production, and the proportion of pwer purchased as well as the cost of fuel and purchased power each of which is not expected to vary significantly according to whether or not a utility is straight or combination. Furthermore, the expenses included in this variable (distribution expenses, customer accounts expenses, sales expenses, and administrative and general expenses) could be the most sensitive to whether or not the utility is a combination because the utility would have reasonably wide discretion over these expenses and if economies of joint operation exist, they would most likely appear in these expense items. Consequently, these components (variable 12–35) of variable 11 are examined individually in the next section.

Compared to straights, combinations had higher values for all three operation and maintenance expense variables on both tests. However, in no case was the difference between straights and combinations significant at the 5% level.

INDIVIDUAL EXPENSE VARIABLES

Electric distribution expenses per unit kwh sales to ultimate consumers (variable 12) may be sensitive to whether or not a utility is a combination not only because of the possibility that combinations will be lax in holding down expenses but also because of the potential economies of joint operation for combinations resulting especially from two sources—the use of common supervision and engineering personnel and the use of a common trench for underground gas and electric distribution facilities. In addition economies of joint operation are possible from electric meter expenses (variable 15) and customer installation expenses (variable 16).

The results of both tests indicate that per unit distribution expenses and per unit supervision and engineering expenses for distribution were each significantly higher for combinations as compared to straights. Even on the tests for economies of joint operation for underground distribution line expenses per mile of underground distribution line (variable 14), per unit meter expenses, and per unit customer installation expenses, combinations were not found to be significantly different from straights, and in fact in most cases combinations tended to have higher values than straights, the reverse of the expected outcome on *a priori* grounds.

Customer accounts expenses per kwh sales (variables 17–21) could be expected to be lower for combinations than for straights because of economies of joint operation resulting from common supervision, single meter reader, and integrated operation for customer records and collection. Instead of combinations having lower values than straights, however, combinations tended in general to have higher values for these variables. In fact for per unit meter reading expenses (19), one of the variables for which significant economies of joint operation are claimed by the combination utility school, combinations were substantially higher than straights and were over four standard deviations from critical Z for both tests!

Sales expenses per unit kwh sales to ultimate consumers (variables 22–25) could be higher for straights as a result of the additional competitive incentives to engage in vigorous promotional activities. For each of these variables, except for per unit sales supervision expenses under the Wilcoxon test, straights had significantly higher values than combinations, confirming the above alternative hypothesis. In fact, some of the most striking differences occurred in this category. For example, the calculated Z for total sales expenses per unit kwh sales to ultimate consumers is almost four standard deviations from the mean under the Mann-Whitney test. Thus, straight utilities appear to engage in substantially more sales activities than do combinations, indicating the active presence of additional competitive pressures under straight utility conditions compared to combination utility conditions.

Administrative and general expenses per total kwh sales (variables 26 and 27) could be higher for combinations as a result of lack of competitive incentives to lower costs and/or a desire to utilize savings incurred by economies of joint operation on high administrative and general salaries, or these expenses could be lower for combinations as a result of the use of common managerial personnel and common office facilities, supplies, and equipment. However, no significant difference was found between straights and combinations for these variables.

Salaries and wages (variables 27–35) and supervision and engineering expenses (variables 13, 18, and 23) on a per unit sales basis could be higher for combinations as a result of the absence of gas-electric competitive incentives to hold down costs and/or the use of a stronger monopoly position in order to pay higher salaries and wages. On the other hand, these variables could be lower for combinations as a result of the use of common administrative, supervision, and engineering personnel for both gas and electric operations.

Per unit total salaries and wages (variable 28) and per unit production and transmission salaries and wages (variable 29) were each found to be higher for combinations under both tests and significantly higher for combinations on the Mann-Whitney tests. Per unit distribution salaries and wages (variable 30) and per unit supervision and engineering expenses for distribution (variable 13) were each found to be significantly higher for combinations on both the Mann-Whitney test and the Wilcoxon test. Per unit sales supervision expenses (variable 23) and per unit sales salaries and wages (variable 32) were higher for straights under both tests, and both were significantly higher under the Mann-Whitney test. This last finding is consistent with the earlier finding that straights had significantly higher sales expenses than combinations. No significant difference was found between straights and combinations for the other per unit salary, wage, and supervision expense variables examined (variables 18, 27, 31, 33, 34, and 35). Apparently combinations do not obtain economies of joint operations in these variables (27–35 and 13, 18, 23).

EMPLOYMENT-OUTPUT RATIO

Total electric department employees per unit total kwh sales (the inverse of productivity) (variable 36) could be lower for combinations than for straights as a result of the use of common personnel for both gas and electric operations. Nevertheless, the tests indicate that combinations had higher values than straights. Thus, no economies of joint operation appear in the examination of this variable. This finding is consistent with the earlier finding that combinations tended to have higher per unit salaries and wages and supervision and engineering expenses than did straights.

SUMMARY

On most counts, it appears that the claims of the straight utility school are supported and the claims of the combination utility school are refuted by these tests on the electric operations of combinations. A bleak performance picture is indicated for combination utilities. Combinations appear to charge higher prices; their customers appear to use less electricity; and their general and individual expense items, including those for which economies of joint operations are claimed, tend to be higher and, except for expenses associated with sales, none are significantly lower.

A general indication is that combinations tend to be in a stronger monopoly position than straights, that they receive greater revenues as a result of this stronger monopoly position, and that these additional revenues are divided between increased costs (including salaries and wages) and net return. Apparently, greater monopoly power causes the combinations utilities to increase net return within permitted limits and to be comparatively lax in holding down expenses.

A comparable test was performed for the gas variables; however, the quality of the gas data in general was probably not nearly as high as for the electric data, which are based on the Uniform System of Accounts for the Federal Power Commission. In general, for the 62 straight gas utilities and 52 combinations and 22 pairs examined, no significant difference was found between straights and combinations for the gas dependent variables examined.

IV. CONCLUSION AND POLICY RECOMMENDATIONS

A statistical study, no matter how carefully performed, cannot set forth an indisputable policy position. The results of a statistical analysis can at best be indicatory.

In the first place, the nature of statistical analysis involves the possibility of committing an error. This concept would possibly be best expressed in the following quotation:

"A common problem for statistical inference is to determine, in terms of probability, whether observed differences between two samples signify that the

populations sampled are themselves really different. Now whenever we collect two groups of scores by random methods we are likely to find that the scores differ to some extent. Differences occur simply because of the operations of chance. Then how can be determine in any given case whether the observed differences are merely due to chance or not? The procedures of statistical inference enable us to determine, in terms of probability, whether the observed difference is within the range which could easily occur by chance or whether it is so large that it signifies that the two samples are probably from two different populations."[1]

Thus, a proof would lead to a statement that something is or is not, whereas a statistical inference leads to the statement that something probably is or probably is not.

In the second place, the dynamic nature of the industry and the changing state of the art make setting forth a policy position for all time extremely difficult. A position may be consistent with the public interest at one point in time and inconsistent with the public interest at another.

In the third place, even though statistical evidence may tend to support a hypothesis which states that a certain condition generally exists in an industry, that condition need not exist for a particular member of that industry. If, however, a condition is generally indicated in the industry, the burden of proving exception to that condition should rest upon the party claiming to be an exception.

Finally, as the tools of analysis become more developed and more sophisticated, more precise inferences can be drawn and more intelligent policy positions can be formulated.

The policy maker will have to make a judgment as to the most desirable course of action given all the evidence presented before him, including evidence not taken into account in the statistical tests. Even under less than ideal experimental conditions, the indications forthcoming for a statistical analysis can enable the policy maker to formulate a more intelligent decision than would be possible had the study not been performed.

These points should be kept in mind in considering the following policy suggestions.

Even though, in general, no significant difference was found between straights and combinations in the examination of the gas dependent variables, the results of the examination of the electric dependent variables are sufficient to indicate that the performance of combination utilities is significantly below that of straight electric utilities. Thus, the claims set forth by the straight utility school stressing the advantages of competition between gas and electricity appear to be supported by empirical evidence. The claims of economies of joint operation set forth by the combination utility school, however, were not supported by empirical testing.

Because combinations appear to be unnecessary concentrations of economic power, the Federal Power Commission should join with the long established policy of the Securities and Exchange Commission (acting under the Public Utility Holding Company Act) in opposing this form of industry organization. It would appear appropriate for the Federal Power Commission to condition mergers on divestiture of gas from electric operations of combination utilities unless there are overriding considerations against divestiture. This step is within the authority provided by Section 203(a) of the Federal Power Act. Such action would also establish a unified federal government policy towards combinations and prohibit the accomplishment under merger that which is prohibited under the Public Utility Holding Company Act for holding companies.

Another step which the Federal Power Commission might consider is the desirability of proposing legislation comparable to the Public Utility Holding Company Act specifically dealing with combination utilities.

MARCH 29, 1971.

Hon. JOHN N. NASSIKAS,
Chairman, Federal Power Commission,
Washington, D.C.

DEAR MR. CHAIRMAN: In October 1966, a member of the staff of the Federal Power Commission, Mrs. Regina H. Herzlinger, completed a background survey of privately-owned combination electric and gas utilities in the United States. This survey was furnished to the Commission by the Office of Economics on October 11,

[1] Sidney Siegel, *Nonparametric Statistics for the Behavorial Sciences* (1956), p. 2.

1966. Senator Lee Metcalf received a copy of this study, and he has furnished it to this Subcommittee.

In connection with its study of S. 403 (92nd Congress), introduced by Senator Metcalf, the Subcommittee on Antitrust and Monopoly would like to have this report updated. Specifically, it would like to have a report comparing and evaluating the following for the most recent year(s) for which data are available with respect to privately-owned combination utilities and straight utilities:

1. Electric sales.
2. Operating revenues and kilowatt-hour sales by size categories used in the Herzlinger survey.
3. Operating revenues by the same size categories.
4. Fuel and distribution expenses by size categories.
5. Sales by class of customers (residential, commercial, industrial, resale, and miscellaneous).
6. Distribution of sales by customer classes and size categories.
7. Prices charged by a number of pairs of combination and straight utilities such as those in Tables 5, 6, and 7 of the Herzlinger survey.

In March 1967, Mrs. Herzlinger completed a study of the gas operations of combination utilities, and this was transmitted to the Commission. The Subcommittee on Antitrust and Monopoly also would like to have this study updated. We ask that this report contain a comparison and evaluation of the following, for the most recent year(s) for which data are available, with respect to combination utilities in the United States:

1. Geographical distribution of gas sales and gas operating revenues by region, showing the percentage distribution of the United States total and the percentage distribution of the regional totals.
2. Comparison of average operating revenues per Mcf by regions.
3. Percentage distribution of gas sales by customer classes and regions for combination and straight utilities.
4. Percentage distribution of gas revenues by customer classes and regions.
5. Breakdown of average revenues (residential, commercial, industrial) by customer classes and regions.
6. Illustrative rate comparisons for combination and straight utilities.

Because the Subcommittee intends to hold hearings on S. 403 in the near future, it would be appreciated if the gathering and transmission of this data can be expedited.

Sincerely,

PHILIP A. HART,
Chairman,
Antitrust and Monopoly Subcommittee.

MARCH 14, 1967.

Memorandum to: The Commission (for agenda).
From: Office of Economics.
Subject: A study of the gas operations of combination utilities.[1]

Although the combination utilities are primarily in the electric business and only secondarily in the gas business, they nevertheless serve a sizeable portion of the gas utility market. In 1963 the 78 privately-owned combination utilities (Classes A and B) accounted for almost one-fourth of total gas sales by private utilities in the United States and almost one-third of total gas operating revenues.[2]

The combination utilities shared the gas industry's phenomenal success in capturing new markets during the nineteen-fifties. Their gas plant investment advanced at an average annual rate of 5½ percent from 1953 to 1963, while their gas operating revenues increased by 9 percent per year. The latter rate compares with 9.6 percent for all gas utilities during the same ten years. (It should be explained that the difference in growth rates does not necessarily reflect the

[1] Because this Commission does not receive reports from straight gas distribution companies and only collects rather limited information on the gas operations of combination companies, this report relies heavily on data from outside sources, such as *Moody's Public Utilities Manual* and AGA's *Gas Facts*.

[2] These estimates are slightly revised from those in our earlier memorandum, "A Survey of Combination Gas and Electric Companies," October 11, 1966.

relative success of the two groups of companies in penetrating their respective markets, since the groups are not evenly represented in all regions of the country).

SUMMARY OF FINDINGS

The major findings of this survey of the gas operations of combination utilities are summarized below:

1. In the U.S. as a whole, the combination companies account for 24 percent of total gas sales by privately-owned utilities.

2. Combinations are relatively more dependent on residential sales and relatively less dependent on industrial sales than are straight gas companies.

3. Largely reflecting this concentration of sales in the residential category, the average revenue per Mcf of total sales by the combinations is higher than it is for straight gas utilities. In several regions the average revenues for residential, commercial and industrial customers are significantly different for the two groups of companies—sometimes they average much higher for combination utilities and sometimes much lower.

4. Our comparisons of typical monthly bills for pairs of presumably comparable combination and straight gas companies indicate lower bills for combination companies in 8 out of the 10 cases studied. The cases selected, however, are not necessarily representative of the overall situation.

5. The combinaation companies earn a relatively lower rate of return on their gas business than on their electric business, and they also earn a lower rate than do the straight gas companies.

GEOGRAPHICAL DISTRIBUTION OF GAS SALES OF COMBINATION UTILITIES

As shown in Tables 1 and 2, the gas sales and gas operating revenues of the privately-owned combination utilities are geographically concentrated in the East North Central, Pacific, Middle Atlantic, and West North Central regions of the U.S. More than three-fourths of the sales of gas to ultimate consumers by combination companies were in these 4 regions, although these regions accounted for only a little more than half of total gas utility sales in all 9 regions. The Middle Atlantic, East North Central, and Pacific regions were among the fastest growing in terms of gas sales from 1954 to 1963. They exhibited a growth rate of 10.6 percent during this period—as compared with the 9.6 percent national growth rate.

The combination companies sold from 37 percent to 41 percent of all gas sold by private companies to ultimate consumers in the Middle Atlantic, Mountain, and Pacific regions.

TABLE 1.—RELATIVE IMPORTANCE OF GAS SALES (M c.f.) BY PRIVATELY-OWNED COMBINATION AND STRAIGHT UTILITIES, 1963

Region	Percentage distribution of U.S. total		Percentage distribution of regional totals		
	Combination utilities	Straight gas utilities	Combination utilities	Straight gas utilities	Total
New England	4.2	0.5	NA	NA	100
Middle Atlantic	17.2	7.7	40.9	59.1	100
South Atlantic	3.8	8.8	11.8	88.2	100
East-north-central	26.2	22.0	27.0	73.0	100
East-south-central	2.4	27.9	9.0	91.0	100
West-north-central	13.2	10.3	28.4	71.6	100
West-south-central	2.7	4.7	2.9	97.1	100
Mountain	10.2	10.6	40.0	60.0	100
Pacific	20.2	7.6	37.1	62.0	100
Total United States	100.0	100.0	23.6	76.4	100

TABLE 2.—RELATIVE IMPORTANCE OF GAS REVENUES BY PRIVATELY-OWNED COMBINATION AND STRAIGHT UTILITIES, 1963

Region	Percentage distribution of U.S. total		Percentage distribution of regional totals		
	Combination utilities	Straight gas utilities	Combination utilities	Straight gas utilities	Total
New England	3.9	3.5	NA	NA	100
Middle Atlantic	28.6	10.7	55.7	44.3	100
South Atlantic	5.7	10.7	19.9	80.1	100
East-north-central	23.6	29.1	27.6	72.4	100
East-south-central	2.0	7.0	11.9	88.1	100
West-north-central	9.7	9.4	32.8	67.2	100
West-south-central	1.4	15.9	3.9	96.1	100
Mountain	6.0	3.6	43.9	56.1	100
Pacific	19.1	10.0	47.3	52.7	100
Total United States	100.0	100.0	32.0	68.0	100

COMPARISONS OF REVENUES PER MCF

It is apparent from the intra-regional breakdowns in Tables 1 and 2 that the percentage of combination operating revenues exceeds the percentage of combination gas sales in 8 out of the 9 regions of the U.S. The inference that combination utilities tend to earn higher revenues per Mcf sold is substantiated by the average revenue data shown in Table 3.

The average revenue of $.85 per Mcf of the combination utilities is substantially higher than the average revenue of $.56 of the straight gas utilities. The differences are most conspicuous, when measured in relative terms, in the Pacific and Middle Atlantic regions, two major areas of the consumption for gas, and also in the South Atlantic region. As explained below, the higher average revenue per Mcf of combination utilities does not so much reflect higher average rates for the various customer classes as it does the heavier concentration of residential sales in combination companies than in straight utilities.

CONSUMER CLASSIFICATION OF SALES AND REVENUES [3]

Table 4, which is based on sample data, shows that the combination utilities sell more to residential customers and far less to industrial customers than do the straight gas companies. The difference between the mean residential and industrial sales of combination and straight gas utilities is highly significant, statistically speaking; [4] that is, the probability of obtaining a difference equal to or greater than the observed difference, as a result of random sampling, is negligible. However, for commercial sales, the difference between the mean commercial sales of the combinations and the straight gas companies is not significant.

[3] See "Statistical Appendix" for the derivation of the data.

[4] Unless otherwise specified, "significant" is used in its statistical sense, meaning that a certain decision function is specified which, when applied to the data, minimizes the risk in accepting or rejecting a given hypothesis. The variables involved were found to be significant at a $P=.05$ level of significance. At this level, the chances of testing an observed difference and declaring it not to be significant—when it really is—are minimal (5 out of 100).

TABLE 3.—COMPARISON OF AVERAGE OPERATING REVENUES PER M c.f., BY U.S. REGIONS, 1963

Region	Dollars per M c.f.		
	Combination utilities	Straight gas utilities	All gas utilities
New England	0.79	NA	NA
Middle Atlantic	1.41	0.78	1.04
South Atlantic	1.27	.69	.76
East-north-central	.77	.74	.75
East-south-central	.70	.52	.53
West-north-central	.63	.51	.54
West-south-central	.44	.32	.32
Mountain	.50	.43	.46
Pacific	.80	.53	.63
Total United States	.85	.56	.63

TABLE 4.—PERCENTAGE DISTRIBUTION OF GAS SALES BY CUSTOMER CLASSES AND U.S. REGIONS, 1963

Region and type of company	Residential sales	Commercial sales	Industrial sales	Total
New England:				
Combination	54.3	12.4	32.3	100.0
Straight gas	NA	NA	NA	NA
Middle Atlantic:				
Combination	61.5	17.5	21.0	100.0
Straight gas	45.5	10.8	43.7	100.0
South Atlantic:				
Combination	49.1	8.4	42.5	100.0
Straight gas	30.8	10.9	58.3	100.0
East-north-central:				
Combination	45.2	28.5	26.3	100.0
Straight gas	49.2	7.9	42.9	100.0
East-south-central:				
Combination	48.7	20.6	30.7	100.0
Straight gas	24.2	10.3	65.5	100.0
West-north-central:				
Combination	50.8	24.7	24.5	100.0
Straight gas	29.5	8.8	61.7	100.0
West-south-central:				
Combination	45.2	16.7	38.1	100.0
Straight gas	15.1	5.7	79.2	100.0
Mountain:				
Combination	42.9	24.0	33.0	100.0
Straight gas	18.9	6.3	74.8	100.0
Pacific:				
Combination	43.0	12.8	44.2	100.0
Straight gas	26.9	27.4	45.8	100.0
Total U.S.:				
Combination	50.4	21.2	28.4	100.0
Straight gas	31.0	8.2	60.9	100.0

The relative importance of residential sales is substantially higher for combination than for straight gas utilities in all regions except the East North Central region. The reverse relationship exists for industrial sales in all regions except the Pacific region. Commercial sales are relatively more important for combination than for straight gas utilities everywhere except the South Atlantic region.

Referring to Table 5, it is apparent that the differences between the *revenues* derived from different consumer sectors by combination and straight gas utilities are generally not as large as the differences in their relative *sales* to the different consumer sectors. The difference is most significant in the case of revenues from industrial sales. The combinations derived 17.6 percent of their total revenues from such sales, compared with 35.5 percent for the straight utilities.

This observation is verified by the average revenues per Mcf in the residential, commercial, and industrial sectors for combination and straight gas utilities in each region of the United States, as shown in Table 6. For total U.S., the combination utilities received higher average revenues on residential and industrial sales, than did the straight gas utilities. However, these differences are not statistically significant; that is, there is a great probability of obtaining a difference equal to or greater than the observed differences simply by using a different sample than ours. In the case of commercial sales, the average revenues are almost equal for the two groups of companies.

The combination utilities receive substantially higher average revenues per Mcf of residential sales in the Middle Atlantic and South Atlantic regions. On the other hand, their average residential revenues are much lower, relative to the averages for straight utilities, in the West North Central and Mountain regions. Similarly, there is no consistent national pattern of differences for the other classes of sales.

COMPARISON OF RATES

To answer the question whether the combination companies charge higher or lower rates than do the straight gas utilities, a comparison was made of the typical monthly bills of ten pairs of combination and straight gas companies. The criteria used for choosing comparable companies were the size of the community served, the volume of Mcf sales, and the nature of the market served. The pairs of companies chosen and their typical monthly bills (assuming monthly consumption of 9,000 cubic feet of gas) are shown in Table 7.

TABLE 5. PERCENTAGE DISTRIBUTION OF GAS REVENUES BY CUSTOMER CLASSES AND U.S. REGIONS, 1963

Region and type of company	Residential sales	Commercial sales	Industrial sales	Total
New England:				
Combination	66.0	12.8	21.2	100.0
Straight gas	NA	NA	NA	NA
Middle Atlantic:				
Combination	70.7	19.2	10.1	100.0
Straight gas	59.5	10.6	29.9	100.0
South Atlantic:				
Combination	69.6	11.3	19.1	100.0
Straight gas	50.5	14.8	34.7	100.0
East-north-central:				
Combination	57.7	27.7	14.5	100.0
Straight gas	62.3	9.5	28.2	100.0
East-south-central:				
Combination	61.9	20.4	17.7	100.0
Straight gas	43.5	13.6	42.9	100.0
West-north-central:				
Combination	54.6	27.2	18.2	100.0
Straight gas	56.0	10.3	33.7	100.0
West-south-central:				
Combination	68.5	14.0	17.5	100.0
Straight gas	36.0	9.5	54.5	100.0
Mountain:				
Combination	57.7	23.0	19.3	100.0
Straight gas	37.6	11.2	51.2	100.0
Pacific:				
Combination	55.9	13.7	30.4	100.0
Straight gas	54.6	11.2	34.2	100.0
Total U.S.:				
Combination	62.0	20.4	17.6	100.0
Straight gas	53.5	11.0	35.5	100.0

TABLE 6.—AVERAGE REVENUES PER M c.f. BY CUSTOMER CLASSES AND U.S. REGIONS, 1963

Region and type of company	Average residential revenues	Average commercial revenues	Average industrial revenues
New England:			
Combination	0.95	0.81	0.51
Straight gas	NA	NA	NA
Middle Atlantic:			
Combination	1.62	1.55	.68
Straight gas	1.02	.77	.53
South Atlantic:			
Combination	1.80	1.69	.57
Straight gas	1.13	.93	.41
East-north-central:			
Combination	.98	.75	.42
Straight gas	.94	.88	.49
East-south-central:			
Combination	.89	.70	.40
Straight gas	.93	.68	.34
West-north-central:			
Combination	.68	.69	.47
Straight gas	.97	.60	.28
West-south-central:			
Combination	.67	.37	.20
Straight gas	.76	.52	.22
Mountain:			
Combination	.68	.42	.29
Straight gas	.85	.77	.29
Pacific:			
Combination	1.04	.86	.55
Straight gas	.86	.64	.32
Total United States:			
Combination	1.08	.74	.49
Straight gas	.97	.75	.32

TABLE 7.—ILLUSTRATIVE RATE COMPARISONS FOR COMBINATION AND STRAIGHT UTILITIES

Company name	Location	Type of service	Average monthly bill[1]
Pacific Gas & Electric Co.[2]	San Francisco, Calif	General	$6.89
Southern California Gas Co	Los Angeles, Calif	do	10.32
Consolidated Edison of New York [2]	Manhattan, N.Y	Residential	15.18
Brooklyn Union Gas Co	Brooklyn, N.Y	do	17.76
Baltimore Gas & Electric [2]	Baltimore, Md	General	12.75
Washington Gas Light Co	District of Columbia	do	13.29
Michigan Gas & Electric [2]	Marquette, Mich	do	8.86
Southeastern Michigan Gas Co	Port Heron, Mich	do	11.25
Public Service Electric & Gas Co.[2]	Newark, N.J	Residential	13.73
New Jersey Natural Gas Co	Asbury Park, N.J	do	17.32
Northern States Power [2]	Eau Claire, Wis	General	17.20
Milwaukee Gas Light Co	Wisconsin Rapids, Wis	do	12.96
Central Kansas Power Co.[2]	Hays, Kans	do	5.00
The Gas Service Co	Pittsburg, Kans	do	5.74
Fitchburg Gas & Electric [2]	Fitchburg, Mass	do	14.65
Gas Service Inc	Nashua, N.H	do	15.60
Wisconsin Public Service Corp.[2]	Green Bay, Wis	Residential	10.12
Minnesota Valley Natural Gas Co	Alexandria, Wis	General	13.14
Virginia Electric and Power Co.[2]	Norfolk, Va	do	14.65
Department of Public Utilities	Richmond, Va	do	13.40

[1] The average bill is based on an average usage of 9,000 cubic feet per month.
[2] A combination company.

Source: Calculated from AGA Gas Rate Service.

The results of this comparison indicate that in 8 out of the 10 pairs of cases, the typical monthly bills are lower for combination than for straight gas companies. In only two cases are the typical monthly bills lower for straight gas companies than for combination utilities. Because of the limited coverage of our sample, however, we hesitate to claim that these results are truly indicative of the overall national picture.

RATES OF RETURN

As a group, the combination utilities have a lower rate of earnings on net investment in gas utility plant than do the straight gas companies. In 1963, for example, the combinations had a 6.3 percent return, while the straight gas companies earned 7.9 percent.[5] Similarly, in 1955 the combinations earned 6.3 percent, compared with 6.5 percent for straight gas companies.[6]

The difference in rates of return cannot be explained by differences in average revenues per Mcf sold, since these tend to be higher for combination utilities. Moreover, we do not find the explanation in differences in operating expenses. In 1953, the ratio of operating expenses to operating revenues was 88.7 percent for the combinations and 90.0 percent for the straight gas utilities. By 1963, the combination utilities had reduced their operating expense to ratio to 85.5, while the ratio for straight gas utilities had decreased to 89.1 percent.[7] On the basis of these operating ratio figures, the combinations had relatively lower expenses than the straight gas companies.

The explanation for the lower rate of return of the combination utilities might lie with lower rates charged for standard amounts of consumption, but we cannot be confident of that interpretation since our monthly bill comparisons are limited to an arbitrarily selected sample. Another possible explanation is that the lower rate of return reflects the character of the investment of combination companies and the composition of their sales. Because the combination utilities sell heavily to residential customers, they probably require more plant per customer than do straight companies which obtain a higher proportion of their revenues from industrial sales.

Other plausible explanations also come to mind. For example, the fact that the combination companies earn most of their income from their electric business suggests that they may give their primary attention to such business and do not make a comparable effort to improve their earnings on gas operations. The available information shows that combination companies had a 7.5 percent rate of return on their electric utility operations in 1963, compared with 6.3 percent on their gas utility operations.[8] Still another possibility is that the combination utilities are more heavily concentrated, relative to straight utilities, in states which enforce comparatively strict regulatory standards. This would seem to be a realistic explanation, since only 3.4 percent of the revenues of the combination companies is received in the East South Central and West South Central regions, the areas where regulatory enforcement is reputedly lax, as against 22.9 percent for the straight gas utilities. Pending a company-by-company analysis, however, it is hazardous to speculate on the true reasons for the differences in the overall average rates of return.

REGINA E. HERZLINGER.

Approved.

HASKELL P. WALD,
Chief, Office of Economics.

STATISTICAL APPENDIX

A direct observation of the 78 combination companies could not be made, due to the absence of data for 40 companies. The percentage distribution of consumer classes shown for the 78 combination utilities is generated from data for a sample of 38 combination utilities. The difference in the means between the expanded sample (N=78) and the original sample (N=38) was not found to be significant.

The following sources were used in generating the percentage distribution of consumer classes for the 78 combination utilities and the straight gas utilities:

1. Total combination utilities operating revenues: *Statistics of Electric Utilities, 1963, Privately-owned.*
2. Total combination utilities sales: *Moody's Public Utilities Manual, 1963.*
3. Consumer classification of operating revenues and sales achieved by *all* gas utilities: ACA's *Gas Facts, 1963.*

[5] For the same year, combination utilities earned 7.5 percent on their electric operations and straight electric companies 7.1 percent.
[6] *Gas Facts*, 1953 and 1963, American Gas Association.
[7] Calculated, respectively, from data in *Statistics of Electric Utilities, Privately-Owned*, 1953 and 1963, and *Gas Facts*, 1953 and 1963.
[8] See Table 10 in our October 11, 1966, memorandum cited in footnote 2 above.

The percentage distribution of sales and operating revenues for different consumer classes of straight gas and combination utilities was derived in the following manner:

1. The data for the consumer classification of the gas operating revenues and sales of the 38 combination utilities were arranged by regions of the U.S.

2. The sample data, regionally arranged, were checked for coverage of the total combination data. In most regions, the sample covered over 80 percent of the total combination data. Hence, the sample was an adequate representation of the entire population of combination utilities.

3. The percentage distribution of the consumer classes in the sample was applied to the total combination data. In this manner, the percentage distribution of the consumer classes for all 78 combination utilities was derived.

4. The derived combination totals in each consumer class were subtracted from the total gas data. Thus, the percentage distributions for the straight gas utilities were derived.

In all regions, but for New England, the expanded sample provided reasonable results. In the New England region the results were anomalous and, thus, excluded. However, the New England region is of minor importance relative to the U.S. market and this limitation of the data does not seriously impair the effectiveness of the expanded sample.

Memorandum to: The Commission (for agenda).
From: Chief, Office of Economics.
Subject: Transmittal of initial report on combination utilities.

The attached report by Mrs. Regina Herzlinger is a background survey of privately-owned combination electric and gas utilities in the United States. The report includes comparisons with straight electric utilities from the standpoint of sales, revenues, expenses, classes of customers, electric rates and rates of return on invested capital.

One of the conclusions of this initial staff is that combination companies tend to charge higher electric rates—and also to earn higher rates of return on their electric operations—than do straight electric companies in generally comparable circumstances. We plan to subject this conclusion to further testing in our follow-up studies of combination companies. We need to examine more closely the economic behavior of these companies before we can be confident that their higher rates for electricity can be attributed to the absence of an independent company selling gas in their service areas.

HASKELL P. WALD.

OCTOBER 11, 1966.

Memorandum to: The Commission.
From: Office of Economics.
Subject: A survey of combination electric and gas companies.

The 78 privately-owned utilities (Classes A and B) which sell both gas and electricity play an important role in the United States energy market. In 1963 these combination companies accounted for 37 percent of total sales and 42 percent of total electric operating revenues in the private sector of the electric utility industry. Their gas sales to ultimate consumers were 22 percent, and their gas revenue 31 percent, of the corresponding U.S. totals.

The electric portion of these combination utilities is substantially more important, from the standpoint of investment and income, than the gas portion. In 1963 the gas plant owned by combination companies was only 23 percent of the value of their electric plant; furthermore, their gas operating income was only 24 percent of their electric operating income.

Reflecting the gas industry's success in capturing of new markets during the nineteen-fifties, the gas portion of their business has been expanding at a faster rate than the electric portion. Their gas operating revenues grew at an annual rate of 9 percent from 1953 to 1963, while their electric revenues grew at a rate of 5¼ percent. During the same ten years, gas plant of the combination utilities grew at a rate of 5½ percent per year, compared with 4⅜ percent for their electric plant. During the past few years, however, most of the disparity between the growth rates for gas and electricity has been eliminated for the combination companies as well as for the gas and electric industries at large.

The growth rates for combination utilities have been somewhat below those for straight utilities. Thus, the electric plant of the combination utilities declined from 39 percent of total privately-owned (Classes A and B) electric utility plant in the U.S. in 1953 to 32 percent in 1963. Furthermore, the 9 percent growth rate of the gas operating revenues of the combination companies from 1956 to 1963 falls short of the 10 percent growth rate of total gas industry. Similarly, the $5\frac{1}{4}$ percent growth of the electric operating revenues of the combinations during that same period is lower than the $6\frac{1}{4}$ percent growth rate achieved by the industry as a whole.

Since the combination companies are primarily electric utilities and only secondarily gas utilities, the principal focus of this paper is on the electric portion of their operations. The paper presents background statistics on the combination utilities and includes comparisons with straight electric utilities in terms of sales, revenues, expenses, prices, and rates of return.

SUMMARY OF FINDINGS

The major findings of this survey of combination utilities are summarized below:

1. In three regions of the country—Middle Atlantic, West North Central, and Mountain States—combination companies sell more electricity than do straight utilities. In the U.S. as a whole, however, the combination companies account for 37 percent of total electricity sales by privately-owned utilities.

2. The average combination company is about the same size, as measured by sales, as the average straight company.

3. Combinations are relatively more dependent on residential and commercial sales than are straight electric companies.

4. Combination utilities tend to charge higher prices than do straight electric companies.

5. Combination utilities earn a higher average rate of return on their electric facilities than do the straight electric companies. However, the "percentage of plant" income on their gas facilities is lower than that of the straight gas companies.

GEOGRAPHICAL DISTRIBUTION OF COMBINATION UTILITIES

As shown in Table 1, the privately-owned combination utilities are geographically concentrated in the Middle Atlantic, East North Central, West North Central, and Pacific regions. More than three-fourths of the sales of electricity to ultimate consumers by combination companies were in these four regions and only one-fourth was in the other five regions of the United States. The combination companies sold 77 percent of all electricity sold by private companies to ultimate consumers in the West North Central Region and about 70 percent of the total for the Middle Atlantic Region.

TABLE 1.—RELATIVE IMPORTANCE OF ELECTRIC SALES (IN KILOWATT HOURS) BY PRIVATELY OWNED COMBINATION AND STRAIGHT UTILITIES

[In percent]

Region[1]	Distribution of U.S. totals		Distribution of regional totals		Total
	Combination utilities	Straight electric utilities	Combination utilities	Straight electric utilities	
New England	3.2	7.9	18.9	81.1	100
Middle Atlantic	32.6	8.4	69.5	30.5	100
South Atlantic	8.8	17.6	22.5	77.5	100
East North Central	18.2	29.8	28.9	71.1	100
East South Central	1.6	8.6	9.7	90.3	100
West North Central	12.5	2.2	77.1	22.9	100
West South Central	4.7	13.4	16.9	83.1	100
Mountain	5.3	2.8	52.9	47.1	100
Pacific	13.2	9.3	45.4	54.6	100
Total United States	100.0	100.0	36.6	63.4	100

[1] Major geographic divisions as reported in "Edison Electric Institute Statistical Yearbook."

Source: Based on data in "Statistics of Electric Utilities, Privately Owned, 1963."

The 78 combination companies are listed by States in Appendix A. To provide an indication of the size of the companies, total electric operating revenues in 1963 are shown for each company. The largest combination company in terms of electric operating revenues is Consolidated Edison of New York. Pacific Gas and Electric is next in size, followed by Public Service Electric and Gas in third place. The list of combination companies with over $100 million of electric operating revenues in 1963 also includes Baltimore Gas & Electric, Consumers Power (Michigan), Northern States Power (Michigan), Union Electric (Missouri), Long Island Lighting (New York), Niagara-Mohawk Power (New York), Philadelphia Electric and Virginia Electric & Power.

COMPARISONS OF SALES, REVENUES AND EXPENSES

To facilitate comparison of the electric portion of the combination and straight electric utilities, the 213 privately-owned Classes A and B companies in the parent population were ranked according to sales in 1963.[1] "Kilowatt hour sales" was chosen because it correlated very well with the size of electric plant for each company[2]; thus, this method of ranking accounted, to some degree, for the economies of scale of the individual companies. The kwh rankings were divided into three size categories; large companies which had sales greater than 10 billion kwh (*Class I*); medium-sized companies which had sales greater than 1 billion but less than 10 billion kwh (*Class II*); and small companies which had sales of less than 1 billion kwh (*Class III*).

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[1] Date source: "Statistics of Electric Utilities, Privately-Owned 1963."
[2] In almost every case, the individual company's rank in kilowatt hour sales is the same as its rank in size of electric plant.

TABLE 2.—OPERATING REVENUES AND KILOWATT-HOUR SALES, 1963, BY SIZE CATEGORIES

[Class I: companies with sales larger than 10,000,000,000 kilowatt-hour. Class II: companies with sales larger than 1,000,000,000 but smaller than 10,000,000,000 kilowatt-hour. Class III: companies with sales smaller than 1,000,000,000 kilowatt-hour]

	Combination utilities				Straight electric utilities				All classes A and B companies			
	Class I	Class II	Class III	Total	Class I	Class II	Class III	Total	Class I	Class II	Class III	Total
Number of companies	8	40	30	78	10	69	56	135	18	109	86	213
Kilowatt-hour sold (percent)	44.6	30.3	43.2	36.6	55.4	69.7	56.8	73.4	100	100	100	100
Electric operating revenues (percent)	52.1	34.6	49.0	41.9	47.9	65.4	51.0	58.1	100	100	100	100
Electric operating revenues (cents per kilowatt-hour)	1.86	1.84	2.26	1.87	1.37	1.55	1.74	1.50	1.59	1.64	1.99	1.63

In 1963 the 78 combination utilities sold 36.6 percent of total U.S. kilowatt hour sales by privately-owned utilities in Classes A and B.[3] However, a study of the percentages shown in Table 2 reveals that the combination utilities accounted for different percentages of sales in the different size categories. The 8 Class I combination companies had 44.6 percent of the total sales of the 18 companies in that size group. In Class II, however, the combination companies had 30.3 percent of the total, while the Class II combination companies had 43.2 percent. Thus, the combination utilities have disproportionately large sales in the largest and smallest size categories.

Although the combinations accounted for 36.6 of the total sales by private utilities in 1963, they received 41.9 percent of total electric operating revenues. In all sizes categories, as shown in Table I, the combination utilities received a higher percentage of operating revenues than their percentage of kwh sales. This point is emphasized by comparing the average revenue per kwh sold by combination utilities and straight electric companies. In every size class, unit revenues were higher for combination utilities than for straight electric utilities.

The combination utilities also had higher average operating expenses than did the straight electric utilities—sufficiently higher, in fact, to eliminate almost the entire advantage that the combination utilities enjoyed through their higher average revenue. The average revenue of the combination utilities was 24.9 percent higher than that of the straight electric companies and their average operating expense was 23.8 percent higher: thus, operating income per kwh sold was approximately the same for combination and straight electric utilities.

However, these national averages mask the differences among large, medium, and small-sized combination and straight electric companies. These differences narrow as the company size becomes smaller. Thus, as indicated in Table 3, the Class I combination utilities had operating expenses per kwh sold which were 25.6 percent higher than those of straight electric companies of comparable size, but in Class III the operating expenses of combination utilities were only 15.2 percent higher.

TABLE 3.—OPERATING REVENUES AND EXPENSES, 1963, BY SIZE CATEGORIES[1]

	Combination utilities				Straight utilities				All classes A and B companies			
	Class				Class				Class			
	I	II	III	Total	I	II	III	Total	I	II	III	Total
Operating revenues (cents per kilowatt-hour)	1.85	1.84	2.26	1.87	1.49	1.55	1.74	1.50	1.59	1.64	1.96	1.63
Operating expenses (cents per kilowatt-hour)	1.43	1.40	1.82	1.43	1.15	1.19	1.58	1.16	1.23	1.25	1.68	1.26
Percentage of operating expenses to operating revenues	76.7	76.3	80.4	76.7	77.6	76.3	90.5	77.4	77.3	76.3	85.5	77.1

[1] See table 2 for definition of size categories.

This trend of narrowing differences between the operating expenses of combination and straight electric utilities as the company size becomes smaller was not true for operating revenues. In Class I the average operating reserves of combination utilities were 25.1 percent larger than those of the straight electric companies; in Class III they were 20.0 percent larger. Thus, the large combination utilities did not differ very much from the large straight electric companies in percentage of their revenues taken up by expenses. The small combination utilities, however, had 10 percent less of their operating revenues taken up by expenses than did the small straight electric utilities (see Table 3). Reflecting their favorable operating expense ratio, the small combination utilities had a higher average rate of return than did the straight utilities in the same size classification. The small combination utilities also had a higher average rate of return than did the large ones. In 1963, the rate of return was 7.58 percent for the small combination companies and 6.62 percent for the large combination companies.[4]

[3] The fact that 78/213 equals 36.6 percent can be taken to mean that the two components, in the aggregate, are homogeneous.

[4] See below for a further discussion of rates of return.

Within the total of electric operating expenses, the combination utilities had higher fuel expenses per kwh of sales than did the straight electric companies. This may be due to the fact that the combination companies purchased less power than did the straight electric companies. In 1963, the ratio of purchased power expense to total production expenses was 16.5 percent for the combinations and 22.4 percent for the straight electric companies. The higher level of their fuel expenses held true in all the size categories (see Table 4), but it was most noticeable in the case of Class III companies. Yet, as noted above, the Class III combination utilities had unit operating expenses which did not differ significantly from those of straight electric companies in the same size class. The explanation can be found in the table which shows that the relatively higher fuel expenses of the small combination utilities were balanced by their relatively lower operating expenses in other areas—notably, distribution expenses. The small combination companies had average distriubtion expenses of .12¢ per kwh, compared with .16¢ per kwh for electric companies. The large combination utilities, on the other hand, had both higher average fuel and distribution expenses than did the large straight electric companies; thus, their total operating expenses were siginificantly higher than for straight electric companies in Class I.

TABLE 4.—FUEL AND DISTRIBUTION EXPENSES, 1963, BY SIZE CATEGORIES[1]

[Cents per kilowatt-hour of sales]

	Fuel expenses		Distribution expenses	
	Combination	Straight	Combination	Straight
Class I	0.277	0.242	0.148	0.091
Class II	.236	.215	.118	.105
Class III	.217	.134	.118	.157

[1] See table 2 for definition of size categories.

In summary, the main conclusions of the above analysis are:

1. Combination utilities have higher operating expenses and revenues per kwh of sales than do straight electric utilities.
2. As the size of the company decreases, the percentage difference in operating expenses decreases. However, the differences in operating revenues do not vary significantly with the size of the companies involved.
3. The combination companies generally have higher average fuel and distribution expenses than do the straight electric companies, except for the distribution expenses of the smallest combination companies, which are lower than for the smallest straight electric companies.

COMPARISONS BY CLASSES OF SALES

The composition of electricity sales by the 78 combination companies and the 135 straight utilities is shown below for the year 1963:

[In percent]

Class of customers	Combination companies	Straight companies
Residential	27.9	24.9
Commercial	22.7	18.5
Industrial	41.2	42.5
Resale and miscellaneous	8.2	14.1
Total	100.0	100.0

The proportion of total sales in the residential and commercial classifications was larger for combination companies than for straight electric utilities, while the proportion in the industrial classification was a little smaller. Resale and miscellaneous sales were significantly smaller for combination companies than for the others.

Moreover, in size Classes I and III, more than half of the sales to residential and commercial customers was made by combination companies and less than

half by straight companies (see Table 5). Only in Class II did combination companies fall behind the straight companies in the absolute amount of residential and commercial sales. With regard to industrial sales, however, the combination companies in all size categories sold relatively less than did the other group.

Similar findings are obtained by studying the average kwh sold per company to different customer classes. As indicated in Table 6, kwh sales to residential and commercial consumers were higher on the average for combination companies than for straight electric utilities. When coupled with the data above, the conclusion that the combination utilities are relatively more dependent on residential and commercial sales than are the straight utilities is strongly supported.

This difference in the composition of sales by the combination utilities may account for their relatively higher operating revenues and costs. In 1963, for example, residential customers, who accounted for 24.2 percent of the total electric energy sold by private utilities, provided for 37.1 of their total electric revenues, while commercial customers, using 18.7 percent of the kwh sold, provided 26.6 percent of the revenues. On the other hand, the industrial sector—in which the combination utility companies are relatively less important compared with the straight electric companies—yields proportionately less revenue relative to sales; in 1963, this sector purchased 39.3 percent of the energy and paid only 24.9 percent of the revenues.[1] The relatively higher sales by combination utilities to the residential sector would also account for their observed cost pattern, since distribution costs are largely a function of the number of residential customers.

COMPARISON OF PRICES AND RATES OF RETURN

To answer the question whether the combination companies charge higher prices than do the straight utlities, a comparison was made of the prices charged by twelve pairs of combination and straight electric companies. The criteria used for choosing comparable companies were the size of community served, the volume of kwh sales, and the nature of the market served. The pairs of companies shown in Table 7 are arranged in descending order of size as measured by kwh sales.

TABLE 5.—PERCENTAGE DISTRIBUTION OF SALES BY CUSTOMER CLASSES AND SIZE CATEGORIES 1963 [1]

Size category	Residential sales			Commercial sales			Industrial sales		
	Combination utilities	Straight electric utilities	All privately owned companies	Combination utilities	Straight electric utilities	All privately owned companies	Combination utilities	Straight electric utilities	All privately owned companies
Class I	50.3	49.7	100	51.5	48.5	100	40.9	59.1	100
Class II	31.2	68.8	100	31.0	69.0	100	31.3	68.7	100
Class III	52.5	47.5	100	60.2	39.8	100	38.3	61.7	100
Total	39.5	60.5	100	42.4	57.6	100	35.5	64.5	100

[1] See table 2 for definition of size categories.

TABLE 6.—SALES BY CUSTOMER CLASSES: AVERAGES PER COMPANY, 1963

[In millions of kilowatt-hours]

	Combination	Straight electric utilities	All privately owned companies
Residential	891	836	855
Commercial	720	635	668
Industrial	1,291	1,358	1,333
All customers	2,902	2,829	2,856

[1] "Statistics of Electric Utilities in the United States, Privately Owned, 1963."

TABLE 7

Company	Area	Price (residential) (500 kw.-hr.)		Combination utilities' price as a percentage of straight electric utilities' price		Variable cost per kw.-hr. (1957-61 average)
		1965	1955	1965	1955	
Pacific Gas & Electric[1]	San Francisco, Calif.	9.40	9.44	102	110	0.645
Southern California Edison	Los Angeles County, Calif.	9.19	8.62			.702
Consumers Power[1]	Battle Creek, Mich.	8.97	8.50	118	82	.871
Detroit Edison	Detroit, Mich.	7.61	10.41			1.036
Public Service Electric & Gas[1]	Newark, N.J.	10.15	10.05	102	105	1.040
Commonwealth Edison	Chicago, Ill.	9.98	9.60			.919
Virginia Electric & Power[1]	Richmond, Va.	10.30	10.26	109	102	.753
Duke Power Co.	North Carolina	9.44	9.51			.529
Baltimore Gas & Electric[1]	Baltimore, Md.	12.48	11.91	129	120	1.034
Potomac Electric Co.	District of Columbia	9.68	9.89			.850
Northern Indiana Public Service Co.[1]	Gary, Ind.	10.45	10.45	108	114	.808
Indianapolis Power & Light Co.	Indianapolis, Ind.	9.65	9.15			.664
Washington Water Power Co.[1]	Colville, Wash.	7.90	6.71	114.0	110.0	.371
Puget Sound Power & Light Co.	Anacortes, Wash.	6.92	6.11			.564
Dayton Power & Light[1]	Dayton, Ohio	10.39	10.19	90.0	90.0	.737
Columbus & Southern Ohio Electric Co.	Columbus, Ohio	11.49	11.30			.876
Kansas Power & Light[1]	Topeka, Kans.	9.53	9.23	120.0	120.0	.747
Kansas Gas & Electric	Haysville, Kans.	7.92	7.61			.574
New Bedford Gas & Edison Light Co.[1]	New Bedford, Mass.	11.01	13.39	101.0	118.0	1.021
Cambridge Electric Light Co.	Cambridge, Mass.	10.94	11.32			1.138
Michigan Gas & Electric[1]	Dowagia, Mich.	10.45	10.38	93.5	98.9	1.254
Edison Sault Co.	Manistique, Mich.	10.50	10.50			.975
Superior Water, Light & Power Co.[1]	Superior, Wis.	10.40	11.15	99.5	96.3	1.198
Lake Superior District Power Co.	Ashland, Wis.	10.45	11.58			.914

[1] A combination utility.

Source: Price data—Typical electric bills 1965 and 1955; cost data—"An Introductory Analysis of Inter-Company Differences in Electric Power Cost" by Benjamin Smith, Office of Economics, Oct. 28, 1955. (Variable cost ratio is defined as operation and maintenance expense per kilowatt-hour sold).

The results of this comparison indicate that in 9 out of the 12 pairs of cases, the prices charged for 500 kwh of residential consumption were higher for combination than for straight electric companies. Furthermore, 6 of the 12 combination utilities increased their prices, relative to the prices charged by the straight electric companies, over the 1955–1965 period, while only 4 of the combination companies reduced their prices relative to the prices of the comparable straight utility. Also, in 4 out of the 5 cases where the variable costs of the combination utility were lower than those of the comparable straight electric company, the combination company still had the higher price.

In the comparison of the prices charged for 1500 kwh of commercial consumption, as shown in Table 8, in 6 out of the 9 pairs of cases the combination utilities charged higher prices than did the straight electric utilities. Also, as shown in Table 9, in 4 out of the 9 pairs of cases, the prices charged for 60,000 kwh of industrial consumption were higher for combination than for straight electric companies, and in only 3 out of 9 cases were the prices lower. Furthermore, 6 of the 9 combination utilities increased their industrial prices, relative to the prices charged by the straight electric companies, over the 1959–1963 period.

The higher prices by the combination utilities are reflected in relatively higher earned rates of return on their investment. In 1963 the 78 privately-owned combination utility companies in the United States earned an average return of 7.45 percent on the electric portion of their operations. In that same year, the straight utilities received an average return of 7.10 percent. As shown in Table 10 throughout the years 1961–64 the rates of return were higher for combination utilities than for straight electric companies.

According to American Gas Association statistics, however, the return on the gas portion of the combination utilities was lower than return earned by straight natural gas distribution companies. In 1963, for example, it was 6.3 percent for the combinations and 7.0 percent for the straight gas companies. Similarly, in 1955, the combinations had earnings of 6.3 percent, while the straight gas companies had 6.6 percent.[1]

REGINA E. HERZLINGER.

[1] Source: *Gas Facts*, 1963.

TABLE 8

Company	Area	Price commercial 1,500 kilowatt hours 1965	Price commercial 1,500 kilowatt hours 1959	Combination utilities price as a percentage of straight electric utilities price 1965	Combination utilities price as a percentage of straight electric utilities price 1959
Pacific Gas & Electric[1]	San Francisco, Calif.	46.77	47.27	102	85
Southern California Edison	Los Angeles County, Calif.	45.80	55.40		
Consumers Power[1]	Battle Creek, Mich.	52.65	50.75	109	104
Detroit Edison	Detroit, Mich.	48.26	48.84		
Public Service Electric & Gas[1]	Newark, N.J.	59.57	59.44	93	88
Commonwealth Edison	Chicago, Ill.	64.39	67.22		
Virginia Electric & Power[1]	Richmond, Va.	45.50	57.46	121	138
Duke Power Co	North Carolina	37.50	41.50		
Baltimore Gas & Electric[1]	Baltimore, Md.	51.53	53.02	129	139
Potomac Electric Co	District of Columbia	40.09	38.19		
Northern Indiana Public Service Co.[1]	Gary, Ind.	55.70	55.70	135	135
Indianapolis Power & Light Co	Indianapolis, Ind.	41.30	41.30		
Washington Water Power Co.[1]	Colville, Wash.	21.76	29.64		
Puget Sound Power & Light Co	Anacortes, Wash.				
Dayton Power & Light[1]	Dayton, Ohio	57.00	57.00	113	149
Columbus & Southern Ohio Electric Co	Columbus, Ohio	50.40	38.38		
Kansas Power & Light[1]	Topeka, Kans.	49.04	51.50	87	81
Kansas Gas & Electric	Haysville, Kans.	56.64	63.59		
New Bedford Gas & Edison Light Co.[1]	New Bedford, Mass.	54.53	54.53	98	98
Cambridge Electric Light Co	Cambridge, Mass.	55.76	55.88		

[1] A combination utility.
Source: Price data—Typical electric bills 1965 and 1959.

TABLE 9

Company and area	Price (Industrial, 300 kw., 60,000 kw.) 1965	Price (Industrial, 300 kw., 60,000 kw.) 1959	Combination utilities price as a percentage of straight electric utilities price 1965	Combination utilities price as a percentage of straight electric utilities price 1959
Pacific Gas and Electric,[1] San Francisco, Calif.	947	951	104	102
Southern California Edison, Los Angeles County	912	931		
Consumers Power,[1] Battle Creek, Mich.	1,243	1,235		
Detroit Edison, Detroit, Mich.	1,244	1,287	100	23
Public Service Electric and Gas,[1] Newark, N.J.	1,215	1,152		
Commonwealth Edison, Chicago, Ill.	1,276	1,344	95	86
Virginia Electric and Power,[1] Richmond, Va.	978	1,144	122	87
Duke Power Co., North Carolina	804	1,311		
Baltimore Gas and Electric,[1] Baltimore, Md.	1,371	1,440		
Potomac Electric Co., District of Columbia	1,094	1,245	125	116
Northern Indiana Public Service Co., Gary, Ind.	1,122	1,131		
Indianapolis Power & Light Co., Indianapolis, Ind.	1,280	1,283	88	88
Washington Water Power Co.,[1] Colville, Wash.	861	748		
Puget Sound Power & Light Co., Anacortes, Wash.				
Dayton Power and Light,[1] Dayton, Ohio	1,074	1,087		
Columbus & Southern Ohio Electric Co., Columbus, Ohio	959	1,297	112	84
Kansas Power & Light,[1] Topeka, Kans.	1,033	1,022		
Kansas Gas and Electric, Haysville, Kans.	1,286	1,267	80	81
New Bedford Gas & Edison Light Co.[1] New Bedford, Mass.	1,128	1,157		
Cambridge Electric Light Co., Cambridge, Mass.	1,279	1,226	88	94

[1] Indicates a combination utility.

Source: Price data, typical electric bills 1965 and 1959.

TABLE 10.—RATES OF RETURN ELECTRIC UTILITY OPERATIONS

[In percent]

	Combination utilities	Straight electric utilities
1964	7.56	7.24
1963	7.45	7.10
1962	7.26	6.96
1961	7.13	6.92

APPENDIX A

PRIVATELY OWNED COMBINATION UTILITIES (CLASSES A AND B) IN THE UNITED STATES

Company and State	Total electric operating revenues (thousands of dollars)
Arizona Public Service Co., Arizona	$66, 488
Tuscon Gas, Electric Light & Power Co., Arizona	24, 148
Arkansas-Missouri Power Co., Arkansas	10, 726
Pacific Gas & Electric Co., California	489, 089
San Diego Gas & Electric Co., California	66, 906
Public Service Co. of Colorado, Colorado	83, 075
Western Power & Gas Co., Colorado	9, 639
Connecticut Light & Power Co., Connecticut	93, 718
Hartford Electric & Light Co., Connecticut	63, 007
Delaware Power & Light Co., Delaware	34, 220
Florida Public Utilities Co., Florida	2, 434
Central Illinois Electric & Gas Co., Illinois	20, 267
Central Illinois Light Co., Illinois	33, 075
Central Illinois Public Service Co., Illinois	63, 435
Illinois Power Co., Illinois	92, 124
Mount Caramel Public Utilitiy Co., Illinois	1, 401
Southern Beloit Water, Gas & Electric Co., Illinois	1, 222
Northern Indiana Public Servcie., Indiana	78, 989
Southern Indiana Gas & Electric Co., Indiana	18, 287
Interstate Power Co., Iowa	30, 850
Iowa Electric & Light Power Co., Iowa	35, 315
Iowa-Illinois Gas & Electric Co., Iowa	29, 541
Iowa Power & Light Co., Iowa	36, 027
Iowa Public Service Co., Iowa	28, 838
Iowa S. Utilities Co., Iowa	16, 340
Central Kansas Power Co., Kansas	4, 262
Kansas Power & Light Co., Kansas	47, 632
Western Light & Telephone Co., Kansas	14, 436
Louisville Gas & Electric Co., Kentucky	50, 330
Union Light, Heat & Power Co., Kentucky	12, 618
Central Louisiana Electric Co., The, Louisiana	20, 895
New Orleans Public Service, Inc., Louisiana	44, 751
Baltimore Gas & Electric Co., Maryland	136, 252
Boston Gas Co., Massachusetts	1, 548
Fitchburg Gas & Electric Light Co., Massachusetts	4, 829
New Bedford Gas & Electric Light Co., Massachusetts	13, 870
Consumers Power Co., Michigan	209, 20c
Michigan Gas & Electric Co., Michigan	4, 502
Northern States Power Co., Minnesota	159, 803

Source: Federal Power Commission, "Statistics of Electric Utilities in the United States, Privately Owned, 1963."

MARCH 19, 1969.

Memorandum to: The Commission (for information).
From: Office of Economics.
Subject: Summary of "Combination Companies: A Comparative Study," by National Economic Research Associates (NERA).

New interest in the comparative performance of combination gas and electric utilities and straight utilities was generated by the 1967 decision of the United States Supreme Court in the Securities and Exchange Commission v. New England Electric System, in which the New England Electric System was required to divest itself of its gas utility operations.

The stated purpose of this recently published NERA study was "to compare the performance of combination companies as a group . . . with that of straight electric and straight gas companies separately." The study was sponsored by the Long Island Lighting Company, a combination utility. NERA reaches the following conclusion:

> The results of our study show that while for certain variables one group of companies may have, on average, outperformed one or both of the other groups, the data, when viewed on an overall basis, do not suggest that any one group has a statistical advantage over either of the other two. Thus, we further conclude that the data do not indicate that a conclusion can be reached either in favor of, or against combination companies based on their performance as herein measured.

The study is based on financial and operating data, primarily for 1966, for 100 utility companies. The 87 companies which are included in *Standard & Poor's* Compustat tape and which distribute electricity were classified into 47

straight electric and 40 combination. Electric companies with gas revenues less than or equal to 10 percent of total revenues were considered straight electric companies, and electric companies with gas revenues greater than 10 percent were considered combinations. In addition, 13 straight gas distribution companies which had operating revenues exceeding $30 million (with the exception of two utilities) and which were not subsidiaries of integrated companies were selected from the "straight natural gas distribution utilities" covered by the AGA publication, *Gas Facts*.[1]

In order to determine whether the observed differences between averages for the groups of companies studied are statistically significant, tests of significance must be applied to the basic data. Since NERA did not furnish the results of such tests, we can only say that one average is higher or lower than another, but we cannot say if the differences between the averages indicate actual (statistically significant) or random differences between the groups. For example, the heat rate (Btu/kwh) was found to be numerically higher for combinations (10,803) than for straight companies (10,774). However, without additional information, we do not know whether or not to attach importance to the numerical difference (29) between the values.

Before we can attribute any differences found in the averages for the three groups to whether the companies are straight or combination utilities, we must insure that all other factors affecting the averages are essentially the same (homogenous) for the groups compared. In many respects, NERA did not insure that the three groups were homogeneous with respect to the other factors affecting the comparisons. For example, in the sampling process they should have had a $30 million cut-off for the straight electric and combination companies since they used a $30 million cut-off for the gas companies, rather than choosing the straight and combination companies just because they appeared on *Standard & Poor's* Compustat tape. Otherwise, differences in the averages found for combinations and straight gas companies may simply reflect differences in size (based on revenues). Similarly, if the combination companies studied happen to serve more areas of generally high population density than are served by the straight utilities studied, differences found in the averages for the groups of companies may be a result of the differences in population density rather than their being combination as opposed to straight utilities. Some of the other variables, besides whether or not a company is straight or combination, which may cause differences in the averages for the groups are number and type of customers served, distribution of sales among customer classifications, company size according to total kwh sales, method of kwh generation, and geographical location of the companies. NERA examines only one type of customer classification (residential) but does not seem to have controlled any of the other influencing factors; for example, differences in kwh or therm sales per customer may affect various expense ratios for the three groups of companies.

In spite of these reservations concerning homogeneity, the following examination and interpretation of the specific findings of the NERA study will assume that the groups are homogeneous and statistically comparable. Some of the effects of the lack of homogeneity will be pointed out in the discussion of individual variables or groups of variables.

With respect to financial data (see attached table), the average five and ten-year growth rate in earnings per share and rate of return on common equity for 1966 were higher for straight electric companies than for combinations and were lower for straight gas companies than for combinations. Since revenues from the electric proportion of the combinations tend to dominate total revenues of the combinations, we can expect the averages for the combinations to be closer to those of the straight electric companies than of the straight gas companies, as the averages calculated indicate. Needless to say, the NERA results are not adequate for any judgment as to the comparative investment desirability of combination and straight companies. Many factors other than whether or not a company is combination or straight tend to influence the statistical comparisons and the comparative investment desirability of the three groups of companies.

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[1] The data sources used were *Standard & Poor's* Compustat tape; *Moody's Public Utilities Manual*; FPC *Statistics of Privately Owned Electric Utilities in the United States, 1966*; *Uniform Statistical Reports*; *Brown's Directory of North American Gas Companies*; *Studley Shupert Statistics*; McGraw-Hill *Directory of Electric Utilities*, and FPC *All Electric Homes in the United States*, Annual Bills, January 1, 1967.

In order to provide a frame of reference for evaluation of the expense, consumption, and revenue data in the NERA study, it may be helpful to review the arguments of two schools of thought, the straight utility school and the combination utility school.

The straight utility school maintains that the public interest will be best served if separately managed gas and electric utilities actively compete for household, commercial, and industrial markets, such as space heating, water heating, cooking, air conditioning, refrigeration, and clothes drying. This thesis is based on the conventional argument that greater competition leads industries which are forced into competition to lower prices, expand output [2] (or to expand rates of increase in output), improve service, attain greater management efficiency, reduce labor and capital equipment expenditures, engage in more intensive research and promotional activities, and provide greater freedom of consumer choice. A second and related argument in favor of straight utilities involves the decreasing cost nature of the utility industries with the possibility for economies of scale. As increased competition leads to an expansion of output, average or unit costs fall. This fall in unit costs allows for a decrease in prices greater than that which would be possible in a constant or increasing cost industry. Under combination utility conditions, on the other hand, management may concern itself with the welfare of both the gas and the electric operations and will be motivated to insure that each receives a fair return. For example, electric space heating prices may be maintained at a high level so as not to compete with gas space heating. The higher electric space heating prices will result in a reduction of electric output and higher average costs, which will tend to reinforce the upward bias in electric prices.

The combination utility school maintains that combination utilities can outperform straight utilities. They point to economies of joint operation such as a single meter reader for both gas and electric operations, a single appliance inspector, a single service department, single headquarters with common management and overlapping sales, accounting, purchasing, billing, collecting, and engineering departments, use of a single trench for underground distribution, sales promotion emphasis in the area where the marginal profit is greatest, and taking advantage of the differences in peak load times for the two services by using idle workers in one service during the off peak load time of that service in the peak load times of the other service. In addition, peak load problems can be reduced by promoting electric heat to reduce gas peak load in winter and promoting gas air conditioning to reduce electric peak load in the summer.

The NERA averages for customer accounts expenses, administrative, general and sales expenses, and operation expenses less cost of fuel and purchased power, when placed on a per residential customer basis, were numerically higher for straight electric companies than for combinations, but when placed on a per 1,000 kwh of residential sales basis they were numerically higher for combinations than for straight electric companies. A suggested reason for the reversals is that the average straight electric company had higher per customer sales than did combinations. This lack of homogeneity between the two groups of companies with respect to per customer sales (as well as the lack of information on the significance of the differences in the values) prohibits a meaningful conclusion supporting the straight utility school contention that costs could be expected to be higher under combination utility conditions due to the lack of competitive pressure for lower costs, or supporting the combination utility contention that costs could be expected to be lower under combination utility conditions due to economies of joint operations. Earlier studies by the Office of Economics tend to indicate tentatively that combinations generally have higher electric expenses per kwh sales than do straight utilities.[3]

Averages for customer accounts expenses, administrative, general and sales expenses, and operation and maintenance expenses less cost of gas purchased were numerically higher for straight gas companies than for combinations both on a per customer basis and per 1,000 therm of residential sales basis. These results for gas operations would tend to give support to (or fail to disprove) the combination school contention that economies of joint operation lead to lower costs.[4]

The five-year growth rate in kwh sales per residential electric customer and the percentage increase in residential electric customers, 1960–1966, were numeri-

[2] Assuming consumers will purchase more at a lower price than at a higher price.
[3] See Memorandum to the Commission from the Office of Economics, "A Survey of Combination Electric and Gas Companies," October 11, 1966.
[4] See footnote on page 220.

cally higher for straight electric companies than for combinations. This finding gives support to (fails to disprove) the straight utility school contention that greater competition will lead companies forced to compete to attempt to keep prices lower in order to expand output faster, and/or to engage in more vigorous promotional activities, and/or to provide better service in order to attract new or addtional customer sales or to prevent the customer from turning to a competitive source of energy supply, either initially, or for additional supply needs.[4] However, the five-year growth rate in gas sales per residential customer, 1961–1966, was the same for combinations and straight gas companies, but the percentage increase in number of residential gas customers was numerically but not necessarily significantly higher for combinations than for straight gas companies. This result fails to support this straight utility school contention.

Average revenue from residential electric sales for 1966, average charge for all-electric service at annual consumption of 15,000 kwh as of January 1, 1967, and average revenue from residential gas heating customers for 1966, were all numerically higher for combination companies than for straight companies. This finding supports (fails to disprove) the straight utility school contention that the absence of competition leads to higher average revenue or prices. Studies which are currently being made in the Office of Economics tentatively indicate that average revenue figures are generally higher for combinations than for straight utilities.

In conclusion, we present the following summary of the limitations found in the NERA study:

1. The summary given on pages 21–23 of the study is selective in the variables taken from the body of the study. This selectivity tends to bias the summary in favor of combinations compared to straight electric companies and to bias the summary in favor of straight gas companies compared to combinations.

2. No test for the significance of the differences in the arithmetic averages of the variables is given in the study. This information is essential for evaluating the comparative performance of straight and combination companies for the variables examined.

3. Independent variables other than whether or not the company is straight or combination are not adequately controlled.

4. The sample size for straight gas utilities is too small (13 companies).

5. The selection process for the 13 straight gas utilities included in the study is questionable.

6. The $30,000,000 operation revenue cut-off for the inclusion of straight gas utilities but not for the combinations could have biased the results by comparing large straight gas companies to smaller combinations.

7. The value of basing expenses incurred in total operations upon only a portion (residential) of the physical quantity sold is questionable.

8. 1,000 kwh sold rather than 1,000 kwh generated may be a more meaningful basis for the variable, "operation and maintenance expenses less costs of fuel and purchased power per 1,000 kwh generated".

9. Therms would be a more useful variable than Mcf for "Gas sales per residential customer" and "5 year growth rate in gas sales per residential customer".

10. Often the method used in arriving at the values for the growth variables is not given.

Considered by themselves these variables are not sufficient to enable one to draw a conclusion concerning the relative performance of combinations. Other variables need to be considered. For example, the influence of company size based upon kwh and/or therm sales on the variables considered in the NERA study could be determined; a more detailed breakdown of the revenue and expense variables could be given, and the cost of purchased power could be included among the expense variables; a comparison between primary energy production methods used by straight electric and combination companies could be made. However, the information supplied is useful and adds to the totality of information needed to reach a better understanding of the desirability of combinations.

WILLIAM H. COLLINS.

Approved.
HASKELL P. WALD,
Chief, Office of Economics.
Attachment.

[4] Assuming that the samples were homogeneous in other respects and that the differences were significant.

ARITHMETIC AVERAGES AND MEDIANS OF THE VARIABLES EXAMINED IN THE NERA STUDY

	Arithmetic averages			Medians		
	Straight electric	Combination companies	Straight gas	Straight electric	Combination companies	Straight gas
FINANCIAL DATA (PERCENT)						
Growth rate in earnings per share:						
1. 5-year average, 1961-66	8.1	7.7	6.0	8.1	7.6	5.5
2. 10-year average, 1956-66	6.9	6.6	5.9	7.1	6.5	6.0
Rate of return:						
3. Rate of return on invested capital, 1966	6.8	6.8	7.4	6.8	6.7	7.1
4. Rate of return on common equity, 1966	12.9	12.5	11.5	12.7	12.4	11.4
5. Common equity as percent of total capital, 1966	37.1	36.7	42.2	26.9	35.6	39.5
EXPENSE AND PLANT DATA						
Electric:						
6. Customer accounts expenses per residential electric customer, 1966	$8.55	$8.26	.....	$8.34	$8.08	.....
7. Customer accounts expenses per 1,000 kw.-hr. of residential sales, 1966 [1]	1.62	1.86	.....	1.54	1.69	.....
8. Administrative, general, and sales expenses per residential electric customer, 1966	27.08	23.35	.....	26.04	22.84	.....
9. Administrative, general, and sales expenses per 1,000 kw.-hr. of residential sales, 1966 [1]	5.13	5.20	.....	4.92	4.90	.....
10. Operation and maintenance expenses less costs of fuel and purchased power per residential electric customer, 1966	65.66	61.56	.....	64.99	61.99	.....
11. Operation and maintenance expenses less costs of fuel and purchased power per 1,000 kw.-hr. generated, 1966 [1]	4.04	4.65	.....	3.67	4.12	.....
12. Gross electric plant in service per 1,000 kw.-hr. generated, 1966	75.08	80.12	.....	68.36	76.04	.....
Gas:						
13. Customer accounts expenses per residential gas customer, 1966		7.04	$8.76		6.46	$9.02
14. Customer accounts expenses per 1,000 therms of residential sales, 1966 [1]		6.73	8.94	.....	5.54	8.25
15. Administrative, general, and sales expenses per residential gas customer, 1966		16.22	[2] 18.27	.....	15.73	17.50
16. Administrative, general, and sales expenses per 1,000 therms of residential sales, 1966 [1]		15.20	18.54	.....	13.27	16.48
17. Operation and maintenance expenses less cost of gas purchased per gas customer, 1966		42.36	45.09	.....	42.17	45.37
18. Operation and maintenance expenses less cost of gas purchased per 1,000 therms of total sales, 1966 [1]		19.71	24.30	.....	13.97	17.42
19. Gross gas plant in service per 1,000 therms of total sales, 1966		217.00	216.00	.....	203.00	199.00
CONSUMPTION AND CUSTOMER DATA						
Electric:						
20. Electric sales per residential customer, 1966 (kilowatt-hours)	5,744	4,731	.....	5,035	4,654	.....
21. 5-year growth rate in kilowatt-hours sales per residential customer, 1961-66 (percent)	5.7	5.2	.....	5.6	5.1	.....
22. Residential kilowatt-hours sales as a percent of total kilowatt-hours sales, 1966 (percent) [1]	27.3	28.8	.....	25.5	27.6	.....
23. Percentage increase in residential electric customers, 1960-66	18.8	15.7	.....	16.2	13.5	.....
Gas:						
24. Gas sales per residential customer, 1966 (thousand cubic feet)		121	108	.....	130	99
25. 5-year growth rate in gas sales per residential customer, 1961-66 (percent)		2.8	2.8	.....	2.2	2.6
26. Residential gas sales (thousand cubic feet) as a percent of total gas sales, 1966 [1]		46.7	48.7	.....	48.2	47.4
27. Percentage increase in number of residential gas customers, 1960-66		27.2	23.3	.....	19.7	19.0

ARITHMETIC AVERAGES AND MEDIANS OF THE VARIABLES EXAMINED IN THE NERA STUDY—Continued

	Arithmetic averages			Medians		
	Straight electric	Combination companies	Straight gas	Straight electric	Combination companies	Straight gas
MISCELLANEOUS DATA						
28. Employees per $1,000,000 of revenues, 1966 (number)	25.3	21.5	24.7	23.3	24.7	25.5
29. Electric load factor, 1966 (percent)	60.2	55.4	.....	62.9	58.7	.....
30. Heat rate, 1966 (B.t.u.'s/kilowatt-hour)	10 774	10,803	.....	10,628	10 395	.....
31. Average revenue from residential electric sales, 1966 (cents per kilowatt-hour)	2.31	2.58	.....	2.40	2.60	.....
32. Average charge for all-electric service at annual consumption of 15,000 kilowatt-hours, as of Jan. 1, 1967 (cents per kilowatt-hour)	1.63	1.80	.....	1.62	1.78	.....
33. Average revenue from residential gas heating customers, 1966 (cents per therm)	.....	11.3	12.0	.....	10.6	11.0
34. Gas load factor, 1966 (percent)	.....	47.0	45.0	.....	45.0	43.0

[1] Indicates that the variable was excluded from the summary given on pp. 21–23 but was included in the body of the study.

[2] The statistical appendix (tables) and the discussion of the tables both give 19.27 for this value, but the summary gives 17.27.

Economic Theory and Behavior of Combination Utilities

By Dr. William H. Collins

As an increasing amount of thought goes into the social desirability of combination gas-electric utilities, two schools of thought appear to be evolving. (22, 23, 24, 25, 27, 29, 33, 36, 37, 39, 40, 41, 48) One school, which might be called the straight utility school, maintains that public interest will be best served if separately managed gas and electric utilities actively compete for household, commercial, and industrial markets such as space heating, water heating, cooking, air conditioning, refrigeration, and clothes drying. This thesis is based on the conventional argument that greater competition leads industries which are forced into competition to lower prices, to expand output[1] (or to expand rates of increase in output), to improve service, to attain greater management efficiency, to try to reduce labor and capital equipment expenditures, to engage in more intensive research and promotional activities, and to provide greater freedom of consumer choice. Further, since elasticity of demand is likely to be smaller for gas and electricity combined than for either gas or electricity taken separately, the incentive to hold down costs and prices in order to attract new sales may be significantly stronger for straight utilities than for combinations. A second and related argument for straight utilities which this school gives involves the decreasing cost nature of the utility industries with the possibility for economies of scale. As increased competition leads to an expansion of output, average or unit costs fall. This fall in unit cost allows for a decrease in prices greater than that which would be possible in a constant or increasing cost industry. Under combination utility conditions, management may concern itself with the welfare of both the gas and the electric operations and will be motivated to insure that each receives a fair return. For example, electric space heating prices may be maintained at a high level so as not to compete with gas space heating. The higher electric space heating prices will result in a reduction of electric output and higher average costs, which will tend to reinforce the upward bias in electric prices. A second and different motivational argument is that if the gas operations contribute a very small percentage to revenues of the entire utility then the gas operations will be neglected wherever gas and electric interests conflict. Finally, the straight utility school argues that the expansion in output resulting from greater competition creates a multiplier effect on the entire economy by stimulating demand for electric and gas production equipment as well as providing demand for appliances and other energy using equipment. Employment and income are increased in these areas and the rest of the economy through the multiplier. In this case a macro argument is being used to justify a micro policy.

[1] Assuming consumers will purchase more at a lower price than at a higher price.

The other school, which might be called the combination utility school, maintains that combination utilities can outperform straight utilities. They point to economies of joint operation such as a single meter reader for both gas and electric operations, a single appliance inspector, a single service department, single headquarters with common management and overlapping sales, accounting, purchasing, billing, collecting, and engineering departments, use of a single trench for underground distribution, sales promotion emphasis in the area where the marginal profit is greatest, and taking advantage of the differences in peak load times for the two services by using idle workers in one service during the off peak load time of that service in the peak load times of the other service. In addition, peak load problems can be reduced by promoting electric heat to reduce gas peak load in winter and promoting gas air conditioning to reduce electric peak load in the summer. This school claims that combinations will provide consumers with unbiased information concerning the comparative advantages and disadvantages of using gas and electricity for different applications so that the consumer will have all the information necessary to make the best decision concerning the better form of energy to use. The customer also benefits from the convenience of dealing with one utility. An additional benefit would be that any revenue instability occurring in gas and electric utility operations would tend to be less in a combination utility than in a straight utility if revenue fluctuations for gas and for electricity are not correlated. The diversification of the combination would cause the total revenue from both the gas and electric operations to be more stable than the revenue from either the electric operations or the gas operations taken separately and would therefore result in a greater stability in overall rate of return compared to straight utilities. The advantage of greater revenue stability could be passed on to the consumer in the form of lower prices because, for example, since unexpected revenue reductions are less likely less emergency cash reserves would be required to meet normal operating expenses. Finally, the combination utility school claims that financial stability provided by diversification and the absence of competition benefits the stockholders and results in cost savings for the utility on capital market financing.

Clearly, two sets of forces, competitive forces and forces associated with joint economies of operation, can act and the existence and intensity of the individual forces are a function of whether or not the utility is a combination or straight utility. Under straight utility conditions, but not under combination utility conditions, competitive forces between gas and electricity will exert a downward pressure on prices, a pressure for expansion of output, and pressure for improvement in the quality of service. Since most utilities operate on the decreasing sections of their average cost curves, expanded output results in lower unit costs which allows a greater decrease in price than that which could occur in a constant or increasing cost industry. However, there are no economies of joint gas and electric operation acting to lower average cost and thereby allowing a fall in prices as would be possible under a combination utility situation.

Three possibilities exist in this institutional framework. First, competitive forces may have a greater impact on lowering price, increasing output, and improving quality of service than joint operation economies. Second, joint operation economies may have a greater impact on lowering average cost and thereby lowering price, increasing output, and improving quality of service than competitive forces. Third, the possibility exists that the two forces exactly offset one another leaving a net impact of zero from a shift from a combination to a straight utility situation. Each possibility would call for a different regulatory policy. Then if an institutional framework which is different from the existing one were found to be more compatible with the public interest, in order for society to benefit from shifting to the new institutional framework, the gross social benefit resulting from the change must be greater than the total cost to society of making the change.

Great difficulty is encountered in formulating a universal prima facie case supporting a policy favoring either combinations or straight utilities or supporting a policy of laissez-faire. Examining empirical evidence of the performance of individual utilities appears to be a meaningful and valid approach to the question, "Are combination utilities in the public interest?"

FEDERAL POWER COMMISSION,
Washington, D.C., September 16, 1971.

Hon. PHILIP A. HART
Chairman, Subcommittee on Antitrust and Monopoly,
Committee on the Judiciary U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: By letter of August 4, 1971 you requested a description of professional background, qualifications, and job titles of Messrs. Nelson, Schwartz, and Wakefield as background to my letter of July 14, 1971 pertaining to my testimony on S. 403. The material requested on Messrs. Wakefield, Nelson, and Schwartz is as follows:

STEPHEN ALAN WAKEFIELD

Born: Olney, Illinois, October 18, 1940.

Education: Public Schools of Dallas and Fort Worth, Texas; Graduated Polytechnic High School in Fort Worth, Texas in 1958, second in class of 424; Undergraduate School; Texas A & M College, fall, 1958; Arlington State College, spring, 1959; University of Texas at Austin, fall, 1959—spring, 1962, majored in government, minored in history. Legal education: University of Texas School of Law, fall, 1962—spring, 1965, LLB with honors; associate editor, Texas Law Review; Chancellors Legal Honorary; graduated in top ten of class of 146.

Legal experience: Baker & Botts Law Firm, Houston, Texas July, 1965–January, 1970, primary responsibility for handling docket of approximately 150 law suits, including preparation, negotiations, trial and appeal of cases; securities and corporate practice: Federal Power Commission—February 1970—present: February 1970–September 1970: Commission Staff Counsel, Southern Louisiana Area Rate Proceedings. September 1970—present: Special Assistant to the General Counsel.

DARWIN F. NELSON

Mr. Nelson is an Industry Economist (GS–13) in the Division of Economic Studies, Office of Economics. His responsibilities largely involve economic studies of the electric power industry. He has appeared as a staff economic witness in three proceedings before the Commission, testifying on electric rate matters and broad economic considerations relating to hydroelectric projects.

Mr. Nelson is a graduate of the University of Wisconsin, class of 1954, receiving a B.S. degree with a major in Economics. After military service he completed somewhat over one year's graduate work at the University of Utah, with a major in Banking and Finance and a minor in Economics.

His U.S. Civil Service employment began in 1957 as an Agricultural Commodity Grader for the Department of Agriculture. In 1962 Mr. Nelson transferred to the Bureau of Land Management, Department of Interior as an Administrative Assistant. In 1964 he was reassigned as a field economist with the Bureau and continued as such until July 1, 1967, when he came to the Federal Power Commission.

In addition to in-house training courses and seminars, Mr. Nelson has completed 18 hours of academic credit in mathematics and economics since his employment as an economist.

DAVID S. SCHWARTZ

Dr. Schwartz, Assistant Chief (GS–16), Office of Economics, received a Bachelor of Science Degree from the University of Maryland in 1944 with a major in economics. In 1950 he received a Ph.D. from the University of Wisconsin, where he concentrated in public utility economics. From 1945–1947 he was a teaching assistant in economics at the University of Wisconsin, and from 1947–1950 he was an instructor of economics in the University's Extension Division. From 1950–52 Dr. Schwartz was an Assistant Professor in the University of Maryland's Overseas Program and a Research Assistant and later Associate at the University of Maryland from 1953–1956. He taught a course in industrial organization at the University of Maryland during the 1963–1964 academic year.

Dr. Schwartz was employed as a public utility specialist in the Office of Chief Accountant, FPC, from 1956–58. During this period he testified as a rate-of-

return witness. From 1958–1965 he was employed with the Common Carrier Bureau, Federal Communications Commission, as a Senior Economist and Assistant Chief of the Revenues Requirements Branch.

Dr. Schwartz returned to the FPC in 1965 as Chief, Division of Economic Studies, Office of Economics. In June 1967 he was appointed to his present position as Assistant Chief of the Office, but he continued to serve as Acting Chief of the Division until August 1971 when that position was filled.

Dr. Schwartz has presented several papers on regulatory problems at University conferences and professional meetings. He provided testimony before the Senate Antitrust and Monopoly Subcommittee on July 10, 1970, concerning the impact of technology on the corporate structure of the electric power industry.

Recently Dr. Schwartz appeared as an expert economic witness at a hearing before the Securities and Exchange Commission on competition in the electric power industry (Administrative Proceeding File #3–1476, American Electric Power Company, Inc.).

In his present position Dr. Schwartz is responsible for providing technical assistance to the Commission on pending policy matters and for conducting and supervising research projects concerning the economics of pricing, competition, and market growth in the natural gas and electric power industries. He also supervises the participation of staff economists in proceedings before the Commission.

I hope this letter provides all the information you have requested.

Sincerely,

JOHN N. NASSIKAS, *Chairman.*

AFTERNOON SESSION

(The subcommittee met, pursuant to recess, at 2 p.m., in room 2228, New Senate Office Building, Senator Edward J. Gurney presiding.)

Senator GURNEY. The subcommittee will come to order.

The first witness is Mr. Eugene Meyer, vice president, Kidder, Peabody & Co., Inc., New York, N.Y.

Welcome, Mr. Meyer. You may proceed.

STATEMENT OF EUGENE MEYER, VICE PRESIDENT, KIDDER, PEABODY & CO., INC., NEW YORK, N.Y.; ACCOMPANIED BY GEORGE D. GIBSON, RICHMOND, VA.; DR. IRWIN M. STELZER, PRESIDENT, NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC., NEW YORK, N.Y.; DR. JOE D. PACE, SENIOR ECONOMIST, NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.; AND CHARLES H. FRAZIER, DIRECTOR, PHILADELPHIA OFFICE, NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.

Mr. GIBSON. The chairman is right, that Mr. Meyer is the first witness. My mission is only to introduce him.

To avoid anonymity, my name is George D. Gibson from Richmond, Va.

In order to save the time of the subcommittee, 29 of the combination companies across the country have decided to concert their presentation, and the names of those companies, with their addresses, appear on a list that has been distributed and lies before the chairman and the reporter for the convenience of the committee.

May that be incorporated in the record as if I had read it now?

Senator GURNEY. Yes, it can be.

(The list referred to follows:)

MEMBERSHIP LIST OF THE COMBINATION COMPANY GROUP

Baltimore Gas & Electric Co., Baltimore, Md.
Central Illinois Light Co., Chicago, Ill.
Central Illinois Public Service Co., Springfield, Ill.
Cincinnati Gas & Electric Co., Cincinnati, Ohio
Consumers Power Co., Jackson, Mich.
Dayton Power & Light Co., Dayton, Ohio
Illinois Power Co., Chicago, Ill.
Interstate Power Co., Chicago, Ill.
Iowa Electric Light & Power Co., Cedar Rapids, Iowa
Iowa-Illinois Gas & Electric Co., Davenport, Iowa
Iowa Power & Light Co., Des Moines, Iowa
Iowa Public Service Co., Sioux City, Iowa
Long Island Lighting Co., Mineola, N.Y.
Madison Gas & Electric Co., Madison, Wis.
Montana Power Co., Butte, Mont.
Northern Indiana Public Service Co., Hammond, Ind.
Pacific Gas & Electric Co., San Francisco, Calif.
Philadelphia Electric Co., Philadelphia, Pa.
Public Service Company of Colorado, Denver, Colo.
Public Service Electric & Gas Co., Newark, N.J.
Rochester Gas & Electric Co., Rochester, N.Y.
San Diego Gas & Electric Co., San Francisco, Calif.
South Carolina Electric & Gas Co., Columbia, S.C.
Southern Indiana Gas & Electric Co., Evansvile, Ind.
Virgina Electric & Power Co., Richmond, Va.
Washington Water Power Co., Spokane, Wash.
Wisconsin Electric Power Co., Milwaukee, Wis.
Wisconsin Power & Light Co., Madison, Wis.
Wisconsin Public Service Corp., Green Bay, Wis.

Mr. GIBSON. The committee requested the pleasure of appearing before you through the National Economic Research Associates of which, on my left, Dr. Irwin M. Stelzer is the president. They deal with the economic aspects of the problem posed by the pending bill. And on my right is Mr. Eugene W. Meyer, vice president of Kidder, Peabody, who will deal with financial aspects which has so much emphasis in the bill.

It is my pleasure to present Mr. Meyer.

Mr. MEYER. Thank you, George, and thank you, Mr. Chairman, for the opportunity to appear before the U.S. Senate Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary in the matter of Senate bill 403. This bill intends to prohibit the existence of combination utility companies after January 1, 1973. Combination companies, in this instance, are defined as utilities operating both electric and gas distribution systems under common ownership or control.

Numerous articles have been written, debates conducted, and studies made concerning the possible advantages or disadvantages of combination companies versus straight companies; that is, utilities who serve only electric customers or gas customers but not both. The degree of attention focused on the question increased as the promotion of electric heating and gas air conditioning accelerated during the 1960's. It was alleged that competition between gas and electric companies created cost savings for their customers through lower rates, greater management efficiency, and product innovations. The basic counterargument was that two separate companies would require a duplication of expenses such as management, service employees, billings,

offices, et cetera. Much empirical evidence has been gathered to support both views and to deny both views.

Dr. Irwin M. Stelzer of National Economic Research Associates, Inc. informed me of these hearings and asked if I would present my views on the financial inpact, if any, of S. 403 on investors and consumers. It is, therefore, the matter of financing the emerging gas companies, which would result from enactment of S. 403, that is the primary topic of my testimony. I will demonstrate that, under today's conditions, financing for the emerging companies would be difficult at best and possible only if substantial rate increases were granted. Thus, instead of providing lower rates for the gas consumer, today's financial realities would result in higher rates immediately.

I believe that I am qualified to speak to this subject by virtue of my experience and position and the activities of my firm.

I have been a security analyst specializing in gas, electric, and telephone securities since 1960. I have been employed in that capacity by Investors Diversified Services, Inc., a large mutual fund management company, and Tucker, Anthony & R. L. Day, a respected New York Stock Exchange member firm. Presently, I am a vice president in the utility corporate finance department of Kidder, Peabody & Co., Inc., one of the leading investment banking firms in the United States.

During the 5-year period 1966–70, the firm managed or comanaged over 650 different publicly offered and privately placed corporate financings totaling approximately $9.2 billion. During the same period, the firm participated in more than 2,000 additional publicly offered corporate underwritings which raised another $85 billion. In 1970, Kidder, Peabody acted as a manager of underwritings, both negotiated and competitive bid, which accounted for approximately 10 percent of all the new corporate capital raised in the Nation, including 16.5 percent of all publicly offered utility securities.

FINANCIAL CONSIDERATIONS FOR THE EMERGING GAS COMPANIES

In financing the emerging companies, the first consideration is the proper capital structure. Because of the huge amount of new financing which would be required, any attempt to deviate greatly from normal capital structures for like companies would probably reduce investor interest. Therefore, I will assume that since the emerging gas company will be a "straight" gas company when it is on its own, it should, therefore, have a capital structure comparable to existing "straight" gas companies. Exhibit I shows the capitalization and capital structure of investor-owned straight natural gas distributors for the years 1965–69, as reported in statistics assembled in the American Gas Association publication, "Gas Facts." As may be seen in the exhibit, the average capital structure for this segment of the industry over the last 5 years consisted of long-term debt, 48.4 percent; preferred stock, 5.9 percent, and common equity, 45.7 percent.

It also may be seen that the portion of long-term debt has been increasing, the portion of preferred stock has been decreasing, and the portion of common equity has been decreasing steadily during the period. Although industrywide figures are not yet available for 1970, it is my impression, from the numerous individual company statistics I have studied, that these trends have continued. Therefore, I have con-

cluded that the industry capital structure for 1970 was on the order of: long-term debt, 55 percent; preferred stock, 5 percent; and common equity, 40 percent. I will use these numbers in my further calculations of the financial impact of S. 403.

Exhibit II shows selected combined statistics for 73 combination utility companies. These companies are listed in exhibit III. It may be seen in exhibit II that the net gas plant of these 73 combination companies at the end of 1969 totaled $5,315,404,000. It is not reasonable to expect that a purchase price less than net plant could be arranged for these properties. In fact, several charters require a fair value price when the company sells property. Because of inflation over the years, it is probable that fair value is greater than net plant on the books. Nevertheless, in the interest of being very conservative in my analysis, I will assume that net plant will represent the selling price which means that about $5,315,404,000 of financing would be required to accomplish the objectives of S. 403.

In exhibit IV, I have applied the assumed capital structure to the total net gas plant currently owned by combination utilities. New debt requirements would be about $2,923,472,000, new preferred requirements would be about $265,770,000, and new common equity requirements would total $2,126,162,000.

The primary market for the new debt securities would have to be financial institutions. Although there has been greater interest in debt securities by individual investors in recent years, most of this interest has been restricted to well-seasoned companies. Included among the institutions would be the very important State and municipal pension funds, most of which are required by law to restrict their senior security investments to those rated A or better by two rating agencies. These Government institutions would definitely be required in the market to raise over $3 billion of debt and preferred stock for the new companies. Therefore, the new fixed income securities would need to carry at least an A rating.

Exhibit V contains a list of straight gas companies rated A by Standard & Poor's as of April 1971. In addition, the exhibit shows the aftertax fixed charges and preferred dividends coverage ratio recorded by each company for the years 1965–69. It is reasonable to assume that the prospective debt and preferred stock investors would demand coverage ratios for the new straight gas companies to approximate the coverages of the existing A-rated straight gas distributors. As may be seen in exhibit V, the average aftertax fixed charges and preferred dividends coverage ratio for the 5-year period was 2.85*x*. Once again, however, indications are that the downward trend in coverages since 1965 extended through 1970. As a result, I will assume an aftertax fixed charges and preferred dividends coverage ratio of 2.50*x* in my calculations.

Assuming that the fixed income securities of the emerging straight gas companies are rated A, the interest rates and preferred rates on the new senior securities would have to be in excess of 8 percent under current market conditions. From March 31, 1971, to May 7, 1971, new A-rated utility debt and preferred stock offerings ranged from 7.70 percent to 8.35 percent. For the purposes of calculation, I will use an 8 percent interest and preferred dividend rate for the new financing. I will not try to estimate the other costs attendant to the financing just for the sake of simplicity.

I have further assumed that normal indenture provisions would suffice for prospective investors in the senior securities of the emerging straight gas companies. It is possible, however, that such a massive amount of gas company financing would focus more attention on the industry's current gas supply shortage problem. It is, therefore, not inconceivable that difficult provisions on gas supply could be required in the new senior security indentures. Even if such provisions are not included, investor acceptance would surely be reduced.

On balance, however, I must conclude that it would be possible to finance the long-term debt and preferred stock required for the emerging companies so long as the coverage requirements, capital structure requirements, and indenture requirements for A-rated securities are met. Even so, because of the large amount of financing and the industry's gas supply problem, such financing would certainly be difficult.

The feasibility of selling the common stock necessary to provide the common equity portion of the capital structure could well be even more difficult. The prospective common stock buyer requires anticipated growth in per share earnings to justify his investment in the junior security unless, of course, the price is so low that the prospective dividend yield exceeds the yield available on the company's senior securities. Presently, there is considerable doubt about the prospective growth rate in per share earnings for gas distributors over the next few years. First, the gas supply shortage is causing curtailments throughout the industry rather than sales growth. Second, purchased gas costs are accelerating rapidly. Third, the investor will anticipate greatly increased costs initially as the new company develops its own staff and equipment to replace that which was common in the combination company. I do not doubt that the required common stock could be sold, but I would expect the prices to be low enough to offset the rather poor growth prospects with a higher dividend yield.

GAS RATE INCREASES

The gas properties currently owned by combination utilities have, of course, been financed over the years with debt and preferred stock at different rates. As a result of the rising interest rates since World War II, the embedded cost of these senior securities is less than the current long-term interest and preferred dividend rates. As may be seen in exhibit II, the embedded cost of debt capital for our 73-company sample was 3.81 percent in 1969, and the embedded cost of preferred stock was 4.92 percent. Refinancing these properties at current money costs will increase the interest expense and preferred dividend payments without adding anything to operating income, thereby necessitating a rate increase, if coverage ratios are to be provided which will attract senior capital. If such coverages and protection are not accorded the current senior security holders, future financing will have to be at substantially higher rates, or it will not be possible.

Exhibit VI shows the calculation of the rate increase necessary if the requirements for fixed-income coverage and capital structures are to be met. The calculation indicates that $415,578,040 of rate increases would be required which would be a 14.42-percent increase over current revenues being earned by these properties. Futhermore, as exhibit VI indicates, the balance to common which would result would provide an 18 percent return on the $2,126,162,000 of new equity which would have to be raised.

Exhibit VII shows the 12 percent overall cost of capital which the new companies would incur. Contrast this with the rate-of-return on net plant of 6.87 percent—exhibit II, which is currently being earned by the gas properties of combination companies, and the increased cost involved with carrying out the mandate of S. 403, becomes all to apparent.

There are also problems for the surviving electric companies in this proposed split-up even though the proof is less clear cut. As I mentioned before, many charters require a fair value price for the properties. If the higher fair value price is paid by the emerging gas company, the rate increases required will be even greater than I indicated earlier in my testimony. On the other hand, if the required fair value is not received by the surviving company, the surviving company will have to make up the difference. This difference must be provided by rate increases. If not, the investor will be disinclined to buy future securities in a company where previous financial contracts have been violated.

Another problem for the surviving company is once again coverage. By definition, the divestiture means that the surviving company will lose the earnings of the gas company but will retain the outstanding long-term debt. As a result, the coverage ratio would be reduced. The surviving company, of course, could take the cash and redeem outtanding debt, thereby reducing fixed charges and, theoretically at least, preserving the coverage ratios. The problems are, however, that due to redemption restrictions, the more recent, high-interest issues may be nonredeemable, thereby forcing the company to redeem older, low-interest rate issues which would not accomplish fully the objective of preserving the coverage ratios.

On the other hand, management could apply the proceeds immediately to additional electric revenue-producing plants which could serve to preserve coverage ratios. Combination companies with a relatively small amount of gas business could probably use the latter method but companies with a large gas business would be unable to employ the proceeds right away in the remaining electric business due to insufficient near-term demand for electric service.

It is clear that many routes would be open to the surviving electric companies and, therefore, it is difficult to forecast the financial effect on the surviving electric companies. No matter how the proceeds are handled, however, the surviving company would gain no financial advantage and, under certain circumstances, could suffer a reduction in financial integrity and/or some increases in electric rates.

Finally, I have not addressed myself to the question of financing the portion of the common plant which would go to the emerging company. It is impossible to make a reasonable assumption as to the allocation of this plant between the surviving company and the emerging company. It is likely, however, that at least some of the common plant would be included in the emerging company which means that additional financing, beyond that in my calculations, would be required at today's higher cost of money.

At this point, I would like to add to my prepared text the following:

One of the most important factors affecting the financial markets is uncertainty. Uncertainly is equated with risk by investors. The longer an uncertainty hangs over the market, the greater the risk of the investor. Passage of S. 403 would likely result in substantial delay

due to protracted litigation, possible engineering and labor difficulties, and other procedural delays, before the intent of the bill could be accomplished. Earlier testimony in these hearings indicated that delays of 5 to 15 years could be expected. In my opinion, uncertainty during such a prolonged period would adversely affect the market for future issues of new securities required for expansion of the combination companies' facilities. This uncertainty could be expected to spread to the market for all utility securities because the risk of additional Government regulation would have appeared on the horizon. In view of the rising capital requirements of virtually all utilities, delivering such an uncertainty and risk on the market during the 1970's could be disastrous to the financial integrity of the industry and, or to the rates paid by consumers.

CONCLUSION

In summary, the assumptions I have used in my study have been conservative. I used a capital structure for the emerging company which is weaker than the average for existing straight gas companies. I have assumed a lower coverage ratio than has been recorded by the average existing A-rated straight gas company during the past 5 years. I have assumed a cost of debt capital and preferred stock which is below current interest rates for A-rated securities and which does not reflect other financing costs. I have assumed that net plant will represent the purchase price of the emerging company, ignoring the fair value requirements of several companies. I have not reflected the cost of financing the common plant. If the prospective investor demands either more security or a higher return—a strong possibility—or if the purchase price is higher than net plant—likely in many cases—the required additional revenues will increase from my estimate in this testimony.

Whatever the arguments about the benefits of competition or of combination utilities so far as operating costs are concerned, it is apparent that the financial costs attendant to breaking up the combination companies would be devastating for the consumer under current market conditions. The investor has the choice of refusing to invest but the consumer must have gas service for the gas-burning equipment he has installed.

My conclusion is that S. 403 is financially unsound.

(Exhibits I through VII presented by Mr. Meyer follow, testimony resumes on p. 235.)

EXHIBIT 1

CAPITALIZATION AND CAPITAL STRUCTURES OF STRAIGHT NATURAL GAS DISTRIBUTORS INDUSTRY, 1965-69

	1965	1966	1967	1968	1969	5-year Average
Capitalization (millions):						
Long-term debt	$1,326.9	$1,395.1	$1,561.7	$1,611.6	$2,183.0	$1,615.66
Preferred stock	176.4	177.7	193.4	190.5	231.9	193.98
Common equity	1,339.5	1,386.2	1,469.8	1,549.8	1,807.8	1,510.62
Total capitalization	2,842.8	2,959.0	3,224.9	3,351.9	4,222.7	3,320.26
Capital structure (percent):						
Long-term debt	46.7	47.1	48.4	48.1	51.7	48.4
Preferred stock	6.2	6.1	6.0	5.7	5.5	5.9
Common equity	47.1	46.8	45.6	46.2	42.8	45.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Estimated capital structure

	1970 (Percent)
Long-term debt	55.0
Preferred stock	5.0
Common equity	40.0
Total	100.0

Source: American as Association, Gas Facts, 1965–68 data. American Gas Association, 1969 data.

DATA FOR 73 COMBINATION COMPANIES [1]

[Dollars in thousands]

(1) Gas operating revenues	$2,882,748
(2) Net gas plant	$5,315,404
(3) Gas operating income	$365,179
(4) Rate-of-return on net gas (percent) (plant (3)÷(2))	6.87
(5) Long-term debt [2]	$2,734,687
(6) Interest charges [2]	$104,117
(7) Embedded interest costs [2] (percent)	3.81
(8) Preferred stock [2]	$537,712
(9) Preferred dividends [2]	$26,477
(10) Embedded cost of preferred [2] (percent)	4.92
(11) Balance to common ((3)—(6)+(9))	$234,584
(12) Times Charges Earned (3)÷(6)+(9)	2.80x

[1] See exhibit III for listing of companies.

[2] Allocated according to the percentage of total net plant represented by gas net plant for each company.

Source: Federal Power Commission, Statistics of Privately Owned Electric Utilities in the United States, 1969. Uniform Statistical Reports, 1969, of individual utilities.

Exhibit III

LISTING OF COMBINATION COMPANIES USED IN STUDY [1]

NEW ENGLAND

Boston Gas Co.
Connecticut Light & Power
Fitchburg G&E
Hartford Electric Light Co.
New Bedford G&E Light

MIDDLE ATLANTIC

Central Hudson G&E
Consolidated Edison
Long Island Lighting
N.Y. State E&G
Niagara Mohawk
Orange & Rockland (Co.)
Philadelphia Electric (Co.)
Public Service G&E
Rochester G&E
U.G.I. Corp.

SOUTH ATLANTIC

Baltimore G&E
Delmarva P&L (Delaware)
Florida Public Utilities
South Carolina E&G
Virginia Electric

EAST SOUTH CENTRAL

Louisville G&E

WEST SOUTH CENTRAL

Arkansas-Missouri Power
Central Louisiana Electric
Community Public Service
Gulf States Utilities
New Orleans Public Service

[1] The companies included in my study are all operating companies shown by the Federal Power Commission's *Statistics of Privately Owned Electric Utilities in the United States*, 1969, as having both gas and electric sales. In some instances, where all the associated companies sell both electricity and gas, consolidated data are employed.

EAST NORTH CENTRAL

Central Illinois Light
Central Illinois P.S.
Cincinnati G&E
Consumers Power
Dayton P&L
Illinois Power
Indianapolis Power & Light
Lake Superior District Power
Michigan Power
Madison G&E
Mt. Carmel Public Utility
Northern Indiana P.S.
Southern Indiana G&E
Superior Water, Light & Power
Toledo Edison
Wisconsin-Michigan Power
Wisconsin P&L
Wisconsin P.S.

WEST NORTH CENTRAL

Central Kansas Power
Central Telephone & Utilities
Interstate Power
Iowa Electric L&P
Iowa-Illinois G&E
Iowa P&L
Iowa P.S.
Iowa Southern Utilities
Kansas P&L
Missouri P.S.
Missouri Utilities
Montana-Dakota Utilities
Nortern States Power
Northwestern P.S.
Otter Tail Power
St. Joseph L&P
Union Electric

MOUNTAIN

Arizona P.S.
Citizens Utilities
Montana Power
P.S. of Colorado
Sierra Pacific
Tucson G&E

PACIFIC

California-Pacific Utilities
Pacific G&E
Pacific Power & Light
San Diego G&E
Southern California Edison
Washington Water Power

Exhibit IV

CALCULATION OF CAPITALIZATION FOR EMERGING GAS COMPANIES

Net Gas Plant:
(Exhibit II) ---------- =$5,315,404,000

Average capital structure:
(Exhibit I):

	Percent
Long-term debt	55.0
Preferred stock	5.0
Common equity	40.0
Total capitalization	100.0

Assuming a purchase price equal to the net plant and assuming a capital structure equal to the average for straight gas distributors over the 1965–69 period, the emerging straight gas industry would have the following capitalization:

Long-Term Debt	$5,315,404,000	x 55.0% =	$2,923,472,000
Preferred Stock	5,315,404,000	x 5.0% =	265,770,000
Common Equity	5,315,404,000	x 40.0% =	2,126,162,000
Total capitalization			$5,315,404,000

EXHIBIT V

STANDARD AND POOR'S A-RATED STRAIGHT GAS COMPANIES—COVERAGE RATIO: FIXED CHARGES AND PREFERRED DIVIDENDS

Company	Coverage					
	1965	1966	1967	1968	1969	1970 estimate
Alabama Gas Corp	2.61×	2.75×	2.67×	2.84×	2.80×	
Atlanta Gas & Light Co	2.50×	2.54×	2.35×	2.30×	2.16×	
Brooklyn Union Gas Co	2.94×	2.94×	2.82×	3.21×	2.50×	
Elizabethtown Gas Co	6.26×	4.22×	3.43×	3.46×	3.37×	
Gas Service Co	2.53×	2.22×	2.01×	1.86×	1.87×	
Louisiana Gas Service Co	2.59×	2.48×	2.60×	3.05×	2.97×	
Minneapolis Gas Co	4.40×	4.45×	4.33×	4.07×	3.55×	
New Jersey Natural Gas Co	2.78×	2.92×	2.76×	2.66×	2.45×	
Washington Gas & Light Co	2.10×	2.03×	2.17×	2.05×	2.45×	
Worcester Gas & Light Co	2.60×	2.74×	2.81×	2.38×	1.90×	
Average each column	3.13×	2.93×	2.80×	2.79×	2.60×	2.50×

Source: Standard & Poor's April 1971 Bond Guide and Corporation Records; AGA list of straight natural gas utilities.

Exhibit VII

CALCULATION OF REQUIRED RATE INCREASE FOR EMERGING STRAIGHT GAS UTILITIES

ASSUMPTIONS

All debt at 8 percent rate.
All preferred stock at 8 percent rate.
Required minimum fixed charge coverage (exhibit V), 2.50x.
New debt, $2,923,472,000 (exhibit IV).
New preferred stock, $265,770,000 (exhibit IV).
New common equity, $2,126,162,000 (exhibit IV).

CALCULATIONS

(1) Debt interest expense	$2,923,472,000×8%=$233,877,760	
(2) Preferred dividends	$265,770,000×8%=$21,261,600	
Total fixed charges		$255,139,360
(3) Required after-tax operating income.[1]	$255,139,360×2.50=	$637,848,400
(4) Required after-tax operating income		$637,848,400
(5) Less: Present operating income of combination gas properties (exhibit II)		$365,179,000
(6) Total after-tax operating income deficiency ((4)−(5))		$272,669,400
(7) New debt interest expense (from (1) above)		$233,877,760
(8) Present debt interest expense (exhibit II)		$104,117,000
(9) Interest expense deficiency		$129,760,760
(10) After-tax operating income deficiency applicable to preferred and common equity ((6)−(9))		$142,908,640
(11) Additional revenues required for tax liability assuming a 50% tax rate		$142,908,640
(12) Total additional revenues required ((9)+(10)+(11))		$415,578,040
(13) 1969 combination company, total gas revenues (exhibit II)		$2,882,748,000
(14) Required increase in rates ((12)÷(13)) (percent)		14.42

[1] The total operating income required to provide adequate fixed charge coverage would be $637,848,400, as shown above. As a result, after deducting fixed charges of $255,139,360, $382,709,040 would be available for common stock. The return on equity, therefore, would be 18 per cent ($382,709,040÷$2,126,162,000).

CALCULATION OF THE COST OF CAPITAL REQUIRED TO FINANCE THE EMERGING STRAIGHT GAS COMPANIES

Most commissions calculate the cost of capital by the following formula:

Debt ratio×embedded cost =debt cost increment.
Preferred ratio×embedded cost =preferred cost increment.
Common equity ratio×return on equity
found necessary to attract capital =common equity cost increment.

Applying this formula:

	Percent
55.0 percent (exhibit I) ×8 percent	4.40
5.0 percent (exhibit I) ×8 percent	.40
40.0 percent (exhibit I) ×18 percent (exhibit VI)	7.20
Total cost of capital	12.00

Mr. MEYER. Thank you, Mr. Chairman.

Senator GURNEY. Thank you, Mr. Meyer.

Before we turn to questions now, we would like to get a statement from Mr. Stelzer, because I have another engagement later on.

Mr. GIBSON. It is disconnected from this subject.

Senator GURNEY. Now, we will hear from Mr. Stelzer.

Mr. STELZER. Thank you.

Mr. Chairman, I think, in view of the time pressures and the fact if I find it boring to read a prepared statement, I hate to think of how it sounds to people who have to listen to it when I do it.

I wonder if I might have my statement incorporated in the record and summarize it?

Senator GURNEY. Indeed, you may. It will be included in the record at this point in its entirety.

(The prepared statement submitted by Mr. Stelzer reads in full as follows. Testimony resumes on p. 238.)

STATEMENT OF IRWIN M. STELZER, PRESIDENT, NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.

I am grateful for the opportunity to appear once again before this Subcommittee, to make available to it such information as we have gathered on still another aspect of the relationship among the antitrust laws, utility regulation and energy economics. In our last appearance, you may recall, this Subcommittee received, I believe, for the first time, comprehensive data on the extent to which oil and gas companies had become prominent suppliers of competing fuels—uranium and coal.

At the outset, I want to note that our firm is employed, in the normal course of its business, as consultants to many utilities in economic and regulatory matters. These include combination companies, and straight electric and gas companies. And we have, long before these hearings were contemplated, addressed ourselves to the question of the relative economic performance of combination companies and single-service companies. Mr. Bloom referred to one of our firm's early studies of this problem. As for these hearings, we were asked by a group of companies to study the matter anew.

Any careful examination of S. 403 proceeds from one crucial fact: we are here dealing with an industry prevasively regulated at both Federal and state, and sometimes other levels of government. Such regulation exists because it has been decided that, in these industries, the benefits of monopoly operation are so great that they must be made available to the public; regulation was adopted to make sure that the benefits of the publicly created monopoly in fact are passed on to consumers.

We are faced here, then, with a peculiar sort of cost-benefit computation. Gas and electric rates are now regulated so that monopoly profits cannot long be earned, i.e., earnings are limited by law to a fair rate of return on invested capital. Dissolution, then, can accomplish little: there are no excessive profits to be competed away. But dissolution could involve almost $5 billion in higher financing costs, should refinancing prove necessary, as well as higher costs of operation.

Furthermore, the costs of the dissolution here contemplated are without precedent in traditional antitrust terms. In antitrust, divestiture is regarded as a severe but permissible remedy to dispel the remnants of antitrust violation and to restore competitive vigor in the marketplace. The disadvantages, if any, fall upon the stockholder of the company whose assets are divested. In a spirit of rough equity such stockholders are regarded as having benefited from antitrust violation and therefore receiving only their due. On the other hand, the primary impact of divestiture in the combination company context is not upon the stock-

holder but rather upon the consumer. Whereas in the ordinary manufacturing context, the consumer has the choice whether to purchase or not, in the regulated utility context, the consumer must purchase electricity or gas to fullfill his energy needs. The law is also well established that investors in utilities are constitutionally entitled to a fair rate of return on their investments when the government regulates rates. Accordingly, imposing higher capital and production costs on utilities by divestiture must necessary have an immediate adverse impact upon the consumer.

Let us now turn to a comparison of the economic goals of antitrust law and of regulation. By preserving competition—preventing conspiracies to fix prices, proscribing certain mergers—the antitrust laws are designed to maximize the efficiency with which resources are allocated by (1) eliminating monopoly profits; (2) inducing competitors to provide goods and services at minimum cost; (3) preventing undue price discrimination, and (4) in general, providing an atmosphere in which businesses must be responsive to consumer preferences.

Where we find a situation, then, in which the choice is between monopoly and competition, we prefer to move to strike down monopoly and replace it with competition. In the case of combination companies, however, that is not the choice we face. At most, separation of gas from electric operations would increase by one the number of sellers in some of the end-use and geographic markets these companies serve. And since these enterprises are already regulated it is not at all clear that any benefits would be realized to offset the clearly demonstrable costs of blanket restructuring. I hasten to point out that I am here discussing the impact of a *per se* prohibition of joint gas and electric operations—in my view an undesirable step. That a more traditional, case-by-case approach might find specific situations in which dissolution might be appropriate is, of course, conceivable. But the question posed by S. 463 is whether we should replace this long-standing rule of reason analysis of the facts of business life, including market shares, competitive practices and other factors in individual proceedings with a blanket condemnation of firms with widely varying market shares and other characterist condemnation of firms with widely varying market shares and other characteristics.

Thus, as we appraise this legislation asking a traditional antitrust question—what advantages would flow from adding one additional seller to the number of suppliers in a market—we must again recall the one crucial fact I mentioned earlier: we are dealing with companies which are regulated; we already rely on that regulation to achieve the goals I have previously ascribed to antitrust policy. Let me explain:

1. Antitrust relies on competition to eliminate monopoly profits, primarily by keeping entry open. In regulated industries such entry is generally so difficult that new entrants cannot be relied upon to reduce profits to normal levels. So regulators allow utilities to earn no more than a fair rate of return on invested capital.* Consequently, there are no monopoly profits to eliminate. Introducing one new retail seller of energy cannot be justified on that ground.

2. Antitrust relies on competition to force every firm to be efficient in serving the consumer. Regulation requires that only those expenses and investments which are prudently made can be recovered in rates—inefficiency is thereby penalized. If, for example, companies have excessive capital costs because of inappropriate capital structures, commissions will substitute hypothetical structures and refuse to allow rates higher than would be needed to cover those lower, hypothetical costs. Of late, to cite another example, several state commissions have disallowed expenditures for advertising, on the ground that they were unnecessary and/or undesirable in present circumstances. In addition, commissions have increasingly resorted to withholding rate increases to induce regulated companies to develop satisfactory service quality standards.

3. Antitrust has long wrestled with the problem of price discrimination, seeking to prevent big buyers from receiving undue preference over less powerful purchasers. So, too, with regulation, which provides cost-based tests to prevent big purchasers of gas and/or electricity from receiving unduly low rates.

4. One antitrust laws seek, by preserving alternatives to which consumers can turn, to keep businesses generally responsive to customer needs. In that sense the Sherman Act, along with the amended Clayton Act, is the most important piece

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* We, Mr. Chairman, request we have brought and now offer for the record, our state-by-state tabulation of those return allowances for inclusion in the record, along with other information first compiled on a systematic basis some years ago by Senator Metcalf.

of consumer legislation we have. Regulation accomplishes this same goal by providing regulatory agencies to which consumers can bring their complaints, and obtain action.

Admittedly, this comparison presents a rather idealized view of regulation; what I have said is true only to the extent that regulation is effective. But the same is true of our antitrust policies: the objectives they share with regulation are only imperfectly achieved. The ideals of antitrust and of regulation remain closely similar, and regulators and antitrust agencies seek and frequently reach the same goals.

It seems clear, then, that the goals of antitrust are already being imposed on gas and electric suppliers, be they combination or single-service companies, by regulation. In addition, utilities and their regulators have not been insensitive to the possibility of carefully blending competitive considerations into the regulatory process. Where competition can be reflected in rate structures, without disadvantaging those customers lacking competitive alternatives, this has been widely done. I, for example, presented to the New York Public Service Commission economic support for a promotional rate for commercial *electric* space heating developed by a combination company to better balance its own gas and electric loads by providing a competitor for its own gas and for fuel oil. The economic considerations involved in determining that this rate, and others like it, is not disadvantageous to smaller customers are complex and, in my judgment, are better left to informed review by expert agencies. In other words, "regulation"as a body of law and economics is sufficiently broad and dynamic to permit the introduction of competitive forces where that benefits all customer classes.

So the question remains: what real economic objective can we obtain by a *per se* requirement that combination companies be dissolved? Profits are already regulated; imprudently incurred costs are unrecovered; undue price discrimination is prevented; and consumer grievances are reviewed.

Certainly, there is no distinction between the objectives of antitrust and of regulation. Nor is there any reason in economic theory to assume that superior economic performance will follow from severing all affiliated gas and electric properties. Contrast the economic consequences of conspiracies, to which a *per se* rule is applied, with the results of combination companies. A conspiracy to fix prices, economic theory tells us, will inevitably result in higher prices and other distortions, making a *per se* prohibition of such conspiracies appropriate. On the other hand, nothing in economic theory creates a presumption that a market structure which in some instances includes combination companies is inconsistent with satisfactory economic performance. We have no *a priori* reason to prefer duopoly to monopoly, even absent regulation. And in the presence of regulation, where we seek to obtain maximum efficiency by a delicate application of policy to a specific fact context, replacement of the traditional, case-by-case analysis under the rule of reason with a *per se* proscription seems particularly inappropriate.

If this bill is not justified by failure of the regulatory mechanisms nor by the demands of economic theory, is there nevertheless support for it in the facts?

During the course of our on-going work in the utility field we have gathered and ourselves developed a substantial body of data on the nature and performance of combination companies measured against the performance of straight electric and gas companies. We are continuing our studies, however, and we would be happy to make more refined data available to this Subcommittee at such time as we are in a position to do so.

One of our findings which bears on the propriety of the blanket prohibition contained in S. 403 is that the data thus far developed reveal particularly the variety of different situations in which "*the* combination company" is found. So, far from the standard definition of combination company which would be required to make this legislation appropriate, the more realistic picture is of companies of every variety of corporate policy whose electric and gas properties in some places overlap one another and in others are far removed, whose degrees of market power run the gamut from quite low to substantial. But the bill, if enacted, would operate upon all combination companies, of whatever variety and level of performance, and whatever the nature of the territories served. And it is often the nature of the territory which determines the exact level of rates, costs, usage and the like by which "performance" is measured—rather than, in contrast, the mere single fact of combination service.

Unfortunately, the balance of our research is not yet complete. But several points have emerged:

1. As Dr. Pace of our firm has set forth in his testimony, which I ask be made a part of this record, it is not clear that the actual electric rates charged by combination companies differ from those of single-service electric companies as a result of "combinationality."

2. As for the gas side, our preliminary studies and the analyses of others show no difference in performance between combination companies and single-service gas utilities.

3. Electric consumption per customer appears to be higher, on average, in areas served by single-service electric companies than in those served by combination companies. Some, including those who favor a curtailment of electric usage for environmental reasons or who frown on utility advertising, may think this an advantage of combination companies; others, aware of the relationship between usage and costs, may think this a disadvantage. Both may be incorrect, however, in assuming that the consumption differences are *caused* by the fact of combination. Rather, these consumption differences, as Dr. Pace testifies, appear to be related to the fact that combination companies tend to be more heavily concentrated in large urban areas where homes are smaller and have fewer appliances, and that they are less frequently found in southern areas where average usage is high because of heavy air-conditioner usage.

4. As Mr. Meyer has shown, the costs associated with dissolution of all combination companies would be substantial. He finds that financing costs alone would drive gas rates up roughly 15 per cent. Added costs due to duplicated facilities and services would further inflate these figures.

In summary, we are faced with the likelihood of substantially higher costs if we abandon the case-by-case approach to antitrust problems in favor of a blanket dissolution of combination companies. Our research has progressed far enough to permit us to be skeptical of predictions of improved economic performance. And the research of others on this point, as Dr. Pace shows, is so seriously deficient as to provide no basis for so drastic and costly a policy change. Consequently, reliable conclusions as to the relative economic performance of combination and single-service companies must await additional investigation of the impact of demographic factors on electricity usage, and of geographically determined factors (weather, wage rates, taxes) on costs.

Mr. Stelzer. Thank you.

And I would like my two colleagues who are with me, Dr. Joe Pace who also has a prepared statement which he would like to have put into the record and which he can summarize briefly——

Senator Gurney. It will be admitted into the record at this point.

(The prepared statement submitted by Joe D. Pace reads in full as follows. Testimony resumes on p. 249.)

Statement of Joe D. Pace, Senior Economist National Economic Research Associates, Inc.

My name is Joe D. Pace. I am employed as a Senior Economist by National Economic Research Associates, Inc. which is located at 80 Broad Street, New York, New York. My professional qualifications are appended to this statement.

I. Introduction

The purpose of my testimony is to review critically recent econometric studies which attempt to shed some light on the relative performance of combination gas-electric utilities vis-a-vis single service utilities. A careful examination of statistical performance indices is especially important in this case due to a lack of clear theoretically derived expectations regarding the relative efficiency of combination utilities. While as a general matter, economic theory teaches that monopoly can be expected to lead to higher prices and lower levels of output than those which would prevail under competitive conditions, in the present case the public policy choice does not involve a simple competition-monopoly [illegible]. Instead, the basic choice is between regulated monopoly (the combination [illegible] electric utility) and regulated duopoly (a single service gas utility [illegible] single service electric utility). Even from a purely theoretical viewpoint, [illegible] inordinately high prices and output restriction [illegible] conditions of regulated monopoly as opposed to regulated duopoly is un-

clear. Thus deprived of any theoretically presumptive case, we must rely more heavily on empirical testing of relative performance as a guide for public policy decisions.

Coincident with a generally heightened interest in the energy sector of the economy, both within and from outside the field of economics, and with a recognition of the increasing substitutability of gas and electricity, a number of articles aimed at empirically testing the relative performance of combination gas-electric utilities against that of single service utilities have appeared in the last few years. My review covers six publications which have systematically examined a large body of data relevant to the question at hand.

II. A REVIEW OF THE LITERATURE

A. Owen, B. M., "Monopoly Pricing in Combined Gas and Electric Utilities," *The Antitrust Bulletin*, Winter 1970, pp. 713–726.

The Owen article is aimed at testing the effectiveness of regulation by statistically examining the relationship between prices and output (for both electric and gas operations) and the presence of combination gas-electric utilities. He reasons theoretically that a combination utility should have greater economic power than its single service counterparts to raise prices and restrict output and, given this, that the effectiveness of regulation can be tested by determining if regulatory commissions have successfully prevented combination utilities from exploiting their market power. In short, in Owen's view, combination companies ought to perform poorly; if they do, then regulation cannot be said to be an effective performance constraint. Owen's examination of electricity prices and outputs leads him to conclude that prices are significantly higher and output significantly lower for combination gas-electric utilities and therefore that "the electricity results, by themselves, stand as an indictment of the ineffectiveness of regulation, and as an invitation to more vigorous antitrust policy."[1] In contrast combination utilities do not appear to have significantly different gas prices or levels of output, thus in Owen's words, ". . . the gas results are hardly persuasive."[2]

Owen describes his electric utility sample as follows: "Except for electric companies which sold only to other electric companies, the sample of 179 utilities includes all companies, privately owned, with revenues of $1 million or more in 1967. Seventy-seven of these owned gas plants."[3] Aside from the fact that according to the Federal Power Commission, 199 companies rather than 179 would satisfy Owen's stated sampling criteria and 78 rather than 77 are shown as having gas utility plant, serious questions must arise with regard to the treatment for analytical purposes of any utility having any gas revenues as a combination utility and of all utilities not having gas revenues according to the Federal Power Commission's unconsolidated statistics as straight electrics. Given this definitional breakdown, the Southern California Edison Company which had electric revenues of over $550 million and gas revenues of less than $140,000 (derived solely from gas sales on Santa Catalina Island) is classed by Owen as a combination utility and is in no way distinguished from its neighbor Pacific Gas and Electric Company with gas revenues of over $400 million. Similarly, the Toledo Edison Company which served no gas in the City of Toledo and in total derived less than 2 per cent of its revenues from gas operations is classed by Owen as a combination company.[4] In sharp contrast to this, electric companies which have sizable gas subsidiaries, in many instances operating in the same service area, are counted as straight electric companies due to reliance on unconsolidated Federal Power Commission statistics.[5] Examples of companies mistakenly classified for this reason include Wisconsin Electric Power Company (subsidiary—Wisconsin Natural Gas Company), Rockland Electric Company (parent—Orange and Rockland Utilities serving both gas and electricity) and

[1] Owen, B. M., "Monopoly Pricing in Combined Gas and Electric Utilities," *The Antitrust Bulletin*, Winter 1970, p. 722.

[2] [illegible]

[3] [illegible] p. 716.

[4] Other utilities whose gas operations are an extremely small portion of total operations include [illegible] Power Company, Union Electric Company and Commonwealth Edison [illegible]

[5] [illegible] Federal Power Commission's *Statistics of Privately Owned Electric Utilities in the United States, 1967*, upon which Owen and several other investigators have relied, reports [illegible] operating company basis for all operating companies with annual electric revenues [illegible] $1 million [illegible] designated Class A and B). Corporate affiliations are nowhere [illegible]

Cambridge Electric Light Company (fellow subsidiary with the New England Gas and Electric Associaton holding company system—Cambridge Gas Light Company).[6] It is apparent that basic errors in the classification of a significant number of companies as well as the simple categorization of all companies having any gas business as combination companies without regard to the relative size and importance of their gas operation places in great doubt any conclusions derived from an analysis based on Owen's sample.

Going now beyond sample definition problems, Owen defines the price of electricity as the average revenue per kilowatt-hour sold to ultimate customers. Given that electricity tariffs decline as use by a given customer increases, average revenue cannot be an appropriate measure of price. Instead, the average revenue received by a particular utility from any given customer class will be determined jointly by the actual level and structure of its rates and by the average level of kilowatt-hour consumption per customer.[7] It follows then that if consumption per customer differs from company to company for reasons unrelated to rates, the average revenue received per kilowatt-hour sold will fail to accurately reflect true price differentials among utilities. As will be discussed in more detail later, several investigators have shown that once differing levels of use per customer are taken into account, combination gas-electric utilities no longer are found to be associated with average revenue levels significantly different from those of single service companies. It should be clear, therefore, that Owen's analysis cannot support the conclusion that combination utilities charge higher rates in the absence of a consideration of varying levels of kilowatt-hour consumption per customer and an examination of the causes underlying that variation.

Further problems arise in that Owen attempts to explain differences in levels of average electric revenue per kilowatt-hour sold without taking into account variations in fuel costs (which in 1967 were 15.4 per cent of revenues) or in state and local taxes paid (which in 1967 were 10.8 per cent of revenues).[8] If it were the case that combination companies paid higher fuel costs and bore a heavier local tax burden, then they would appear unjustly to charge inordinately high rates. In order to test this possibility, I examined data for those states in which combination gas-electric utilities are highly concentrated. There are five—Illinois, Iowa, Missouri, New York and Wisconsin. Approximately 40 percent of all combination companies (defined as those having any gas operations) are located in these five states, while only 6 per cent of the single service class A and B electric utilities are so located. According to Edison Electric Institute statistics, in 1967, fuel costs in these five states averaged 28.0 cents per million Btu as opposed to the average for the remainder of the country of 25.2 cents per million Btu. Thus, for this significant number of combination companies, we could expect fuel costs to be 11 per cent higher than those generally prevailing elsewhere. State and local taxes averaged $42.09 per $1,000 of net electric plant for all class A and B electric utilities located in the states of Illinois, Iowa, Missouri, New York and Wisconsin, while averaging only $27.44 per $1,000 of net electric plant for the remainder of the country—a difference of 53 per cent. It is well known that the omission of important factors from a statistical analysis is likely to lead to a biased result and my examination of the data in this case indicates that the bias in Owen's analysis may well be against combination gas-electric utilities.

Owen also finds that the presence of combination companies is associated with significantly lower levels of kilowatt-hour sales, after allowing for variations

[6] Other examples are Delmarva Power and Light of Virginia and Delmarva Power and Light of Maryland (parent—Delmarva Power Company serves both gas and electricity), Conowingo Power Company (parent—Philadelphia Eletric Company serves both gas and electricity) and Massachusetts Electric Company (fellow subsidiaries under the New England Electric System holding company serve gas in the same territory).

[7] A typical residential rate schedule might read as follows:

$1.00	First 20 kw.-hr. or less.
3.5¢ per kw.-hr	Next 80 kw.-hr.
2.5¢ per kw.-hr	Next 200 kw.-hr.
2.0¢ per kw.-hr	Next 600 kw.-hr.
1.5¢ per kw.-hr	All additional kw.-hr.

A customer using 300 kilowatt-hours per month would pay an average of 2.9 cents per kilowatt-hour. Another customer facing the same rate schedule but using 750 kilowatt-hours per month would pay an average of only 2.4 cents per kilowatt-hour. If one observed only the levels of average revenue per kilowatt-hour paid by each of these two customers, he might well conclude mistakingly that customer 1 was served by an electric utility with substantially higher rates.

[8] Federal Power Commission, *Statistics of Privately Owned Electric Utilities in the United States, 1967*, Tables 2 and 4.

in the number of customers served and the proportion of output going to residential and to industrial customers. In effect, what is being measured is differences in kilowatt-hour consumption per customer. Despite this, Owen does not take into account any factors other than income and advertising expenditures which might strongly influence use per customer. A clear example of an important omitted factor is urbanization. Where apartments predominate, it seems only reasonable to expect that energy use per residential dwelling unit will be significantly lower. Furthermore, larger power intensive industries tend to locate outside densely populated areas.[9] Thus, if combination gas-electric utilities tend to be more urban oriented, it would not be surprising to find use per customer or total output lower for those companies, all else being equal. Generally, this appears to be the case. Despite the fact that by number, less than 40 per cent of all class A and B investor-owned electric utilities are combination companies (following Owen's definition), these utilities serve 11 out of the 20 largest cities served by investor-owned utilities and three of the largest five. Also, to the extent that higher fuel costs or taxes necessitate the charging of higher rates by combination utilities and that usage is responsive to rates, we might expect use per customer to be lower. Thus, once again, it seems clear that Owen's statistical analysis is subject to serious biases due to the omission of significant factors.

Owen's gas company sample was made up of 131 utilities drawn nonrandomly from *Brown's Directory of North American Gas Companies*. Both gas output and average revenue per cubic foot sold were tested to see if they were systematically related to the presence of combination companies. The findings were that the prices and outputs of combination gas-electric utilities did not differ significantly from those of single service gas companies. Owen's gas operation analysis suffers, of course, from many of the same deficiencies which bias his study of electricity prices and output. This is true with respect to the basic problem of realistically distinguishing combination companies from single service gas companies. Given Owen's failure to take account of corporate affiliations in delineating his electric company sample, it seems most unlikely that such affiliations were considered in his gas study. Furthermore, the use of average gas revenue per cubic foot as a measure of gas prices is poor in that it is heavily dependent on variations in consumption per customer. Finally, possible significant differences in tax burdens, urbanization and the like are not taken into account. That Owen fails to find any significant differences between combination gas-electric utilities and single service gas companies may reflect the fact that the geographic distribution of utilities (which may reflect tax, fuel cost and urbanization variations to some extent) has been accounted for with more precision in the gas analysis than in the electric analysis.

To summarize, Owen's study of the relative performance of combination gas-electric utilities vis-a-vis single service gas or electric utilities is punctuated with numerous deficiencies each sufficient to seriously bias his results. These involve chiefly his classification of utilities as combination or single service companies, his failure to account for differing degrees of combined operation, his measure of price by average revenues and the omission from consideration of many obviously important explanatory factors.

B. Landon, J. H., "Pricing in Combined Gas and Electric Utilities: A Second Look," Case Western Reserve University, Research Program in Industrial Economics, Working Paper No. 23.

Landon's paper is a rejoinder to the Owen article just reviewed. Essentially, Landon criticizes the Owen work for failing to take account of variations in kilowatt-hour consumption per customer, differences in alternative methods and costs of generation and for the crudeness of the geographic breakdown used. After correcting in his view for these problems, Landon concludes ". . . that there is *no significant effect* of joint ownership on price. . . ."[10]

Landon's statistical analysis differs from Owen's chiefly in that he has taken account of variations among utilities in kilowatt-hour consumption per customer, per cent hydroelectric generation and per cent self-generation. Furthermore, Landon's sample is drawn from a publication that generally furnishes consolidated statistics.[11] Thus, the second type of definitional problem to which I

[9] See the testimony of Abraham Gerber *In The Matter of Consolidated Edison Company of New York, Inc.*, before the Public Service Commission, PSC Case No. 25342.

[10] Landon, J. H., "Pricing in Combined Gas and Electric Utilities: A Second Look," Case Western Reserve University, Research Program in Industrial Economics, Working Paper No. 23, p. 1.

[11] Turner, C. A., *Financial Statistics of Public Utilities*, Chicago, 1969.

referred in reviewing the Owen article—i.e., that electric companies with separate gas subsidiaries operating in the same territory are classed mistakingly as single service electric utilities—is largely solved. Given these adjustments, Landon finds that the electric rates charged by combination gas-electric utilities (as measured by average electric revenue per kilowatt-hour) are not significantly different from those of single service utilities.

Landon's analysis can be faulted for propagating Owen's measurement of price by average revenues and for failing to take account of the varying size and relative importance of gas operations to combination utilities. Given that the Landon paper is intended as a rejoinder to Owen, this is understandable, however, the statistical biases resulting from these procedures remain. The greatest difficulty is that the Landon analysis is too limited in scope to permit the drawing of firm conclusions with regard to the relative performance of combination utilities vis-a-vis single service electric utilities. The level of kilowatt-hour consumption per customer may itself be performance-sensitive. In other words, poor performance may lead to lower levels of usage. After taking account of usage, therefore, one may be unable to detect performance differences even though performance does vary and is reflected, in reality, in usage data. In order to determine if this were the case, one would have to proceed to an analysis of the relationship between joint control of gas and electric operations and kilowatt-hour consumption per customer, taking into account fully external factors which might cause usage to vary. In Landon's words:

> There remains, however, the correlation between the incidence of combination companies and lower kilowatt hour sales both absolutely and per customer. If combination utilities are located in areas where the demand for electricity is lower for exogenous reasons *or* if "straight" electric utilities are more likely to be located in areas with low costs (which promote high intensity of use) the correlation between low use and electric and gas integration demonstrates neither monopoly output restriction nor ineffective regulation. If, on the other hand, there is no relation between combination companies and production costs or exogenous determinants of demand, the observed relation remains consistent with differing behavior between combination and "straight" utilities.
>
> It is difficult to "prove" the exogenous effect of location on electricity consumption and its relation to the incidence of combination utilities. It is, however, interesting and suggestive that combination companies dominate in some states (such as Iowa, Illinois, New York, Wisconsin and Missouri) while "straight" companies appear to be the rule in others (Florida, Texas, Alabama, Mississippi, Georgia, and Kentucky.) It would take a more detailed analysis that [sic] either Owen or the present paper present to isolate the regional effects among and within states.[12]

C. Mann, P. C., "The Impact of Competition in the Supply of Electricity," *Quarterly Review of Economics and Statistics*, Winter 1970, pp. 37–49.

The purpose of this article is to study the electricity price performance of single service electric and of combination utilities. "It is essentially a comparison of these two groups of utilities with respect to their relative competitiveness in marketing electric power."[13] From his study of the factors determining rate variations among electric utilities, Mann concludes that ". . . residential price differentials between combination and straight electric firms [are] caused primarily by factors independent of the dual service nature of the combination utility."[14] Further, he concludes that the results of an analysis of commercial-industrial prices ". . . provide evidence that the higher prices associated with combination firms [are] partly attributable to the dual service nature of the combination utility."[15]

Mann's sample of 67 single service electric utilities and 57 combination gas-electric utilities includes essentially all investor-owned utilities with electric revenues exceeding $20 million in 1967. Given that the basic source of data employed was Federal Power Commission statistics, which are unconsolidated, Mann no doubt has been led to misclassify several utilities as to single service or combination status. Both the Wisconsin Electric Power Company and the Massachusetts Electric Company would be characterized as single service elec-

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[12] *Ibid.*, p. 10.
[13] Mann, P. C., "The Impact of Competition in the Supply of Electricity," *Quarterly Review of Economics and Statistics*, Winter 1970, p. 37.
[14] *Ibid.*, p. 48.
[15] *Ibid.*, pp. 48–49.

tric utilities if one were to rely solely upon unconsolidated Federal Power Commission statistics despite the fact that when corporate affiliations are taken into account, one finds that both companies have affiliates controlling gas operations in territories coincident with their electric operations and thus are properly treated as combination utilities. This problem fails to arise more frequently only because in many instances the utilities involved in such corporate relationships had less than $20 million electric revenues in 1967 and thus were excluded from Mann's sample. Mann does make, however, a significant improvement over earlier discussed articles in the classification of utilities. Rather than simply treating all firms with any gas business as combination companies, Mann included as a variable in his analysis the ratio of gas to electric revenues. This permits him to take into account the effects of the varying size and importance of gas operations to individual utilities. Mann's efforts are directed then at testing to see if this ratio (which is a proxy for degree of combinationism) is associated with significantly different levels of average electric revenue per residential kilowatt-hour sold. Other variables taken into account include the rate of return earned on net electric plant, distribution expense per kilowatt-hour, distribution expense per customer, administrative-general expenses per kilowatt-hour, sales expense per customer, cost per kilowatt-hour of steam-generated electricity, cost per kilowatt-hour of purchased power, utility size, and kilowatt-hour consumption per residential customer. Mann finds no significant relationship between the ratio of gas to electric revenues and the price of residential electricity (as measured by average revenues) after taking account of variations in the other factors enumerated and from this draws his conclusion that joint control of gas and electric operations does not affect residential markets.

When one views the list of factors included in Mann's analysis of residential electric prices, he must wonder what remains to be associated with the combination company variable. In the aggregate, price as measured by average revenue per kilowatt-hour must be equal identically to the sum of production, transmission, distribution and customer accounts expenses plus taxes paid and the rate of return earned. Essentially, Mann is looking at variations in average revenues after taking account of all cost differences except for differences in hydroelectric production expenses, transmission expenses and taxes. That this has little meaning is clear. Furthermore, the relevant hypothesis to be tested is whether or not combination companies differ from single service companies in the efficiency and therefore the costs of their operations. It is impossible to test this hypothesis if most potential sources of cost variation are considered independently of the presence of joint control of gas and electric operations. The analysis performed by Mann, therefore, cannot reflect in any way other than pure chance the relative performance in residential markets of combination utilities as opposed to single service utilities.

In the second part of his analysis, Mann turns his attention to explaining variations in average electric commercial-industrial revenues per kilowatt-hour. After allowing for differences attributable to the same cost factors considered in his residential analysis, Mann finds a significant relationship between higher degrees of combined gas-electric operations and higher levels of average revenue per commercial-industrial kilowatt-hour sold. Thus, he concludes "... that commercial-industrial consumers benefit via lower prices when they are served by either two independent suppliers of gas and electricity, or with a combination utility whose gas opertions are relatively minor compared with its electric operations."[16]

In addition to the critical deficiencies also characterizing his residential analysis, the most serious defect of this portion of Mann's analysis results from his lumping together commercial and industrial customers. According to Federal Power Commission statistics for all class A and B investor-owned utilities, the average revenue received from all commercial customers was 2.169 cents per kilowatt-hour in 1967 as opposed to only 0.978 cents per kilowatt-hour sold to industrial customers.[17] It seems clear, therefore, that when commercial and industrial customers are grouped, the main sources of variability among utilities in the average revenue per commercial-industrial kilowatt-hour sold are likely to be the number of commercial customers relative to the number of in-

[16] *Ibid.*, p. 46.

[17] Federal Power Commission, *Statistics of Privately Owned Electric Utilities in the United States, 1967*, Table 3. The much lower rates prevailing for industrial customers reflect the fact that such customers tend to take more power at higher load factors and voltages than do commercial customers.

dustrial customers, the average level of use by each of these customer groups and the pattern of usage by particular customers. Mann has failed to take into account numerous factors which might account for variations in commercial-industrial mix and levels and patterns of usage. For example, we might expect that densely populated urban areas would tend to be dominated by commercial customers and small fabrication level industrial customers; both groups having low levels of kilowatt-hour consumption and taking power at relatively low load factors.[18] An examination of 1969 data for the 15 most densely populated cities served by investor-owned electric utilities shows that, on average, annual commercial-industrial consumption per customer was 74,224 kilowatt-hours. For the of the area served by all class A and B investor-owned utilities, the corresponding figure is 107,577 kilowatt-hours. Further, the data indicate that the average load factor of the companies serving these 15 densely populated areas is approximately 10 percent below the national average. It is interesting to note that the six most densely populated areas and 10 of the 15 most densely populated cities are served by combination gas-electric utilities. Thus, ignoring density related factors may tend to seriously bias the analysis against combination companies. In addition, as noted earlier, one of the most important cost components not considered by Mann is state and local taxes. Such taxes in 1969 amounted to $44.79 per $1,000 of net electric plant for the combination companies serving the five most densely populated areas as opposed to $27.85 per $1,000 of net plant for all other investor-owned class A and B electric utilities. That such differences in the tax burdens can affect seriously the rates necessary to recover costs and yield a fair rate of return is clear. Finally, it should be noted that the relationship found by Mann between degree of combined gas-electric operation and higher commercial-industrial revenues does not hold consistently. When Mann looks separately at the 62 smallest utilities and the 62 largest utilities in his sample, the significant relationship between combined gas-electric operations and average commercial-industrial revenues per kilowatt-hour can no longer be found. Furthermore, when he divides his sample into "high price" and "low price" utilities, the relationship between degree of combined gas-electric operation and average revenue holds only for the "high price" subsample. It is suggestive at least to note that companies serving 10 of the 15 most densely populated cities (to which I earlier referred) would fall into Mann's "high price" subsample. These problems in conjunction with those noted regarding the residential analysis clearly leave Mann's results highly suspect.

D. Landon, J. H. and J. W. Wilson, "An Economic Analysis of Combination Utilities," Case Western Reserve University, Research Program in Industrial Economics, Working Paper No. 19. (This article has been accepted for future publication by *The Antitrust Bulletin.*)

The Landon-Wilson paper is aimed at probing both theoretically and statistically into the economic consequences of combined gas-electric operations. The first section of the empirical testing goes toward demonstrating that gas and electricity are highly substitutable in some applications, specifically water heating and cooking. They then proceed to show that, on average, advertising expenditure relative to total sales revenue is lower for combination utilities than for single service electric utilities. Finally, in this preliminary section, they attempt to demonstrate that rates of growth of manufacturing are higher where industrial electricity prices are lower. While all of these are interesting exercises which may bear tangentially on the subject at hand, they in no way deal directly with the performance of combination gas-electric utilities vis-a-vis single service utilities.

In the last portion of their paper, Landon and Wilson turn to a more direct test of the relative performance of combination utilities. Basically, they find the growth of total kilowatt-hour sales over the period 1958 to 1968 lower for combination utilities after accounting for changes in population served by the utilities. They also find the higher the ratio of gas sales to electricity sales, the lower the growth in total kilowatt-hour sales. From this, Landon and Wilson conclude that "if growth of sales is a measure of good performance, it seems clear that competition is associated with superior results." [19]

[18] The load factor is defined by Edison Electric Institute as "the ratio of the average load in kilowatts supplied during a designated period to the peak or maximum load occurring in that period." *Glossary of Electric Utility Terms*, 1961, p. 48. Since sales of power at high load factors enable the utility to more intensively utilize its capacity and thus spread overhead costs, rates are generally substantially lower for high load factor customers.

[19] Landon, J. H. and J. W. Wilson, "An Economic Analysis of Combination Utilities," Case Western Reserve University, Research Program in Industrial Economics, Working Paper No. 19, p. 20.

The chief deficiency of the Landon-Wilson analysis is its failure to consider other factors which may influence growth in total electric sales and which may be associated coincidentally with combined gas-electric utility operations. The Landon-Wilson sample includes virtually all of the 129 electric utility operating companies shown in C. A. Turner's *Financial Statistics of Public Utilities*, 1969. In reviewing that data source, I found that electric utilities serving 68 major metropolitan areas were included. Of these areas, 31 are served by electric utilities which also serve a significant number of gas customers. Thirty-seven metropolitan areas are served by electric utilities with little or no gas operation. Of the areas served by combination companies, 22.6 percent are located in the Northeast and only 19.4 percent are located in the South, while for single service electric companies, the corresponding figures are 8.1 percent and 48.6 percent. The relative concentration of single service electric areas in the South might lead one to suspect that, for example, income has been growing more rapidly in single service electric company areas. In fact, according to 1959 and 1968 income data found in the *Survey of Current Business*, this is the case. Furthermore, it seems clear that the areas served by single service electric companies, being located on average in warmer climates, would have the greatest increase in electricity sales over the 1958–1968 period due to the increasing popularity and availability of air conditioning. For these reasons, the Landon-Wilson sales growth analysis may be biased against combination companies. Finally, Landon and Wilson have not taken into account any factors which might bear on the possible shifting mix of industry in different areas over time. In short, the Landon-Wilson analysis simply does not go far enough to permit the drawing of any firm conclusions regarding the relative performance of combination studies. Indeed, after conducting further studies, co-author John Landon stated in a later paper "John Wilson and I present some of the potential harms (as well as benefits) and some crude attempts to test these in our paper. Reading together that paper, the present work and Owen's original article leaves the investigator concerned with the potential difficulties with combination companies but waiting further evidence for a clear mandate for policy." [20]

E. Collins, W. H., Jr., *Combination Gas-Electric Utilities*, Ph.D. Dissertation, Southern Illinois University, 1970.

This thesis is aimed at identifying and empirically testing different hypotheses concerning the social desirability of combination gas-electric utilities. After an analysis based on 1967 data for a sample of 52 combination companies, 89 straight electric utilities and 62 straight gas utilities, Collins concludes that while "no significant difference was found between straights and combinations in the examination of the gas dependent variables, the results of the examination of the electric dependent variables are sufficient to indicate that the performance of combination utilities is significantly below that of straight utilities." [21] This conclusion is based primarily on the fact that when the group of 52 combination companies is compared with the group of 89 single service electric utilities, the combination group is found to have significantly higher levels of average revenue per kilowatt-hour for each customers class and significantly lower levels of kilowatt-hour consumption per ultimate customer and per residential customer. In addition, Collins finds salaries and wages, distribution expenses, operating revenue less operation and maintenance expenses, and operating revenue less operation and maintenance expenses and taxes (all expressed on a per kilowatt-hour basis) all significantly higher for combination utilities. In contrast, sales and advertising expenses are found to be higher for single service utilities.

It should be apparent that the validity of Collins' conclusions hinges on whether or not his two groups of electric utilities are homogeneous with regard to all important consumption or cost influencing factors beyond the control of individual utilities. The author purports to have demonstrated statistically that the two groups are not significantly different with regard to such factors as utility size, relative importance of different types of customers, type of generation, per cent purchased power, degree of urbanization, population density, geographic location and distance from fuel sources. However, despite this claim, in several instances, it is difficult to see how Collins could have quantified and statistically tested the factor in which he is interested. In order to determine degree of urbanization and population density, the author calculated miles of underground electric line and miles of overhead transmission and distribution

[20] Landon, *op. cit.*, p. 11.
[21] Collins, W. H., Jr., *Combination Gas-Electric Utilities*, Ph.D. Dissertation, Southern Illinois University, 1970, p. 101.

line per customer. Noting, however, that complete reliance on such variables may be misleading, Collins states: "Therefore, available utility distribution maps and/or lists of communities served with their corresponding populations or number of customers coupled with maps indicating community size helped to determine urbanization as well as general population density. . . ." [22] The difficulty of quantifying and testing the homogeneity of two groups of utilities via the procedures described is apparent. Similarly, while stating that his combination utility sample is not significantly different from his single service electric utility sample in geographic location, Collins fails to describe how he went about testing this proposition. In fact, it would appear that the two groups of utilities are very different with regard to location. Fifteen of the 89 single service electric utilities (16.85 per cent) are located in the West South Central states of Arkansas, Louisiana, Oklahoma, and Texas. In contrast, only two of the 52 combination utilities (3.85 percent) are so located. Utilities operating in this region have substantial inherent cost advantages as indicated in part by the fact that in 1967, fuel costs per million Btu in the West South Central region were the lowest of any region in the United States—32.3 per cent below the national average! Furthermore, six of Collins' single service electric utilities and only two combination utilities are located in the East South Central region, the second lowest fuel cost area in the country.[23] In fact, if each member of Collins' two groups of utilities had paid the 1967 average fuel costs prevailing in its home state, the combination utilities would have had on average 9.18 per cent higher fuel costs due solely to locational differences. In addition, as might be expected, wage costs tend to be lower in the Southwest. According to the U.S. Department of Labor statistics, the average hourly earnings of 19 classifications of electric utility workers in the Southwest are about 10 per cent below the national average.[24]

Collins states further that his samples are homogeneous with respect to type of generation. However, he apparently does not recognize that where gas or oil can be used exclusively for electricity generation (as opposed to coal-fired generation), utilities can achieve substantial cost savings in the construction of generating plants. According to recent Federal Power Commission statistics, a gas or oil-fired generating plant can be expected to cost roughly 15 percent less than an equivalent coal-fired plant.[25] Of Collins' sample members, 18 straight electrics (20.22 per cent) and only four combination utilities (7.69 per cent) are located in states wherein little or no coal is burned in the generation of electricity.[26] In general, it seems clear that Collins has tried to compare two groups of firms which exhibit strong locational differences and thus which differ greatly with regard to the types and costs of fuel available, wage rates faced and the like.

Another important factor which Collins ignores when comparing his two samples for homogeneity is state and local tax burdens. In order to test for the possible impact of this factor, I looked at data for sample members located in states dominated either by single service electric utility or by combination utilities. Of Collins' 52 combination utilities, 16 or over 30 per cent (and no straight electrics) were located in the states of New York, Iowa and Wisconsin. Eighteen or over 20 per cent of the single service electric utility sample members (and no combination utilities) are located in the states of Texas and Pennsylvania. According to Federal Power Commission statistics, in 1967, state and local taxes amounted to an average of 3.63 mills per kilowatt-hour for the combination utilities in New York, Iowa and Wisconsin and only 0.95 mills per kilowatt-hour for the single service utilities in Texas and Pennsylvania. Even when Consolidated Edison Company of New York with its extremely high tax burden (8.20 mills per kilowatt-hour) is excluded from the combination group, the other combination companies are found to pay on average 146 per cent higher state and local taxes per kilowatt-hour than the Texas-Pennsylvania straight electrics.

To summarize, the two groups of utilities that Collins compares clearly differ in important ways unrelated to whether or not they are joint gas-electricity operations. Due to differences in location alone, the combination utilities in

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[22] *Ibid.*, p. 136.

[23] Edison Electric Institute, *Statistical Year Book of the Electric Utility Industry*, 1967, Table 23S.

[24] U.S. Department of Labor, Bureau of Labor Statistics, *Industry Wage Survey, Electric and Gas Utilities, October–November 1967*, U.S. Government Printing Office, Washington, D.C., Bulletin No. 1614, May 1969, p. 7.

[25] Federal Power Commission, *Hydroelectric Power Evaluation*, Supplement No. 1, November 1969, p. 1.

[26] These states in 1967 were, according to EEI statistics, Texas, Arkansas, Louisiana, Mississippi, California and Oklahoma. Of course, states having no thermal generation are not considered.

Collins' sample appear to face systemically higher fuel costs, wage rates, state and local tax burdens, and generating unit costs (due to their relative concentration in coal-burning states). Taking this into account, Collins' findings that for the combination utility group, average revenues, salaries and wages paid and capital charges (operating revenue less operation and maintenance expenses and taxes) are higher is consistent with the hypothesis that location, not performance, is the essential difference between his combination company sample and his straight electric utility sample.

F. National Economic Research Associates, *Combination Companies: A Comparative Study*, November 1968.

This work was the earliest of recent efforts to shed some light on the question at hand. It differs from the others reviewed in that its aim was not to analyze in detail the performance of combination utilities vis-a-vis single service utilities. Rather the aim was to compile a sizable body of data, largely financial in nature, which might indicate whether or not an overwhelming surface level case either for or against combination companies existed.

In this study, the 87 utilities included on Standard & Poor's Compustat tape were classified either as straight electric or combination companies, with combination companies defined as those for which gas revenues in 1966 accounted for 10 per cent or more of total revenues. The 87 companies were thus classified as 47 straight electrics and 40 combination companies. Thirteen gas utilities which were not subsidiaries of integrated companies and whose 1966 revenues generally exceeded $30 million were also included in the comparisons. The means, medians and distributions of various financial and operating variables were then compared. In total, over 70 comparisons were made.

While it is difficult to draw any firm conclusion on the basis of relatively simple comparisons even of sizable bodies of data for combination utilities and for single service utilities, it is interesting to note the level of agreement between this study and the others reviewed. In the aggregate, combination companies appear to have lower levels of kilowatt-hour consumption per residential customer, higher average revenues from residential electric sales and a slower rate of growth of kilowatt-hour consumption per residential customer. Furthermore, on a per kilowatt-hour generated basis, combinations have higher levels of operation and maintenance expenses and gross electric plant. Administrative, general, sales and customer accounts expenses per electric customer were lower for the sample of combination utilities studied. In contrast, similar variables observed for gas operations generally tended to reflect favorably on combination operations, however, the smallness of the single service gas company sample renders the gas operation comparisons unreliable.

To reemphasize, it is obvious that the compilation of data found in the 1968 NERA report cannot serve as the basis for any firm conclusions regarding the relative performance of combination utilities. Such studies do point, however, to gross differences which may or may not be significant and which deserve further investigation.

III. SUMMARY AND CONCLUSIONS

In the six statistical studies of combination company performance which I have reviewed, differing samples of utilities, various definitions of what constitutes significant "combinationality", a variety of cost-influencing variables and several different statistical methods have been employed. These reasons, at least in part, account for the somewhat conflicting conclusions drawn by the various authors. However, despite the differences and the conflicts, several points stand out. The combined control of gas and electric operations is associated with lower levels of kilowatt-hour consumption per residential customer. The average revenue per kilowatt-hour received from residential sales is higher for combination companies. However, after allowing for variations in use per residential customer, the relationship between combinationality and higher average revenues no longer holds. This implies strongly that the actual rates charged by combination companies do not differ from those of single service electric companies. Thus, to the extent that combined operations affect the level of average revenue received, it is through some effect on kilowatt-hour consumption per customer. The studies also indicate that the costs of electric operation are higher for combination gas-electric utilities and that combination utilities do have lower levels of metering and accounting costs and sales expenditures per customer. Finally, on the gas side, no differences between combination and single service gas utility performance are apparent.

In making these points, past authors have consistently failed to consider demographic factors such as population density, the relative number of apart-

ment units in an area, the age of housing, income and the like. These factors may influence importantly kilowatt-hour consumption per customer which in turn appears to underlie so many of the apparent cost and rate differences between combination utilities and single service utilities. There are some indications, for example, that combination companies tend to be more heavily concentrated in large urban areas with high population density where the homes are necessarily smaller and have fewer appliances. Also, combination companies are found infrequently in the Southern part of the nation where demand for air conditioning is most intense. It should not be surprising, then, that consumption per customer in such companies tends to be relatively low.

Moreover, other important cost-influencing factors have not been taken into account adequately. Even a cursory examination of the data reveals among others the following points:

1. Combination utilities are heavily concentrated in the Northeastern and North Central portions of the country, thus the fuel costs which they must face are substantially above average levels.

2. Single service electric utilities predominate in areas having supplies of low cost gas and oil adequate to serve as the only fuels for the generation of electricity.

3. Combination utilities appear to bear much higher state and local tax burdens, on average, than do their single service counterparts.

4. Single service electric utilities are concentrated in areas where prevailing wage rates are below national average levels.

Given these points, *it cannot be concluded that the economic performance of combination companies differs from that of single service utilities.* The only justifiable conclusion is that *no* conclusion can be drawn regarding the relative performance of these two groups of utilities without additional probing into the impact of demographic factors on electricity usage and the impact of geographically determined factors on costs.

Professional Qualifications of Joe D. Pace

My name is Joe D. Pace. My office is located at 80 Broad Street, New York, New York. I am a Senior Economist employed by National Economic Research Associates, Inc.

I received an A.B. degree from the College of William and Mary, and M.A. and Ph.D. degrees from the University of Michigan. My major subject was economics, specifically, the specialization known as industrial organization and regulatory economics. While completing my graduate work, I taught courses at the University of Michigan in introductory macro- and micro-economics for one and one-half years. In addition, I worked as an assistant city planner for the Washtenaw County Planning Department (located in Ann Arbor, Michigan) for the summer of 1968 during which time I designed a capital improvements program for the County. I assumed my present position upon the completion of the requirements for my doctoral degree. Since joining NERA, I have been engaged in extensive analyses of various economic facets of the electric utility industry.

I am the author of the doctoral dissertation *Relative Efficiency in the Electric Utility Industry.* I am also the author of an article entitled "The Subsidiary Received by Publicly Owned Electric Utilities," which appeared in the April 29, 1971 issue of *Public Utilities Fortnightly.*

Mr. STELZER. Thank you.

And Mr. Charles Frazier of our office who is here to assist us in answering any questions you may have in his area of expertise.

Before I do that, Dr. Measday and Mr. Sparks, I believe, asked me to provide the record with some indication of the levels of rates of return allowed by State commissions on gas and electric properties, and I have prepared such a tabulation, and I have given it to them before, and, if I may give it to the reporter, we can put that in the record, and I do not have to bother summarizing that.

Senator GURNEY. It will be also admitted into the record at this point.

(The document referred to, entitled "Survey of State Regulatory Commissions," follows. Testimony resumes on p. 257.)

SURVEY OF STATE REGULATORY COMMISSIONS, OCTOBER 1970

Tabulation of Responses, As of February 1971

Table of Contents

TABLE I.—STATE COMMISSION'S ELECTRIC UTILITY RATE BASE VALUATION PROCEDURE

Commission	Date of most recent rate decisions	Rate base valuation method	Rate base timing	Allowable rate of return (percent)
Alabama Public Service Commission	1969	Fair value	Midyear	6.28
Alaska Public Service Commission	August 1970	Original cost	Yearend	9.24
Arizona Corporation Commission	July 1966	Fair value	do	6.00
Arkansas Public Service Commission	March 1956	Original cost	Midyear	5.5–6.25
California Public Utilities Commission	August 1969	do	do	7.35
Colorado Public Utilities Commission	January 1970	do	do	7.50
Connecticut Public Utilities Commission	September 1970	do	Yearend	7.50
Delaware Public Service Commission	In process	Fair value	do	[1] 6.61
District of Columbia Public Service Commission	April 1970	Original cost	do	7.1–7.5
Florida Public Service Commission	December 1969	do	Midyear	7.1–7.6
Georgia Public Service Commission	Not available	Not available	Not available	NA
Hawaii Public Utilities Commission	March 1968	Original cost	Midyear	[2] 7.00
Idaho Public Utilities Commission	August 1964	do	do	6.10
Illinois Commerce Commission	July 1970	Fair value	Yearend	NA
Indiana Public Service Commission	January 1961	do	do	5.6–6
Iowa Commerce Commission	Not available	Not available	Not available	NA
Kansas State Corporation Commission	September 1970	Original cost	Yearend	7.32
Kentucky Public Service Commission	Not available	Not available	Not available	NA
Louisiana Public Service Commission	do	Original cost	Midyear/yearend	NA
Maine Public Utilities Commission	September 1960	do	Midyear	5.75
Maryland Public Service Commission	April 1970	do	Yearend	NA
Massachusetts Department of Public Utilities	October 1970	do	Midyear	7.47
Michigan Public Service Commission	June 1970	do	do	7.30
Minnesota Department of Public Service	(3)	(3)	(3)	(3)
Mississippi Public Service Commission[4]				
Missouri Public Service Commission	June 1970	Original cost/fair value.	Yearend	(5)
Montana Board of Railroad Commissioners	1969	Fair value	do	6.10
Nebraska State Railway Commission	(6)	(6)	(6)	(6)
Nevada Public Service Commission[4]				
New Hampshire Public Utilities Commission	Not available	Original cost	Midyear	NA
New Jersey Public Utilities Commission	October 1971	Original cost/fair value.	Yearend	NA
New Mexico State Corporation Commission (regulated by New Mexico Public Service Commission).				
New Mexico Public Service Commission	March 1970	Fair value	Yearend	6.75
New York Public Service Commission	September 1970.	Original cost	Midyear	7.50
North Carolina Utilities Commission[6]	Pending	Fair value	Yearend	(7)
North Dakota Public Service Commission	May 1969	Original cost	do	6.445
Ohio Public Utilities Commission	July 1970	Reproduction cost.	Midyear	[8] 5.31
Oklahoma Corporation Commission[4]				
Oregon Public Utility Commission	October 1970	Original cost	Midyear	7.25
Pennsylvania Public Utility Commission	November 1970.	Fair value	Yearend	[9] 7.00
Puerto Rico Public Service Commission[4]				
Rhode Island Public Utilities Commission	September 1967.	Original cost	Midyear	5.84
South Carolina Public Service Commission	December 1970.	do	Midyear/yearend.	NA
South Dakota Public Utilities Commission	Not available	Not available	Not available	NA
Tennessee Public Service Commission	do	do	do	NA
Texas Railroad Commission	(6)	(6)	(6)	(6)
Utah Public Service Commission	December 1932.	Original cost	Midyear	6.15
Vermont Public Service Board	Pending	do	Midyear/yearend.	NA
Virginia State Corporation Commission	June 1970	do	Yearend	8.38
Washington Utilities & Transportation Commission	1963	Original cost/fair value.	Midyear	6.0–6.1
West Virginia Public Service Commission	Not available	Not available	Not available	NA
Wisconsin Public Service Commission[4]				
Wyoming Public Service Commission	November 1970.	Original cost	Yearend	7.15

[1] As requested, case still in process at time of survey.
[2] No rate of return determination made by Commission in decisions.
[3] Utility not regulated.
[4] State commission did not respond to questionnaire.
[5] For electric utilities rate of return on original cost is 7.33 percent, on fair value it is 6.75 percent. For gas utilities rate of return on original cost is 7.37 percent; on fair value it is 7.2 percent. For telephone utilities rate of return on original cost is given as 8.9 percent.
[6] Hearings on general rate increases for both electric and gas companies have been held.
[7] Pending.
[8] By agreement of all parties concerned.
[9] The quoted rates of return for Pennsylvania are not to be construed as allowable rates on an industrywide basis. Allowable rate of return is determined in Pennsylvania on an individual company basis.

TABLE II. STATE COMMISSION'S GAS UTILITY RATE BASE VALUATION METHOD

Commissions	Date of most recent rate decisions	Rate base valuation method	Rate base timing	Allowable rate of return (percent)
Alabama Public Service Commission	1968	Fair value	Yearend	6.00.
Alaska Public Service Commission	Not available	Not available	Not available	Not available.
Arizona Corporation Commission	December 1968	Fair value	Yearend	6.75.
Arkansas Public Service Commission	December 1969	Original cost	do	8.00.
California Public Utilities Commission	January 1970	do	Midyear	7.30.
Colorado Public Utilities Commission	August 1970	do	Midyear	8.15.
Connecticut Public Utilities Commission.	April 1970	do	Yearend	7.30.
Delaware Public Service Commission	Not available	Not available	Not available	Not available.
District of Columbia Public Service Commission.	July 1968	Original cost	Yearend	6.3 6.45.
Florida Public Service Commission	April 1970	do	Midyear	7.6 7.85.
Georgia Public Service Commission	Not available	Not available	Not available	Not available.
Hawaii Public Utilities Commission	July 1970	Original cost	Midyear	7.34.
Idaho Public Utilities Commission	June 1970	do	do	7.30.
Illinois Commerce Commission	January 1970	Fair value	Yearend	Not available.
Indiana Public Service Commission	June 1970	do	do	6.95.
Iowa Commerce Commission	Not available	Not available	Not available	Not available.
Kansas State Corporation Commission	May 1970	Original cost	Midyear	7.50.
Kentucky Public Service Commission	October 1970	(3)	Yearend	7.80.
Louisiana Public Service Commission	Not available	Original cost	Midyear, yearend	Not available.
Maine Public Utilities Commission	August 1970	do	Yearend	6.61.
Maryland Public Service Commission	October 1969	Fair value	do	Not available.
Massachusetts Department of Public Utilities.	November 1970	Original cost	Midyear	8.59.
Michigan Public Service Commission	September 1970	do	do	7.32.
Minnesota Department of Public Service.	(4)	(4)	(4)	(4).
Mississippi Public Service Commission[4]				
Missouri Public Service Commission	July 1970	Original cost fair value.	Year end	(5)
Montana Board of Railroad Commissioners.	1969	Fair value	do	6.50.
Nebraska State Railway Commission	(4)	(4)	(4)	(4)
Nevada Public Service Commission[4]				
New Hampshire Public Utilities Commission.	Not available	Original cost	Midyear	8.30.
New Jersey Public Utilities Commission	In process	Not available	Not available	Not available.
New Mexico State Corporation Commission (Regulated by New Mexico Public Service Commission).				
New Mexico Public Service Commission	January 1970	Fair value	Yearend	6.75.
New York Public Service Commission	November 1970	Original cost	Midyear	7.10.
North Carolina Utilities Commission[4]	Pending	Fair value	Yearend	(5).
North Dakota Public Service Commission.	December 1969	Original cost	do	7.05.
Ohio Public Utilities Commission	June 1970	Reproduction cost	do	6.48.[9]
Oklahoma Corporation Commission[4]				
Oregon Public Utility Commission	January 1960	Original cost	Midyear	6.00.
Pennsylvania Public Utility Commission	February 1969	Fair value	Yearend	6.80.[10]
Puerto Rico Public Service Commission.[5]				
Rhode Island Public Utilities Commission.	July 1970	Original cost	Midyear	7.75–7.90.
South Carolina Public Service Commission.	December 1969	do	Midyear yearend	Not available.
South Dakota Public Utilities Commission.	Not available	Not available	Not available	Do.
Tennessee Public Service Commission	do	do	do	Do.
Texas Railroad Commission	June 1970	Fair value	Yearend	7.375.
Utah Public Service Commission	July 1968	Original cost	Midyear	7.00.
Vermont Public Service Board	Pending	do	Midyear yearend	Not available.
Virginia State Corporation Commission	Not available	do	Yearend	Do.
Washington Utilities & Transportation Commission.	1960	Original cost/ fair value.	Midyear	5.63–5.99.
West Virginia Public Service Commission.	October 1970	Original cost	do	7.00.
Wisconsin Public Service Commission[5]				
Wyoming Public Service Commission	June 1969	Original cost	Yearend	7.15.

[1] No rate of return determination made by commission in decisions.
[2] Indicated rate of return on results of operation.
[3] A combination of original cost, fair value, and reproduction cost is used in Kentucky.
[4] Utility not regulated.
[5] State commission did not respond to questionnaire.
[6] For electric utilities rate of return on original cost is 7.38 percent; on fair value it is 6.76 percent. For gas utilities rate of return on original cost is 8.97 percent; on fair value it is 7.2 percent. For telephone utilities rate of return on original cost is given as 8.59 percent.
[7] Hearings on general rate increases for both electric and gas companies have been held.
[8] Pending.
[9] By agreement of all parties concerned.
[10] The quoted rates of return for Pennsylvania are not to be construed as allowable rates on an industrywide basis. Allowable rate of return is determined in Pennsylvania on an individual company basis.

TABLE III.—STATE COMMISSION'S TELEPHONE UTILITY RATE BASE VALUATION PROCEDURE

Commission	Date of most recent rate decisions	Rate base valuation method	Rate base timing	Allowable rate of return (percent)
Alabama Public Service Commission	1963	Fair value	Yearend	6.20
Alaska Public Service Commission	Not available	Original cost	do	Not available
Arizona Corporation Commission	December 1966.	Fair value	do	5.50
Arkansas Public Service Commission	April 1969	Original cost	Midyear	6.00
California Public Utilities Commission	July 1969	do	do	7.20
Colorado Public Utilities Commission	January 1969	do	do	7.50
Connecticut Public Utilities Commission	April 1969	do	Yearend	7.30
Delaware Public Service Commission	October 1970	Fair value	do	7.20
District of Columbia Public Service Commission	December 1964.	Original cost	do	6.25–6.40
Florida Public Service Commission	October 1970	do	do	7.50–8.00
Georgia Public Service Commission	Not available	Not available	Not available	Not available
Hawaii Public Utilities Commission	May 1960	Original cost	Midyear	6.70
Idaho Public Utilities Commission	February 1970.	Not available	Not available	6.50
Illinois Commerce Commission	August 1970	Fair value	Yearend	Not available
Indiana Public Service Commission	August 1968	do	do	6.70
Iowa Commerce Commission	Not available	Not available	Not available	Not available
Kansas State Corporation Commission	September 1970.	Original cost	Yearend	[1] 2.75
Kentucky Public Service Commission	October 1970	[2]	do	7.80
Louisiana Public Service Commission	Not available	Original cost	Midyear/yearend.	Not available
Maine Public Utilities Commission	July 1970	do	Yearend	[1] 4.40
Maryland Public Service Commission	November 1969.	Fair value	do	Not available
Massachusetts Department of Public Utilities	June 1970	Original cost	Midyear	7.80
Michigan Public Service Commission	August 1970	do	Yearend	7.95
Minnesota Department of Public Service	[3]	[3]	[3]	[3]
Mississippi Public Service Commission [3]				
Missouri Public Service Commission	September 1969.	Original cost/fair value.	Yearend	[4]
Montana Board of Railroad Commissioners	1970	Fair value	do	6.20
Nebraska State Railway Commission	September 1970.	Original cost/reproduction cost.	do	[5]
Nevada Public Service Commission [3]				
New Hampshire Public Utilities Commission	Not available	Original cost	Midyear	7.90
New Jersey Public Utilities Commission	In process	Not available	Not available	NA
New Mexico State Corporation Commission	July 1969	Original cost	do	8.00
New Mexico Public Service Commission	Regulated by New Mexico State Corporation Commission).			
New York Public Service Commission	July 1970	Original cost	Midyear	7.875
North Carolina Utilities Commission [6]	July 1970	Fair value	Yearend	7.04
North Dakota Public Service Commission	September 1969.	Original cost	do	7.40
Ohio Public Utilities Commission	September 1970.	Reproduction cost.	Midyear	[7] 6.09
Oklahoma Corporation Commission [3]				
Oregon Public Utility Commission	December 1969.	Original cost	Midyear	7.60
Pennsylvania Public Utility Commission	December 1963.	Fair value	Yearend	[8] 6.40
Puerto Rico Public Service Commission [3]				
Rhode Island Public Utilities Commission	January 1970	Original cost	Midyear	7.40–7.65
South Carolina Public Service Commission	June 1970	do	Midyear/yearend.	NA
South Dakota Public Utilities Commission	January 1968	do	Yearend	7.00
Tennessee Public Service Commission	September 1970.	do	Midyear	7.00
Texas Railroad Commission	[9]	[9]	[9]	[9]
Utah Public Service Commission	November 1969.	Original cost	Midyear	7.50
Vermont Public Service Board	Not available	do	Midyear/yearend.	NA
Virginia State Corporation Commission	November 1970.	do	Yearend	6.70
Washington Utilities and Transportation Commission	1969	Original cost/fair value.	Midyear	7.25–7.50
West Virginia Public Service Commission	December 1970.	Original cost	do	7.50
Wisconsin Public Service Commission [3]				
Wyoming Public Service Commission	February 1959.	Original cost	Yearend	6.75

Footnote on top of p. 253.

[1] This company is principally financed with REA mortgage notes, hence the lower than usual rate of return.
[2] A combination of original cost, fair value, and reproduction cost is used in Kentucky.
[3] State commission did not respond to questionnaire.
[4] For electric utilities rate of return on original cost is 7.38 percent; on fair value it is 6.76 percent. For gas utilities rate of return on original cost is 8.97 percent; on fair value it is 7.2 percent. For telephone utilities rate of return on original cost is given as 8.09 percent.
[5] Rate of return on original cost is 7.75 percent; on reproduction cost it is 5.84 percent.
[6] Hearings on general rate increases for both electric and gas companies have been held.
[7] By agreement of all parties concerned.
[8] The quoted rates of return for Pennsylvania are not to be construed as allowable rates on an industrywide basis. Allowable rate of return is determined in Pennsylvania on an individual company basis.
[9] Utility not regulated.

TABLE IV.—COMPARISON OF STATE COMMISSION'S RATE BASE VALUATION METHODS

Commission	Rate base valuation method		
	Electric	Gas	Telephone
Alabama Public Service Commission	Fair value	Fair value	Fair value.
Alaska Public Service Commission	Original cost	Not available	Original cost.
Arizona Corporation Commission	Fair value	Fair value	Fair value.
Arkansas Public Service Commission	Original cost	Original cost	Original cost.
California Public Utilities Commission	do	do	Do.
Colorado Public Utilities Commission	do	do	Do.
Connecticut Public Utilities Commission	do	do	Do.
Delaware Public Service Commission	Fair value	Not available	Fair value.
District of Columbia Public Service Commission	Original cost	Original cost	Original cost.
Florida Public Service Commission	do	do	Do.
Georgia Public Service Commission	Not available	Not available	Not available.
Hawaii Public Utilities Commission	Original cost	Original cost	Original cost.
Idaho Public Utilities Commission	do	do	Not available.
Illinois Commerce Commission	Fair value	Fair value	Fair value.
Indiana Public Service Commission	do	do	Do.
Iowa Commerce Commission	Not available	Not available	Not available.
Kansas State Corporation Commission	Original cost	Original cost	Original cost.
Kentucky Public Service Commission	Not available	(1)	(1).
Louisiana Public Service Commission	Original cost	Original cost	Original cost.
Maine Public Utilities Commission	do	do	Do.
Maryland Public Service Commission	do	Fair value	Fair value.
Massachusetts Department of Public Utilities	do	Original cost	Original cost.
Michigan Public Service Commission	do	do	Do.
Minnesota Department of Public Service	(2)	(3)	(3).
Mississippi Public Service Commission [3]			
Missouri Public Service Commission	Original cost/fair value.	Original cost/fair value.	Original cost/fair value.
Montana Board of Railroad Commissioners	Fair value	Fair value	Fair value.
Nebraska State Railway Commission	(2)	(2)	Original cost/reproduction cost.
Nevada Public Service Commission [3]			
New Hampshire Public Utilities Commission	Original cost	Original cost	Original cost.
New Jersey Public Utilities Commission	Original cost/fair value.	Not available	Not available.
New Mexico State Corporation Commission	(Regulated by New Mexico Public Service Commission).		Original cost.
New Mexico Public Service Commission	Fair value	Fair value	
New York Public Service Commission	Original cost	Original cost	Original cost.
North Carolina Utilities Commission [4]	Fair value	Fair value	Fair value.
North Dakota Public Service Commission	Original cost	Original cost	Original cost.
Ohio Public Utilities Commission	Reproduction cost	Reproduction cost	Reproduction cost.
Oklahoma Corporation Commission [3]			
Oregon Public Utility Commission	Original cost	Original cost	Original cost.
Pennsylvania Public Utility Commission	Fair value	Fair value	Fair value.
Puerto Rico Public Service Commission [3]			
Rhode Island Public Utilities Commission	Original cost	Original cost	Original cost.
South Carolina Public Service Commission	do	do	Do.
South Dakota Public Utilities Commission	Not available	Not available	Do.
Tennessee Public Service Commission	do	do	Do.
Texas Railroad Commission	(2)	Fair value	(2).
Utah Public Service Commission	Original cost	Original cost	Original cost.
Vermont Public Service Board	do	do	Do.
Virginia State Corporation Commission	do	do	Do.
Washington Utilities and Transportation Commission.	Original cost/fair value.	Original cost/fair value.	Original cost/fair value.
West Virginia Public Service Commission	Not available	Original cost	Original cost.
Wisconsin Public Service Commission [3]			
Wyoming Public Service Commission	Original cost	Original cost	Do.

[1] A combination of original cost, fair value, and reproduction cost is used in Kentucky.
[2] Utility not regulated.
[3] State commission did not respond to questionnaire.
[4] Hearings on general rate increases for both electric and gas companies have been held.

TABLE V.—COMPARISON OF STATE COMMISSION'S RATE BASE TIMING METHODS

Commission	Rate base timing		
	Electric	Gas	Telephone
Alabama Public Service Commission	Midyear	Yearend	Yearend.
Alaska Public Service Commission	Yearend	Not available	Do.
Arizona Corporation Commission	do	Yearend	Do.
Arkansas Public Service Commission	Midyear	do	Midyear.
California Public Utilities Commission	do	Midyear	Do.
Colorado Public Utilities Commission	do	do	Do.
Connecticut Public Utilities Commission	Yearend	Yearend	Yearend.
Delaware Public Service Commission	do	Not available	Do.
District of Columbia Public Service Commission	do	Yearend	Do.
Florida Public Service Commission	Midyear	Midyear	Do.
Georgia Public Service Commission	Not available	Not available	Not available.
Hawaii Public Utilities Commission	Midyear	Midyear	Midyear.
Idaho Public Utilities Commission	do	do	Not available.
Illinois Commerce Commission	Yearend	Yearend	Yearend.
Indiana Public Service Commission	do	do	Do.
Iowa Commerce Commission	Not available	Not available	Not available.
Kansas State Corporation Commission	Yearend	Midyear	Yearend.
Kentucky Public Service Commission	Not available	Yearend	Do.
Louisiana Public Service Commission	Midyear/yearend	Midyear/yearend	Midyear/year-end.
Maine Public Utilities Commission	Midyear	Yearend	Yearend.
Maryland Public Service Commission	Yearend	do	Do.
Massachusetts Department of Public Utilities	Midyear	Midyear	Midyear.
Michigan Public Service Commission	do	do	Yearend.
Minnesota Department of Public Service	(1)	(2)	(2).
Mississippi Public Service Commission [2]			
Missouri Public Service Commission	Yearend	Yearend	Yearend.
Montana Board of Railroad Commissioners	do	do	Do.
Nebraska State Railway Commission	(1)	(1)	Do.
Nevada Public Service Commission [2]			
New Hampshire Public Utilities Commission	Midyear	Midyear	Midyear.
New Jersey Public Utilities Commission	Yearend	Not available	Not available.
New Mexico State Corporation Commission	(3)	(3)	Do.
New Mexico Public Service Commission	Yearend	Yearend	
New York Public Service Commission	Midyear	Midyear	Midyear.
North Carolina Utilities Commission [4]	Yearend	Yearend	Yearend.
North Dakota Public Service Commission	do	do	Do.
Ohio Public Utilities Commission	Midyear	do	Midyear.
Oklahoma Corporation Commission [2]			
Oregon Public Utility Commission	Midyear	Midyear	Do.
Pennsylvania Public Utility Commission	Yearend	Yearend	Yearend.
Puerto Rico Public Service Commission [2]			
Rhode Island Public Utilities Commission	Midyear	Midyear	Midyear.
South Carolina Public Service Commission	Midyear/yearend	Midyear/yearend	Midyear/year-end.
South Dakota Public Utilities Commission	Not available	Not available	Yearend.
Tennessee Public Service Commission	do	do	Midyear.
Texas Railroad Commission	(1)	Yearend	(1).
Utah Public Service Commission	Midyear	Midyear	Midyear.
Vermont Public Service Board	Midyear/yearend	Midyear/yearend	Midyear/year-end.
Virginia State Corporation Commission	Yearend	Yearend	Yearend.
Washington Utilities & Transportation Commission	Midyear	Midyear	Midyear.
West Virginia Public Service Commission	Not available	do	Do.
Wisconsin Public Service Commission [2]			
Wyoming Public Service Commission	Yearend	Yearend	Yearend.

[1] Utility not regulated.
[2] State commission did not respond to questionnaire.
[3] Regulated by New Mexico Public Service Commission.
[4] Hearings on general rate increases for both electric and gas companies have been held.

TABLE VI.—SUMMARY OF STATE COMMISSION'S MOST RECENT ALLOWABLE RATES OF RETURN

[In percent]

	Allowable rate of return		
	Electric	Gas	Telephone
Alabama Public Service Commission	6.28	6.00	6.20
Alaska Public Service Commission	9.24	(1)	(1)
Arizona Corporation Commission	6.00	6.75	5.50
Arkansas Public Service Commission	6.50–6.25	8.00	6.00
California Public Utilities Commission	7.35	7.30	7.20
Colorado Public Utilities Commission	7.50	8.15	7.50
Connecticut Public Utilities Commission	7.50	7.30	7.30
Delaware Public Service Commission	[2] 6.61	(1)	7.20
District of Columbia Public Service Commission	7.10–7.50	6.30–6.45	6.25–6.40
Florida Public Service Commission	7.10–7.60	7.60–7.85	7.50–8.00
Georgia Public Service Commission	(1)	(1)	(1)
Hawaii Public Utilities Commission	[3] 7.00	[3 4] 7.94	6.70
Idaho Public Utilities Commission	6.10	7.30	6.50
Illinois Commerce Commission	(1)	(1)	(1)
Indiana Public Service Commission	5.656	6.95	6.70
Iowa Commerce Commission	(1)	(1)	(1)
Kansas State Corporation Commission	7.32	7.50	[5] 2.75
Kentucky Public Service Commission	(1)	7.80	7.80
Louisiana Public Service Commission	(1)	(1)	(1)
Maine Public Utilities Commission	5.75	6.64	[5] 4.40
Maryland Public Service Commission	(1)	(1)	(1)
Massachusetts Department of Public Utilities	7.47	8.59	7.80
Michigan Public Service Commission	7.30	7.33	7.95
Minnesota Department of Public Service	(6)	(7)	(7)
Mississippi Public Service Commission [7]			
Missouri Public Service Commission	(8)	(8)	(8)
Montana Board of Railroad Commissioners	6.10	6.50	6.20
Nebraska State Railway Commission	(6)	(6)	(9)
Nevada Public Service Commission [7]			
New Hampshire Public Utilities Commission	(1)	8.30	7.90
New Jersey Public Utilities Commission	(1)	(1)	(1)
New Mexico State Corporation Commission	(10)	(10)	8.00
New Mexico Public Service Commission	6.75	6.75	
New York Public Service Commission	7.50	7.10	7.875
North Carolina Utilities Commission [11]	(12)	(12)	7.04
North Dakota Public Service Commission	6.445	7.05	7.40
Ohio Public Utilities Commission	[13] 5.31	[13] 6.48	[13] 6.09
Oklahoma Corporation Commission [7]			
Oregon Public Utility Commission	7.25	6.00	7.60
Pennsylvania Public Utility Commission	[14] 7.00	[14] 6.80	[14] 6.40
Puerto Rico Public Service Commission [7]			
Rhode Island Public Utilities Commission	5.84	7.75–7.90	7.40–7.65
South Carolina Public Service Commission	(1)	(1)	(1)
South Dakota Public Utilities Commission	(1)	(1)	7.00
Tennessee Public Service Commission	(1)	(1)	7.00
Texas Railroad Commission	(5)	7.375	(6)
Utah Public Service Commission	6.15	7.00	7.50
Vermont Public Service Board	(1)	(1)	(1)
Virginia State Corporation Commission	8.38	(1)	6.70
Washington Utilities and Transportation Commission	6.00–6.10	5.63–5.99	7.25–7.50
West Virginia Public Service Commission	(1)	7.00	7.50
Wisconsin Public Service Commission [7]			
Wyoming Public Service Commission	7.15	7.15	6.75

[1] Not available.
[2] As requested—case still in process at time of survey.
[3] No rate of return determination made by commission in decisions.
[4] Indicated rate of return on results of operation.
[5] This company is principally financed with REA mortgage notes, hence the lower than usual rate of return.
[6] Utility not regulated.
[7] State commission did not respond to questionnaire.
[8] For electric utilities rate of return on original cost is 7.38 percent; on fair value it is 6.76 percent. For gas utilities rate of return on original cost is 8.97 percent; on fair value it is 7.2 percent. For telephone utilities rate of return on original cost is given as 8.09 percent.
[9] Rate of return on original cost is 7.75 percent; on reproduction cost it is 5.84 percent.
[10] Regulated by New Mexico Public Service Commission.
[11] Hearings on general rate increases for both electric and gas companies have been held.
[12] Pending.
[13] By agreement of all parties concerned.
[14] The quoted rates of return for Pennsylvania are not to be construed as allowable rates on an industrywide basis. Allowable rate of return is determined in Pennsylvania on an individual company basis.

TABLE VII.—POLICIES OF STATE UTILITY COMMISSIONS ON INCLUSION OF VARIOUS ITEMS IN RATE BASE

ELECTRIC UTILITIES

[Explanations of figures in parentheses in each column will be found at end of table grouped by headings]

State	Rate Base valuation	Accumulated tax deferrals	Allowance for working capital	Construction work in progress	Contributions in aid of construction	Customer's advances	Materials and supplies	Plant acquisition adjustments	Plant held for future use
Alabama	Fair value		×(1)	×		×(1)		×(1)	×(1)
Alaska	Original cost [1]	× [1]	× [1]	× [1]	× [1]		× [1]	× [1]	× [1]
Arizona	Fair value		×	×(1)			×		
Arkansas	Original cost	× [1]	×	×(2)	× [1]		× [1]	×	× [1]
California	do		×	×(3)			× [1]		× [1](2)
Colorado	do		×(2)	×			× [1]		×
Connecticut [2]									
Delaware	Fair value	(1)	×(3)	×			×		
District of Columbia [2]							×(1)	×(2)	×[1](3)
Florida	Original cost	×(2)	×(4)	×(4)			×(1)	×(2)	×(4)
Georgia	do		×(5)	×(5)				×(3)	
Hawaii	do		×(6)				×(2)		
Idaho [3]									
Illinois	Fair value		×(7)	×(6)					
Indiana [3]									
Iowa (Commission established recently; policy not established.)									
Kansas [2]									
Kentucky [2]									
Louisiana [2]									
Maine	Original cost	×[1]	×(8)	[3](7)	×[1]	[3]	×	×	
Maryland	do	×[1]	×[1](9)	×(8)	×[1]	×[1]	×	×(4)	×[1]
Massachusetts	do	×(3)	×[1](10)		×[1]	×[1]	×		
Michigan	do		×(11)	×(9)		×		×(5)	×
Minnesota (No State Commission authorized to regulate electric utilities.)									
Mississippi [4]									
Missouri [2]									
Montana [2]									
Nebraska [2]									
Nevada [4]									
New Hampshire [2]									
New Jersey	Fair value/original cost		×				×	×	×
New Mexico	Fair value		×(12)	×(10)			× [1]		
New York [2]									
North Carolina	Fair value	×(4)	×(13)	×(11)				×	
North Dakota [2]									

Ohio [2]									
Oklahoma [4]									
Oregon	Original cost	×(5)	×(14)	×(12)			×		
Pennsylvania	Fair value	× [1] (6)	× [1]	×(13)			×		× [1] (5)
Rhode Island	Original cost	× [1]	×(15)	×(14)			×(3)		×(6)
South Carolina	do		×	×(15)			×		
South Dakota [2]									
Tennessee	Original cost		×		×(1)				
Texas (No State Commission authorized to regulate electric utilities.)									
Utah	Original cost		×	×(16)		(3)	×	×(6)	× [1] (7)
Vermont	do		×						
Virginia	do	×(7)	×	×		(3)	× [1]	×(7)	×(8)
Washington [2]									
West Virginia [2]									
Wisconsin [4]									
Wyoming	Original cost	× [1]	×	×(17)	× [1]		×		
Total		12	27	21	7	4	20	12	14

[1] Denotes an item included in the rate base presently but which was not included in 1967 study.
[2] State in question did not respond to this section of the questionnaire.
[3] Denotes an item that was included in the rate base in 1967 but which is not now included.
[4] State in question did not respond.

EXPLANATION OF COLUMN REFERENCES

Source: The tabular form and numeric footnotes herein have been reproduced from "Summary and Tabulation of Information Submitted by the Commission," prepared by the Subcommittee on Intergovernmental Relations in 1967. The alpha and alpha/numeric footnotes which have been addep were generated by the current survey.

Note: O.C. (original cost), and D.O.C. (depreciated original cost), are treated as synonymous for the purposes of this study.

ACCUMULATED TAX DEFERRALS

(1) Arkansas and Delaware.—Commissions have not specifically ruled upon treatment of tax accumulations.
(2) Florida.—Accumulated tax deferrals, except for the test year, are allowed.
(3) Massachusetts.—Commission has not yet taken a position on deferred taxes arising from rapid depreciation and accelerated amortization. However, it appears that in recent rate cases these tax deferrals have been part of the rate base.
(4) North Carolina.—To the extent that accelerated amortization tax deferrals are invested in plant, they are included in the rate base. The commission recently held hearings on the treatment of rapid depreciation but has not reached a conclusion.
(5) Oregon.—The original cost of all utility property includes property obtained from tax deferral funds.
(6) Pennsylvania.—Accelerated depreciation tax deferrals are included.
(7) Virginia.—Deferred income taxes arising from rapid depreciation and accelerated amortization have been included except in 1 rate case. The commission has made no firm ruling on this matter.

ALLOWANCE FOR WORKING CAPITAL

(1) Alabama.—Working capital allowed to the extent that it is not offset by normal Federal income tax accruals—usually computed at 50 percent of the tax.
(2) Colorado.—Working capital allowance usually consists of 45 days of operating expense, exclusive of depreciation and taxes, plus a credit of some portion of accrued income taxes for the test year.
(3) Delaware.—Working capital allowance is equal to average materials and supplies. No allowance is made for cash if income tax accruals are sufficient to meet company requirements.
(4) Florida.—Working capital allowance equals 45 days' operating expense less fuel and noncash items such as depreciation. Also included is the average materials and supplies balance including fuel.
(5) Georgia.—Working capital allowance is included if tax accruals are not sufficient to meet the utility's requirements.
(6) Hawaii.—In some cases no working capital allowance is granted, if such items as income taxes accrued ahead of payment are deemed adequate for the company's needs.
(7) Illinois.—Working capital is included when need is apparent and the company does not have accrued taxes to offset.
(8) Maine.—Allowance for working capital equals 45 days' operating expense plus average of materials and supplies carried for normal operations.
(9) Maryland.—Working capital is included if need evidenced by appropriate study.
(10) Massachusetts.—Working capital permitted when need is demonstrated.
(11) Michigan.—Working capital allowance is included if facts indicate that funds required exceed funds available from internal sources.

(12) New Mexico.—Income tax accruals are deducted from working capital allowance.
(13) North Carolina.—Working cpital is not allowed if average tax accruals exceed materials and supplies and allowable operating expenses.
(14) Oregon.—Allowance for materials and supplies is included, and allowance for cash is included if it is necessary.
(15) Rhode Island.—Working capital is allowed to the extent that it is not offset by accrued but unremitted Federal taxes and Rhode Island gross earnings taxes.

CONSTRUCTION WORK IN PROGRESS

(1) Arizona.—If interest charged to construction is not capitalized, construction work in progress may be included.
(2) Arkansas.—Construction work in progress is usually adjusted to eliminate those extensions and improvements which are definitely revenue producing.
(3) California.—Construction work in progress is included to the extent that interest charged to construction is not capitalized on this work.
(4) Florida.—Construction work in progress is included only to the extent that interest charged to construction is not computed on this work, except where the plant has been placed in service and not cleared from the account or where the plant will go into service in the imediate future (possibly 30 days).
(5) Georgia.—Construction work in progress is included when interest charged to construction on such work is not capitalized.
(6) Illinois.—Construction work in progress included when use is imminent.
(7) Maine.—Construction work in progress is included if interest charged to construction is not capitalized.
(8) Maryland.—Construction work in progress is allowed if it will be placed in service during the current year of operation.
(9) Michigan.—Construction work in progress may be included if interest charged to construction is not computed on this work. (If that part of construction work in progress on which interest charge to construction is computed is added to the rate base, then the interest charged is included in the net operating income.)
(10) New Mexico.—Construction work in progress on which interest is not capitalized is included. Revenues and expenses are adjusted for items included.
(11) North Carolina.—Construction work in progress on which interest charged to construction is not computed is included.
(12) Oregon.—Construction work in progress is included if interest charged to construction is not computed.
(13) Pennsylvania.—Only construction work in progress in service is included.
(14) Rhode Island.—Included is construction work in progress which, due to an accounting lag, is still carried on the books as work in progress but is actually in service.
(15) South Carolina.—Construction work in progress if it will be placed in service in the immediate future.
(16) Utah.—Construction work in progress is included if the work will be placed in service during test period.
(17) Wyoming.—Construction work in progress, if the work will soon be placed in service.

CONTRIBUTIONS IN AID OF CONSTRUCTION

(1) Tennessee.—Contributions in aid of construction may sometimes be included.

CUSTOMERS' ADVANCES

(1) Alabama.—Customers' interest-bearing deposits are included in the capitalization.

MATERIALS AND SUPPLIES

(1) Florida.—Average materials and supplies balance including fuel.
(2) Hawaii.—An allowance is made for working capital and materials and supplies equal to—
(a) Average materials and supplies.
(b) One-twelfth of the annual fuel oil and/or purchased power expense.
(c) One-sixth of other annual operating expenses excluding taxes and depreciation.
(3) Rhode Island.—A working-capital allowance equal to average materials and supplies and cash requirements (45 days' operating expense plus maintenance less purchased power cost) to the extent they are not offset by accrued but unremitted Federal taxes and Rhode Island gross earnings taxes.

PLANT ACQUISITION ADJUSTMENTS

(1) Alabama.—Plant acquisition adjustments to the extent that prudent capitalization is considered.
(2) Florida.—Plant acquisition adjustments have sometimes been included.
(3) Georgia.—Plant acquisition adjustments are included if the cost resulted from arm's-length bargaining and only if the commission granted prior approval.
(4) Maryland.—Plant acquisition adjustments are sometimes allowed in the rate base.
(5) Michigan.—Where the commission has approved an amortization program of acquisition adjustments, the unamortized balance is included in the rate base.
(6) Utah.—Plant acquisition adjustments may be included, depending on the individual circumstance.
(7) Virginia.—Plant acquisition adjustments included except in certain instances.

PLANT HELD FOR FUTURE USE

(1) Alabama.—Plant held for future use, where conversion to plant in service is imminent.
(2) California.—Plant held for future use in 3 years is included. Electric utilities plant to be used in 5 years is included.
(3) Florida.—Plant held for future use is included if it is to be put in use within a reasonable period of time.
(4) Georgia.—Land held for future use is included if it will be placed in use within a reasonable period of time.
(5) Pennsylvania.—Plant held for future use is included if there is a plan to use the property within the near future.
(6) Rhode Island.—Property held for future use, in some instances.
(7) Utah.—Plant held for future use is included if the individual circumstances warrant such treatment.
(8) Virginia.—Plant held for future use where definite plans are known.

Mr. STELZER. First, I would like to thank you for the opportunity to appear here again. We have been here before on issues of interest to this committee. It has always been interesting and inciting to us, and we do appreciate this opportunity.

The key issues, it seems to me, which one must confront in appraising S. 403, are really two.

First, the question is: What are the costs which would be associated with the change of this type?

Mr. Meyers addressed himself to that, and I need not repeat that.

I would like to add one thought, that in contrast with the usual antitrust divestiture which one faces, where one does have certain costs and says: "Well, in rough equity, the stockholders who benefited from the now illegal practice will have to bear the cost of this divestitude," we have a somewhat different situation in the case of regulated industries where profits are already at the minimum level consistent with raising capital, and any added costs associated with divestiture would have to be borne not by the shareholders but by the consumers.

So, it does seem to me to distinguish a divestiture in a regulated industry from a divestiture in a nonregulated area. This is not a revisiting of the GM-du Pont case. This is a very special kind of animal.

Second, in reviewing what it is we are trying to do, it seems to me that here, as in other issues which the committee will find itself facing in the coming years, there is going to be a delicate question of balancing an antitrust and regulatory policy. The question of competition in the regulated industry is one dominating the journals now, is one that appears in the President's economic report, and is one of great concern to the economists and of great interest to practitioners of public policy.

There is a real need to be sure that emerging technologies which make possible competition are not stifled by a failure to enforce antitrust criteria in the regulated industries.

But, in doing that, I think one should keep in mind the basic consistency of the goals of anitrust and the goals of regulation, and I would just summarize these as being four.

Antitrust seeks to maximize resource allocation efficiency by (1) eliminating monopoly profits; (2) inducing competitors to provide goods and services at minimum costs; (3) preventing undue price discrimination, and (4) in general, providing an agency through which businesses must be responsive to consumer preferences.

Now, where we find a situation where we have a choice between monopoly and competition, we prefer competition. But I do not think that is the choice we face in combination companies. We face a choice essentially of regulated monopoly or regulated duopoly, and regulated duopoly is not the same thing as competition.

Senator GURNEY. What is that word "duopoly?"

Mr. STELZER. Two sellers. That is a situation where you have two sellers in the market. You would not, by breaking up combination companies, reach a competitive situation of seven or eight or 10 or 50 sellers. You would have two instead of one, and that would not satisfy most economists' criteria of competitive market structure. So, that choice just is not available to us.

Now, it seems to me that if that is so, the question becomes: "Can we rely on the regulated environment to achieve for us what antitrust

would actually achieve for us?" And my feeling there is that we can, in the circumstance which combination companies face. In the case of a nonregulated industry where you have monopoly profits, we generally try to have antitrust keep entry open so that people can come in and wiggle down these monopoly profits. In regulated industries, it is not possible to have free entry. You can't have people coming in and building electric companies and gas companies, so you regulate profits to some just and reasonable level.

In terms of efficiency, in competition you are efficient or you die. In terms of regulation, what you try to do is simulate that by permitting a return on only those investments which are prudently made, and commissions spend a great deal of time trying to prevent returns from being earned on imprudent investments and in trying to prevent expenses which are imprudently incurred from being rewarded. In fact, Mr. Chairman, there was a series of interesting cases involving a telephone company in Florida in which rate increases, justifiable in ordinary state terms: "We need the kind of money because profits are inadequate, that type of terms," were rejected because the Commission felt the company was not efficient and they said, "When you get efficient, come back and we will give you the money you need." That was the series of United Telephone Company's down there.

As far as price discrimination goes, this has been a very tricky problem for antitrust for some time. The Robinson-Patman route has been one of the most troublesome ones, although one I think worth pursuing in any event. In terms of regulation, that is done by preventing discriminaton both between customer classes and by preventing absolutely any possibility of gas customers subsidizing electric customers or vice versa.

Finally, the antitrust laws try to keep businesses responsive to consumers and in a sense they constitute a body of consumerist legislation which antedated the current interest in that area, because if you did not like it, you went somewhere else.

Well, you can't go somewhere else in the case of an electric company, so you have regulatory commissions who attempt to see that complaints are treated in a responsive matter by regulating companies.

Now, admittedly, this is done imperfectly, just as the antitrust laws are enforced imperfectly, as I am sure this committee is aware, but one does the best one can in both fields, and since the objectives are similar and since competition, in any event, it seems to me, is not an available alternative here and since the costs of attempting to increase by one the numbers of sellers in the market would be substantial, I am then reduced to the ultimate question: Do we have any evidence which would indicate superior performance on the part of the electric companies, so-called straight electric companies—and that is a term we from Greenwich Village use with trepidation, straight electric companies and straight gas companies—do they perform differently from or are they superior to combination companies?

For that, I refer you to Dr. Pace's testimony which is a systematic review of the empirical literature and the work we are doing as an on-going in this field, which indicates that that does not seem to be the case.

Simple tabulations would show that gas prices are higher in New York City, let us say, where you have a combination company than

in Houston where you do not, and then you leap to the conclusion that it is because you have a combination company in New York City that is so, forgetting that New York is 2,000 miles from natural gas, or a tabulation which shows electric rates in Portland are lower than electric rates in Baltimore, the former being a straight city and the latter a combination city, such showings are virtually meaningless since Portland has available low-cost Bonneville hydroelectric power and Baltimore does not.

But there is a variety of factors which in very complex fashion do influence these kinds of comparisons, and it is to those that we are addressing ourselves.

At the moment, we do not see any systematic performance difference which would lead one to want to undertake the enormous costs of this kind of restructuring in pursuit of having one additional regulated seller in a market.

That is a very quick summary, Mr. Chairman, but I hope that, combined with my paper does the job.

Senator GURNEY. Well, thank you, Mr. Stelzer.

We might as well proceed with questions on your statement.

I am curious about one thing. In this rate regulation of a rural company, gas-electric company, are there any problems in determining the gas rate and electric rate so that it is fair to electrical customers and gas customers, dividing the value, I suppose, of the assets that go to the manufacturing and distributing of gas and also the electricity? Are there problems in that area?

Mr. STELZER. Many of the assets are specific to one or the other of the properties. An electric generating plant is clearly in the electric rate base and gas pipeline, for instance, distribution system, would be in the gas rate base. One company with which I am familiar—I just looked at the numbers last night—about 5 percent of the plant is common plant; the rest is not.

The big problem that would exist were it not dealt with by regulation would be the price the electric department paid the gas department for boiler fuel, and that is a very closely regulated price, designed to prevent interdivision subsidization.

So, there are some cost allocation problems. They are not major.

There is the problem of the transfer price which is by now an old one in regulation, and it is dealt with relatively successfully and quickly in regular hearings.

Senator GURNEY. Counsel?

Mr. O'LEARY. Dr. Stelzer, Tuesday, I had an interesting colloquy with Mr. Mustard of South Carolina Electric and Gas in which I asked him to submit some sort of an estimate of the joint savings that his company derives from such joint operations as he described.

In effect, he testified that he would find this very difficult if not impossible to do.

If Mr. Mustard has that kind of difficulty with respect to joint costs, how is the regulator any better off?

Mr. STELZER. Well, I think you have asked two questions, Mr. O'Leary, and it is that confusion that led—that confusion can be cleared up.

To ask what are the problems that a regulator faces in allocating joint costs between gas and electric, is one question that, it seems to

me, is answereable only by going through lots of very dull cases in which very dull accountants testified as to how this can be done. If you really go to the end first, you will see it has a minimal effect on the conclusion anyhow, and you will be sorry to read it. So that I think in that area that is a question of cost allocation, as the chairman, I think, noted yesterday, which can be handled.

In terms of the impact of the joint savings on rates charged by combination companies, you have a terrific problem because the factors influencing rates are so enormous. They differ from region to region. For instance, the savings from meter readings which you hear a great deal about in these hearings in dollars are a lot of dollars but may not be a large percentage of total costs in some cases and may be very large in others, depending on the population density of the territory.

Besides, it seems to me, frankly, that while those are awfully impressive to the companies that realize those savings, the real question becomes: "What happens to the consumer, what happens to the customer, and is he penalized by virtue of the fact that a combination company exists in his territory as compared to the possibility of having two straight companies?"

And there, it seems to me the question is not only some added costs that may be incurred in meter reading or computer duplication and so on, but the question of whether indeed any savings at all are available to significantly affect rates by breaking up these companies.

Remember, we are not talking about preventing mergers.

That is a whole other story, as Chairman Nassikas pointed out today. We are talking about whether we break up companies in pursuit of savings and if the data show, as Dr. Pace's data seem to show in preliminary fashion, there is no rate performance differential between combination companies and straight companies when weight is given to all the factors affecting rates. Then, it seems to me, we are in pursuit of an illusion, and we are willing to pay several hundreds of millions of dollars to pursue this illusion, and I do not think that is good public policy.

Mr. O'Leary. During the course of your summary, Doctor, you made the remark that competition is not an available alternative here, and your entire statement seems to play down the role that competition performs or can perform in the electric utility industry.

Isn't this directly contrary to the position that your firm has taken in the past?

Mr. Stelzer. I hope not, Mr. O'Leary, and I think I can tell you why it is not.

Mr. O'Leary. I am referring to the proceedings before the Securities and Exchange Commission on American Electric Power's proposed acquisition of Columbus & Southern during which Mr. Bruce Neschert, I would say, extolled the benefits of competition between electricity and gas.

Mr. Stelzer. Yes, that is true, and I think I have similarly extolled some of those benefits in the case of electric and gas before the Dingill Committee, as you may recall.

The question, though, it seems to me we are facing is whether, if you adopt S. 403 which has a per se breaking up of companies, you will on a net basis be ahead. If you will note in my prepared testimony, I say that it is conceivable to me that there may be circumstances where

you will find that there are net benefits to be gained by dissolution of combination companies, just as under the Clayton Act there are benefits to be gained by stopping some but not all mergers.

And my principal objection to S. 403 is not that a combination company would get broken up here and there. If that were the result of a case-by-case approach, that would not trouble me.

What would trouble me is a blanket prohibition just as I would be troubled by a per se prohibition of all mergers. There are some mergers which actually increase competition.

If you have a combination company facing a very, very substantial fuel oil competition, for example, that is one set of circumstances. If you have a combination company that is engaged in a consistent conduct of predatory practices to maintain its market power, then that might be another set of circumstances.

So, my preference remains one of sort of old-fashioned antitrust kinds of preferences, that if there is, by application of the rule of reason, found to be execessive market power and predatory conduct and the things that we have learned to know how to handle in antitrust, then I think that combination company shoud be dismembered. But absent that finding, to impose a half-billion-dollar cost at least on the gas consumer would seem to me to be a silly thing to do, especially since I have such a feeling that antitrust works well.

Mr. O'Leary. Well, in your statement you say:

> Gas and electrict rates are now regulated so that monopoly profits cannot long be earned, i.e., earnings are limited by law to a fair rate of return on invested capital. Dissolution then, can accomplish little: there are no execessive profits to be competed away.

On pages 20 and 21 of Dr. Neschert's testimony before the SEC, he states:

> I think the new forms of competition I have described constitute a new world of competition between the fuels and electricity. The traditional competition of over decades in appliance use could be described as competition at the margin, that is, competition involving the use of individual appliances which would affect the level of fuel use or electricity by the individual customer but would not determine whether that customer would be wholly electric, wholly gas or wholly oil.
>
> With the advent of air-conditioning, electric heating and total energy, however, we now have 'total competition.' An electric-heating customer is almost certain to be an all-electric customer. Similarly, a gas air-conditioning customer will generally opt for gas cooking and water heating as well as gas heating. A total energy installation or an all-electric installation totally freezes out the competing energy industry from satisfying even a portion of that customer's energy needs. Whatever the intensity of the traditional competition may have been, it cannot compare with present circumstances. Each of the fuel industries and the electric utility industry faces the caustic of fighting as hard as it can merely to retain its present share of energy markets, much less to increase that share. Loss of an appliance sale as a consequent lower level of usage by that customer is one thing; loss of the customer is something else again.

Mr. Stelzer. I think that is a very good statement. I am always impressed with how much better he says things than I do.

The point is, Mr. O'Leary, is that if you would give me competition as opposed to monopoly without cost, I would always opt for competition. The question you have to ask yourself here is: Does the amount of competition you are going to get in each circumstance seem worth the cost, particularly in the circumstances in which you find yourself today with certain severe shortages?

Now, I certainly do not want to say—and I think it would be silly to say—that in all times and in all places, I think all combination companies should always be maintained. But when you have an era in which the ability to compete is going to be increasingly limited at least for a while by shortages and when you have a wide diversity of circumstances in which combination companies operate, some with overlapping territories and some without overlapping territories, for example, some with big gas departments and some with small ones, to say, "Well, to heck with it, a half billion dollars is worth the price—or whatever that number comes out to be," doesn't seem worthwhile.

Again, I say that I prefer a rifle to a shotgun in this case. You may find a circumstance where the market tendencies Dr. Neschert describes can best be achieved by breaking up combination companies. I assume that is why we have antitrust laws, and if that is so and if the changing technology makes highly competitive industries which were once not competitive and if superior performance in all the connotations that a rule of reason application to a regulated industry would imply can be obtained, then you want to pursue that on a case-by-case basis under the antitrust laws. But you would not want to say that I am going to pass a law that says that I do not care what the costs are, I am going to pursue a sort of general advantage in a series of specific cases even if that advantage is not available to be in those cases.

Mr. O'Leary. Well, let me get your reaction to Dr. Neschert's testimony at pages 25 and 26:

> Question. Would you give us your opinion, in light of your testimony, on the concept of the electric utility as a monopoly?
>
> Answer. The tradition concept of the electric utilities as monopolies developed during the period prior to 1950 when competition among all energy commodities was restricted to "traditional" appliance competition. But with the emergence of the total competition I have described, the significance of that monopoly aspect is sharply reduced. Although the electric utility does not compete with another electric utility providing the same service, it does compete—and more so each year—with the fuels in providing either specific services or the same total service. The result of this competition is the same as that which would come from competition as it is traditionally conceived within an unregulated industry, the same stimuli present to improve the quality of service and, at the same time, to reduce rates. This is, of course, the same social benefit provided by competition in the traditional intraindustry sense and the reason for the fostering of competition as a part of public policy in this country.

Mr. Stelzer. As a general statement, that is absolutely correct. The question is: You know, again, Mr. O'Leary, when you get from a sort of generalized view of the nature of the interfuel competition which I quite agree is extending its range all the time, although obviously it does not extend to all of the products, and I think the word "total" in that sense is probably stronger than it ought to have been, but, surely, what you are trying to do is capture the advantages of competition.

Now, there is a real possibility that these advantages can be captured within the framework of regulation, that regulators can, and I think increasingly do, recognize competitive circumstances in the setting of regulated rates.

The widespread incidence of promotional rates and various uses, for example, both by combination companies and straight companies—I have recently appeared before the New York Public Service Commission to support a promotional electric space heating rate being put in by a combination company. To the extent that that can be done in a

regulated environment where undue discrimination can be more readily prevented, that is an option that should be left open to the authorities to decide.

The bill would not leave that option, and that is what disturbed me about it. It is not that the things that Dr. Neschert says are not so, in many circumstances they are.

The question is how can you best achieve the same goals through regulation or through competition?

And all I am urging is that you do not adopt some sort of rule which precludes you from relying on one as opposed to the other when circumstances seem appropriate.

Mr. O'Leary. I would like to submit Dr. Neschert's testimony for the record, but he goes on to talk about future prospects for interfuel competition and describes thermal electricity and the fuel cell and the electric car.

How long has this disagreement existed between you and your colleague with respect to the benefits of competition in this industry?

Mr. Stelzer. As I recall, I stopped beating my wife in—No, seriously, Mr. O'Leary, the answer is: I think there is no fundamental disagreement. It is obvious, as I think I have tried to make clear, that the objectives, fundamental objectives, of antitrust and regulation are similar. The cost of that achieving that through increasing the number of sellers in a market by one is very substantial. Before you pursue that course of action, you should have some notion of the net improvement in performance for the customer that is going to be realized.

I submit you have no information before you that will permit you now to make that decision.

There will be circumstances in which pursuant of interfuel competition would be desirable and indicate dissolution of a combination company that I do not doubt. That it would be unwise to impose that as an across-the-board policy on all combination companies, regardless of circumstances, regardless of the effectiveness of regulation in those States would, I submit, be very expensive and very, very counter to the tradition of antitrust which has been the success it has been because of the avoidance of per se doctrines except in areas where we know that a pratice per se produces bad results. We have outlawed price-fixing conspiracies. We know what they are all about. They are not of benefit to the consumer, somehow. We have not outlawed mergers per se, because we do not know what mergers as such are all about. We know some are good, some are bad, some neutral, and I urge the same standards exist here.

Mr. O'Leary. Let us get away from the per se standards a litttle bit.

Mr. Stelzer. You mean, from the bill?

Mr. O'Leary. I do not think that anybody seriously believes at least after 3 days of testimony, that there should be a per se prohibition of combination companies.

If anything, I think that we are now dealing with the consideration of a standard similar to that in the public Utility Holding Company Act, or some standard——

Mr. Stelzer. All right. Now, you suggested it for 3 days; so, we are now not talking about S. 403 as it is drawn in any event; we are now talking about something else: Are there other available standards?

Mr. O'Leary. That is correct.

Mr. Stelzer. I really have two answers to that, because I have been focusing on this 403, and when you began raising those questions, it struck me you are not, and that I ought to think about your problems of standards.

One available set of standards that occurs to me is the traditional standard of antitrust as applied in the context of a regulated industry. Is the market share excessive? Has there been predatory practices? Was the monopoly thrust upon it, and so on?

I said I discussed with counsel the question because I am not a lawyer, as you know—the question of the possible use of standards in the Public Utility Holding Company Act as a standard to apply to combination operating companies, because it has a sort of simple feel to it. It worked in the case of these holding companies, so we extended it to operating companies and apply case law, and so on. Unfortunately, apparently it is not the simple.

I am told by counsel—and, perhaps, I ought to defer to Mr. Gibson in this—that the standard of the Public Utility Holding Company Act are really quite varied. Perahps, I could defer to him because we did discuss this. But I think that, he being the lawyer anl you having raised the question that led to the discussion, perhaps I can have the dialog directly rather than be a Charley McCarthy to his Edgar Bergen.

Mr. Gibson. I will be pleased to, Mr. O'Leary.

The standards of the holding company are not limited so severely and narrowly as you indicated to the mere preservation of economies of operation. I would conceive them as a very sensitive adoption of socially varied advantages.

The words, for instance, of section 3–C look first to whether the resulting company is so large, considering the state of the art and the area or region affected, as to impair the advantages of localized management. That was a very distinct policy which was emphasized in the hearings, independence and innovation of locally sensitive managerial judgments, efficient operation and, since it follows that refers to economies, it must mean something larger and more effective than mere avoidance of terms and the effectiveness of regulation.

So, there are multiple standards, and still others mentioned within the broad framework of public interest, in the Public Holding Company Act of 1935. Economies are stressed, but others are also, and that was the main point I wanted to make.

Senator Gurney. I must interrupt at this point, because I have a number of people coming to my office at 3 o'clock.

I would like to put one general question to you, Mr. Stelzer.

First of all, of course, the purpose of this bill is to provide cheaper and better service to customers of combination gas and electric companies. If I understand your testimony, it is that in breaking up a combination company, in your opinion, it would not provide cheaper or better service but probably would provide costlier service and more cost to the customer. Is that correct?

Mr. Stelzer. Our studies thus far so indicate, Mr. Chairman.

Senator Gurney. And I would like to ask one general question of the previous witness, Mr. Meyer.

As I understand your testimony, Mr. Meyer, as a securities expert in this particular field, the breaking up of a combination gas and elec-

tric company would make for an enormous burden upon the investment industry in the marketing of securities and, although I think they could be marketed, your testimony is that probably they would result in a low return on the cost of the security or a higher dividend, that combination, in order to make the security marketable to the customers and also a very much increased interest rate as far as the long-term debt is concerned.

Is that the essence of your testimony?

Mr. MEYER. That is the essence, that the new company would be financed at today's money costs. It is currently financed on an average of the year of its existence money cost which is lower than today's money cost.

Senator GURNEY. And, there again in this kind of industry, the only way you can carry the cost of that financing is to pass it on to the customer, so this, in turn, would mean higher costs and higher rates to the customers of combination gas and electric companies; is that correct?

Mr. MEYER. Yes, sir, that is correct, Mr. Chairman.

Senator GURNEY. Now, then, I understand that the staff may have other questions and, if they do, they may be propounded to the witnesses in written form and your written answers together with the questions, of course, will be incorporated within the record. The record will be kept open for that purpose.

Do we have other business we need to transact?

Mr. O'LEARY. No, Mr. Chairman.

Senator GURNEY. I apologize that I am not able to stay here any longer, but I was not the one normally to chair this committee and I just have to leave at this time.

The subcommittees will be adjourned, subject to the call of the chair.

Thank you, gentlemen.

(Whereupon, at 3 p.m., a recess was taken, subject to the call of the Chair.)

JULY 8, 1971.

GEORGE D. GIBSON, Esq.
Hunton, Williams, Gay, Powell & Gibson,
Richmond, Va.

DEAR MR. GIBSON: This is in response to your recent letter requesting that the record on S. 403 be held open until September 1, 1971, for inclusion of certain additional information which you indicate is presently being prepared.

The Subcommittee staff is in the process of compiling the record for galley print, and I do not feel that this process should be stopped. However, material could be included at the page proof stage of compilation; and I would assume that this will take until at least September 1 to reach that posture of print.

I would urge that whatever material you decide be included be forwarded to us at as early a date as possible. If the material does not reach us in time to actually be included in the record, it will be incorporated in the public files of the Subcommittee.

Sincerely,

PHILIP A. HART, *Chairman.*

HUNTON, WILLIAMS, GAY, POWELL & GIBSON,
Richmond, Va., June 29, 1971.

SENATOR PHILIP A. HART,
Chairman, Senate Antitrust and Monopoly Subcommittee,
Judiciary Committee,
Washington, D.C.

DEAR SENATOR HART: Dr. Irwin M. Stelzer, President of National Economic Research Associates, Inc., in his testimony before your Subcommittee on Antitrust and Monopoly on May 17, 1971, indicated that his organization was in

the midst of the development and analysis of a substantial body of data on the nature and performance of combination companies measured against the performance of straight electric and gas companies. He further indicated that those studies were continuing and that he would be glad to make the results available to the Subcommittee as soon as he and his associates were in a position to do so. Those studies are now almost complete and we are advised that he will be in a position to submit the results in the form of a report to the Subcommittee in the near future.

In testimony before the Subcommittee on June 16, Solomon Freedman, Director of the Division of Corporate Regulation of the Securities and Exchange Commission, testified as to possible means of separating the gas properties from the electric properties of combination companies. Robert H. Willis in his testimony expressed certain views as to the effects of divestiture on utility consumers. These remarks require the thoughtful comment of the financial community and we would like permission to submit written comments on these points, including a statement from Eugene W. Meyer, Vice President of Kidder, Pabody & Co. Incorporated, who testified before the Subcommittee on May 13, 1971.

Finally, the suggestion was made in the hearings that the bill might be amended to delete the automatic requirement of divestiture in all circumstances and to substitute instead a Public Utility Holding Company Act approach. Since, however, the decision of the United States Supreme Court in the two NEES decisions, *S.E.C.* v. *New England Electric System*, 384 U.S. 176, and *S.E.C.* v. *New England Electric System*, 390 U.S. 207, interpreted that Act in a way that imposes a virtually per se rule against combination companies, we believe that the record, to be complete, should contain an analysis of the consequences which we believe would flow from adoption of this suggestion in light of existing case law.

We are advised that the results of the NERA study and this additional analysis can be completed and delivered to the Subcommittee on or before September 1, 1971. As Mr. O'Leary has requested, we advise you that the entire body of material, including the NERA study, Meyer's additional statement and a memorandum on the Public Utility Holding Company Act, should not exceed 200 typewritten pages. We respectfully request, on behalf of the various combination companies which we are representing in connection with these hearings, that the record in this proceeding be held open through that date for the receipt of all of the information set forth above.

Respectfully,

GEORGE D. GIBSON.

FEDERAL POWER COMMISSION,
Washington, D.C., December 14, 1971.

Hon. PHILIP A. HART,
Chairman, Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, U.S. Senate, Washington, D.C.

DEAR CHAIRMAN: The enclosed memorandum was prepared by the Commission's Office of Economics in response to your letter of October 29 requesting an analysis of the study by Joe D. Pace, National Economic Research Associates, on combination gas-electric utility companies. The Office of Economics memorandum has not been reviewed by the Commission, and is not intended as an expression of the Commission's views on Mr. Pace's study.

We are pleased to be of assistance to the Subcommittee in this matter.

Sincerely,

JOHN N. NASSIKAS, *Chairman.*

AN EVALUATION OF JOE D. PACE'S ASSESSMENT OF COMBINATION GAS-ELECTRIC UTILITY COMPANIES

In his statement of August 27, 1971 before the Senate Antitrust and Monopoly Subcommittee, Joe Pace concludes:

". . . differences existing between combination companies and single service electric utilities are explained largely by variations in the geographic, demographic and cost conditions faced, rather than by whether or not a given utility controls both gas and electric operations. The contention that the average residential customer is adversely affected simply because he is served by a combination utility cannot be accepted."

Pace's statistical study generally confirms the previously observed fact that combinations, as a rule, charge higher rates for electricity and incur higher

costs of providing service, but he attempts to demonstrate that high costs and rates are not *casually* related to the fact of combination. Rather, he contends, combinations generally have higher unit revenues and costs because they, more often than independent electrics, serve markets where (1) population density is high, (2) summer temperatures are comparatively low, (3) state and local taxes are high, (4) there is relatively little hydroelectric power capacity, (5) systems are smaller than usual, (6) fuel costs are high, (7) there is less self-reliance for generation requirements, (8) they tend to be concentrated geographically, and a host of other allegedly exogenous factors.

His statistical technique is to construct a regression equation based on these "independent" factors and then to add the combination variable which, using his criteria and data, adds nothing (in most cases) to the explanatory power of the equation. Since the presence of a combination utility, in conjunction with the previously selected variables, is usually *statistically* insignificant, Pace concludes that in this industry it makes no difference to the consumer whether a market it served by an independent electric utility or an integrated gas-electric utility.

The validity of these results is heavily dependent on whether the fact of combination is actually causally independent of the other variable factors specified. Pace simply *assumes* that variables such as system size, tax burden, fuel cost, and others are independent of combination. In reality, given the way in which he has quantified some of these factors, it is highly probable that his implicit basic assumption is false, and his conclusions therefore spurious. In other words, since there is good reason to believe that combination is a determinant of several of the other variables, the fact that it adds nothing to the equation when introduced independently cannot properly be interpreted as proof that it is not relevant. To the extent that it contributes to cross sectional variation in other "independent" variables its impact is already embodied in the estimating equation and its independent specification is merely redundant.

This rather technical explanation of Pace's major analytical fallacy can be confirmed by considering several specific examples. For one, Pace argues that system size is an important independent determinant of cost. But he defines size in terms of the quantity of electricity sold. Surely if combinations charge high prices and people respond by buying less energy, or if combinations have a tendency to promote gas (because it competes with fuel oil) more than they promote electricity, then, other things being equal, "system size" (as defined) will indeed be less for combinations, but to some extent the reason would be that the performance of combinations has not been favorable for sales growth.

State and local taxes are another important element in Pace's equations. The problem in that case is that the tax burden is defined as the *ratio*: Taxes/Revennes. Local property tax obligations depend upon the physical volume of plant and equipment regardless of how efficiently or intensively it is used, while revenue depends on how much power is sold. Obviously, if combinations are relatively inefficient and this leads to high costs and low sales, or if they have less incentive to promote electric sales, their total revenues per unit of plant and property (the primary local tax base) will be less. If they use their physical plant less intensively taxes will be greater as a percentage of revenues. In either case, the higher ratio will be, in part, a result of the fact of combination.

As another example, consider fuel costs. Pace argues that combinations are "forced" to pay higher prices for the fuel used to generate electricity. But he expresses this price in terms of cents per Btu without considering whether these Btu's are from coal, oil, or gas. Clearly, there may be reasons why a combination utility that is in the business of selling gas may have a tendency to use gas itself to a greater extent than a competitive electric utility that is indifferent (except as to cost) with respect to what fuel it uses. A recent study by Prof. Leonard Weiss of the University of Wisconsin shows that, outside of the major gas producing states, combinations obtain 25.3% of their Btu's from gas as opposed to only 8.7% for competitive electric utilities. Thus, here too, high fuel prices may, to some degree, result from the fact that integrated monopolies perform differently than independent electric utilities.

In a slightly different sense, even geographic concentration may be inherently related to certain aspects of combination. It is noted by Pace that combinations are most prevalent in the Northeast quadrant of the U.S. That may be a section of the country where the potential for gas-electric competition is relatively great. Gas is generally available in this industrially developed and densely populated region, and energy requirements for purposes that can be

fulfilled by either fuel (clothes drying, heating, etc.) are above average. It is the most heavily populated portion of the country with many relatively high income areas. Perhaps one would not be without reason in speculating that this is the geographic region where the rewards of obtaining and perpetuating an energy monopoly are the greatest (or the potential competitive effect of energy rivalry the most troublesome to utility management). If that is the case, geographic concentration, like the other variables, is not in any real sense "independent" of combination. Rather, the observed geographic pattern may, to some extent, be *caused by* the inherent private benefits of obtaining an integrated monopoly in certain areas relative to others.

Clearly, these very fundamental faults are a sufficient reason for doubting that Pace's study is a convincing demonstration that gas-electric utility integration does not result in higher costs, higher prices, and, perhaps, peculiar behavior patterns that would not prevail under competitive conditions.

There are other points worthy of further investigation that should be noted:

(1) Instead of investigating individual cost categories (e.g., production, distribution administration, etc.), Pace chose simply to look at residential revenues per kwh. That procedure is clearly less desirable if one wishes to determine whether integration enables scale economies in certain cost categories. For example, such economies, if any, would be likely in the administrative and customer service cost categories rather than in generation or transmission.

(2) Pace's basic data used to generate the regression equations present a number of potentially serious problems. For example, the list of cities in the technical appendix is purported to include all but a few specified "urbanized areas" with 25,000 or more housing units that are served by an investor-owned electric utility. It does not. Perhaps there is some confusion about the proper definition of an "urbanized area," or it could be that the basic source is mistaken. (This is a confusing point also, since the Department of Commerce—the specified source—reports that it has not yet published any figures on housing units in "urbanized areas" from the 1970 census—even in preliminary form!) At any rate, for one, New York State Electric and Gas (a major combination utility) which serves Binghamton (the Binghamton "urbanized area" contained 50,657 housing units in 1960 and population has increased since then) and a large geographic portion of upstate New York is entirely omitted from the analysis, and there seem to be a substantial number of simular omissions.

(3) In addition to these omissions, the author chooses, rather arbitrarily, to explicitly exclude certain other urban areas from his analysis. For example, in a footnote on page 14, he states:

"The other excluded city is Las Vegas, which for reasons not entirely clear . . . has a level of residential use far exceeding other cities in the same area."

It is possible that the inclusion of Las Vegas and other similar markets would weaken Pace's statistical results. Las Vegas is served by the Nevada Power Company, a straight electric utility with an unusually low residential rate structure. According to FPC statistics, annual rates for 15,000 kwh in Reno are 43 percent above Las Vegas; Phoenix is 61 percent higher, and Tucson is 75 percent higher. If Pace had been inclined to look to the Northwest, where power rates are in many cases below those charged by the Nevada Power Co., he would have observed that power consumption in Las Vegas does not, in fact, "far exceed" consumption in all areas of the West. Indeed, Pace has apparently excluded this observation from his sample simply because it demonstrates that quantity varies inversely with price. He also elects to exclude all urban areas in Washington, Oregon, and Idaho because, he says, the availability of hydroelectric generating capacity makes them unrepresentative. There is no rationale stated as to why his inclusion of an independent variable for percent hydro and his regional dummies would not serve adequately. He apparently is not troubled at all with the multiple inclusion of two notable combination utilities, Pacific Gas and Electric (serves 12 cities in his sample) and Niagara Mohawk (serves 6 cities in his sample) which obtain large portions of their power requirements from hydroelectric facilities.

(4) While there are 194 observations in the statistical calculations 106 of these are accounted for by only 21 companies. One company is counted 16 times (8.2 percent of the entire sample) while 6 combinations and 6 straights account for over 40 percent of all 194 observations. Cleveland Electric Illuminating Co. is counted 4 times while Ohio Power, which sells twice as much electricity is counted only once. Pennsylvania Electric with 1969 sales of 7,256 mil. kwh is

counted 3 times while Philadelphia Electric with sales of 21,840 mil. kwh is counted once. Texas Electric Service is counted 4 times despite the fact that its sales volume is less than half that of Houston Lighting and Power which is counted twice. Thus, the sample is clearly disproportionately weighted by certain companies and others are not counted at all.

(5) Pace has exercised a large measure of debatable discretionary latitude in determining what to classify as to combination market. For example, Massachusetts Electric is classified as a combination serving four urban areas in the study because it is a subsidiary of NEES, and NEES owns some gas properties including the Lynn Gas Company which serves one of the four cities. It is not at all clear that this corporate relationship merits equal combination status.[1] On the other hand, Rockford, Illinois which is served by Commonwealth Edison is classified as being served by a single service electric utility. In fact, until November of 1970 an Edison subsidiary served that market. Surely one cannot easily assume that attendant market conditions in that area would necessarily be the same as if an independent electric company had been serving it all along. Moreover, since Pace's data pertain to years prior to 1971 he should have considered whether markets were served by independent or combination utilities in a corresponding time period.

(6) There is another type of problem involving Pace's determinations as to whether (and to what extent) gas and electric services are rendered by the same company within a given city.

Milwaukee, for example, is classified as a combination city with substantial service overlap. In fact, Milwaukee is served by the Wisconsin Electric Power Co. which, through a holding company arrangement, is affiliated with the Wisconsin Natural Gas Co. of Racine. Historically, Wisconsin Natural served some rural and suburban areas south of Milwaukee. One of those was Lake Township which was annexed by the City of Milwaukee in the early 1950's. Despite the fact that Wisconsin Natural served only a fraction of Lake Township and despite the fact that the Town of Lake's total population (1950 census) accounted for less than 3 percent of the City of Milwaukee, Milwaukee emerges (in Pace's statistics) as a combination market where gas and electric service are rendered by the same company.

As another example, Boston is classified as a combination market, presumably because the Boston Gas Company supplies electricity to the Charleston Section of Boston. No mention is made of the fact that Boston Gas is merely a distributor who buys all of its power from Boston Edison, or of the fact that its electric customers and revenues total less than 1% of Boston Edison's business, or that Boston Gas' gas utility service accounts for 97% of its revenues and plant.

(7) A further doubtful procedure followed by the author is his aggregation of data pertaining to public cooperatives and private utilities where both served portions of the same community. Thus, Phoenix, Arizona, which receives most of its electric supply from the Salt River Project Agricultural Improvement and Power District, is counted as a combination market because the Arizona Public Service Co., a combination, is a minority electricity supplier. There is room for considerable distortion here since this statistical procedure results in counting those data pertaining to the Salt River Project as combination company costs and revenues.

(8) A further reservation stems from the fact that this analysis covers only residential rates. Revenues from residential sales account for less than half of total electric utility revenues. Furthermore, in some markets apartment house owners are permitted to purchase power at commercial rates for tenants' use. In such instances the tenant rents his apartment "with utilities included." Mr. Pace notes that combination companies tend to be more highly concentrated in these high-density markets. If that is accurate, the failure to examine this problem is likely to lead to any number of erroneous interpretations. For example, it is conceivable that straight electric utilities, anxious to compete with

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[1] Massachusetts Electric is unusual in another sense: Its power purchases amount to more than 100 percent of the power it sells. The national average is about 16%. One wonders to what extent the disproportionate weighting of this company (it is counted four times) contributes to the repealed conclusion that the percent of power purchased is a major contributing factor to high costs and rates. Within reasonable limits, it seems, one might expect that power purchases (for peak-shaving purposes for example) may serve to reduce costs and rates. Additionally, one cannot accept the implicit assumption that the percent of power purchased is independent of managerial discretion.

their gas rivals, may be more willing to offer promotional commercial rates to secure new all-electric customers. If so, that would mean that more of the relatively low volume, high average revenue residential buyers in competitive markets disappear into the "commercial" category. On the other hand, it could mean that the significance of his density variable is attributable in part to the fact of combination; i.e., combinations serve a disproportionate number of dense markets, and average residential rates are therefore higher there because combinations are less apt to offer low/promotional commercial rates to apartment buildings.

(9) Another potentially important factor that is not considered is the industrial/residential sales ratio. Industrial loads tend to be more evenly spaced over time, and industrial customers are sometimes willing to accept interruptible service. Consequently, companies with large industral loads are not as likely to be subjected to extremely costly peak demand problems. Again this suggests a large number of unanswered questions. Since combination utilities face a less worrisome competitive situation at the retail level, they may tend to allocate joint operating costs so as to favor industrial markets where they must always contend with keen competition from neighboring utilities for new industrial plants. If straight electric utilities are under greater competitive restraint to keep residential rates down as low as possible, it may appear from an examination of only the residential sector that straigth electrics produce power more cheaply. In reality the true problem may be that combinations are just as technically efficient at producing power, but market conditions permit them to distribute the benefits in different proportions.

Because of the severe nature of the analytical defects described above, and also because of the factual errors we have noted, it is clear that Mr. Pace's conclusions cannot be accepted as valid. His report is, in no sense, a definitive or analytically reliable study of the combination utility question.

COMBINATION COMPANIES:

A COMPARATIVE STUDY

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n/e/r/a
NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.
CONSULTING ECONOMISTS
80 BROAD STREET, NEW YORK, N.Y. 10004
TELEPHONE: 212 DI 4-3939

JULES JOSKOW
VICE PRESIDENT

November 25, 1968

Long Island Lighting Company
250 Old Country Road
Mineola, L.I., New York

Gentlemen:

In accordance with your request, we have made a comparative study of various financial and operating data pertaining to electric and gas distribution companies in order to compare the performance of combination companies as a group (i.e., utilities which distribute both electric and gas) with that of straight electric and straight gas companies separately. The data analyzed were primarily for the year 1966 and, as indicated in the body of the report, cover financial, operating, consumption, customer and miscellaneous data for a total of 100 utility companies.

The results of our study show that while for certain variables one group of companies may have, on average, outperformed one or both of the other groups, the data, when viewed on an overall basis, do not suggest that any one group has a statistical advantage over either of the other two. Thus, we further conclude that the data do not indicate that a conclusion can be reached either in favor of, or against combination companies based on their performance as herein measured.

Respectfully submitted,

JJ:lah

COMBINATION COMPANIES: A COMPARATIVE STUDY

I. INTRODUCTION

This report analyzes various financial and operating data pertaining to electric and gas distribution companies. It should be noted that it is not the purpose of this report to assign a specific weight or significance to any particular variable analyzed herein; rather, this report presents an overall statistical analysis of a great variety of variables which are generally indicative of the operations of distribution companies. Thus, we recognize that the variables analyzed herein do not constitute a complete list of all possible statistics which could be examined.

The first step in the analysis was to classify the companies into three groups: (1) straight electric, (2) combination companies and (3) straight gas. The procedure followed was to classify each of the 87 utilities included on Standard & Poor's Compustat tape, which distribute electric (and, in several instances, also gas) into either the straight electric or combination company category. For purposes of this study, companies whose revenues from gas accounted for 10 per cent or less of total revenues in 1966 were considered straight electric companies while those with revenues from gas in excess of 10 per cent were classified as combination companies. Following this criterion, the 87 companies appearing on the Compustat tape were classified as 47 straight electrics and 40 combination companies. A listing of each of the utilities included in the

47 straight electric group and in the 40 combination company category is given in Tables 1 and 2, respectively, of the Statistical Appendix.

These two tables also show the percentage of gas revenues to total revenues in 1966 for each company. Among the 47 straight electrics, 40 had no revenues from gas while for the remaining companies with some gas revenues, the highest percentage of gas revenues to total revenues was 6.9 per cent. Among the 40 combination companies, the lowest percentage of gas revenues to total revenues was 11.1 per cent while the highest percentage was 54.4 per cent. Interestingly, of the 40 combination companies 19 had less than 30 per cent of their total revenues attributable to gas with the other 21 having more than 30 per cent of their revenues derived from gas sales. The average percentage of gas revenues to total revenues for all 40 combination companies was 29.6 per cent.

Finally, 13 large straight gas distribution companies were selected; these 13 companies are listed in Table 3. The 13 straight gas companies were selected in the following manner. Our basic list of companies consisted of the "straight natural gas distributing utilities" underlying the American Gas Association's tabulations in its publication Gas Facts. First, to keep the list to manageable size and to avoid a geographic imbalance with New England and Pacific Northwest companies dominating our sample, we included those gas distribution utilities having operating revenues of $30 million or more in 1966 and which were not subsidiaries of integrated companies, since requisite financial data would not be

available for affiliated companies. This procedure yielded 11 companies. Second, two additional gas distributors were included which had less than $30 million in revenues in 1966 but whose stocks were traded on an organized exchange -- in this case, the American Stock Exchange; all other companies with revenues of less than $30 million were traded over-the-counter. (Since size was our basic criterion, the "listed" criterion was not applied to companies with revenues of $30 million or more. Some of these were also traded over-the-counter.)

II. FINANCIAL DATA

The source of the underlying data analyzed in this section is as follows: for the straight electric and combination companies, printouts from Standard & Poor's Compustat tape were used; the data for the straight gas companies were compiled from Moody's Public Utilities Manual.

A. Growth Rate In Earnings Per Share

Table 4 presents a frequency distribution of growth rates in earnings per share for two periods (5-year growth rate, 1961-1966 and 10-year growth rate, 1956-1966) for the three groups of companies. In the shorter period, 1961-1966, the compound annual growth rate in earnings per share averaged 8.1 per cent for the 47 straight electric companies, 7.7 per cent for the 40 combination companies and 6.0 per cent for the 13

straight gas companies, as shown in Table 4. The comparable average growth rates for the 10 years, 1956-1966, were 6.9 per cent for the straight electrics, 6.6 per cent for the combination companies and 5.9 per cent for the straight gas companies.

Table 4 also shows the median values [1/] for the three groups of companies for the two growth rate periods. It will be observed that the medians are very similar in all cases to the arithmetic averages discussed previously. (The median values are also shown on the tables which follow; however, only in those instances where there is a marked difference between the arithmetic average and the median will the median be referred to.)

Table 4 reveals that the growth rates in earnings per share for the straight electric and the combination companies in the shorter period, 1961-1966, are fairly evenly distributed, especially for those companies with the lower growth rates.

In the longer period, 1956-1966, the growth rates of the two groups were also fairly evenly distributed, with the straight electrics appearing to have a slight edge over the combination companies. However,

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1/ The median is that value which divides a series so that one-half (or more) of the items are equal to or less than it and one-half (or more) of the items are equal to or greater than it; therefore, the median is not influenced by the size of the items, only by their position.

40 per cent of the combination companies had a 10-year growth rate in earnings per share which exceeded the average (6.9 per cent) for the straight electrics.

Analysis of the distributions on Table 4 reveals that the combination companies tend to be more dominant in the higher growth rate intervals than the straight gas companies. Thus, in the shorter period, 1961-1966, only 1 out of 3 of the straight gas companies had growth rates in earnings per share in excess of 6.0 per cent, while 4 out of 5 of the combination companies had growth rates of this magnitude, or greater. In the 10-years, 1956-1966, 47 per cent of the straight gas companies had growth rates of more than 6.0 per cent whereas 64 per cent of the combination companies were in this range.

In addition to the above analysis, the earnings growth rate data are also presented in graphic form in Chart I; see the tab labeled "Charts." This chart shows the growth rate for the company, within the straight electric and combination company groups, having (1) the highest growth rate, (2) the lowest, (3) the median company (i.e., the 24th company of the 47 straight electrics and the 20th company of the 40 combination companies), (4) the first quartile company (i.e., 12th company of the straight electrics and 10th of the combination companies), and (5) the third quartile company (i.e., 36th company of the straight electrics and 30th of the combination companies). Chart II shows similar data comparing combination companies with straight gas companies. In view of the fact that

more

there are only 13 straight gas companies in our sample, we show within each group the company having (1) the highest growth rate, (2) the lowest, and (3) the median company. We have also constructed similar charts for the other variables studied in this report; they likewise appear in the tab "Charts."

B. Rate of Return

1. Return on Invested Capital

Table 5 shows the return on invested (total) capital for 1966 alone and also the average for the 1961-1966 period for the three categories of companies. In 1966, the 6.8 per cent return on invested capital was similar, on average, for both the straight electric and combination companies. In that year, however, the straight gas companies experienced an average return of 7.4 per cent. The same general conclusions apply to the return data for the 1961-1966 period. In addition, the straight electric and combination companies are also quite evenly distributed among the various intervals of return. The straight gas companies tend to be clustered in the higher return intervals of the distributions.

2. Return On Common Equity

The returns on equity for 1966 and the average for the 1961-1966 period are shown in Table 6. The average for the straight electrics in 1966 was 12.9 per cent compared with 12.5 per cent for the combination companies and 11.5 per cent for the straight gas companies. The distribution of returns among the companies in the three groups also appears quite similar.

Note, however, that the return on equity for the straight gas companies is lower than for the other two groups, while the straight gas companies had a higher rate of return on total capital. The probable explanation for this is that the straight gas companies have relatively more equity in their capital structures (and, therefore, have less leverage) than either the straight electric or combination companies. In 1966, the straight gas companies had 42.2 per cent of their capitalizations, on average, composed of common equity whereas the straight electric and combination companies had average equity ratios of 37.1 and 36.7 per cent, respectively. (See Table 7.)

III. EXPENSE AND PLANT DATA

The source of the underlying data analyzed in this section relating to electric operations is Statistics of Privately Owned Electric Utilities in the United States, 1966 Edition, published by the Federal Power Commission and the source of the data relating to gas operations is the Uniform Statistical Reports for 1966 of each of the utilities.

It must also be recognized that there are several methods used by combination companies to allocate customer accounts expenses between their electric and gas customers, since they often have customers in three categories: electric only, gas only and both electric and gas. However, by examining the results of all the allocations by the combination companies, and comparing their charges to electric customers with those of the straight electrics, and their charges to their gas customers with those

of the straight gas companies, a fair overall picture is attained. The electric comparisons are made immediately below and the gas comparisons on page 11.

A. Electric

1. Customer Accounts Expenses

Table 8 presents comparative data on customer accounts expenses [2/] for the year 1966 on two bases: (1) per residential electric customer and (2) per 1,000 kwh of residential sales.

Although this analysis is based on residential customers and sales only, we recognize that customer accounts expenses also pertain to commercial customers as well. However, since many companies do not report commercial customers and sales separately from industrial, our analysis is restricted to residential customers only.

For the 47 straight electrics, annual customer accounts expenses per customer averaged $8.55; for the 40 combination companies, the average was $8.26 per customer. The median values per customer were $8.34 and $8.08, respectively. Analysis of the distributions of the two groups indicates that the combination companies generally have lower customer accounts expenses per customer than the straight electrics.

2/ The expenses included are supervision, meter reading, customer records and collection expenses, uncollectible accounts, and miscellaneous customer accounts expenses.

However, when customer accounts expenses are related to kwh of residential sales, the situation is reversed. Perhaps the explanation for this reversal is that the average straight electric has higher sales per customer than the average combination company, as will be further discussed later in this report in the section dealing with consumption data. In 1966, customer accounts expenses averaged $1.62 per 1,000 kwh of residential sales for the straight electrics; for the combination companies the comparable average was $1.86. (See Table 8.)

2. Administrative, General and Sales Expenses

The administrative, general and sales expenses [3/] for the two groups of companies are shown in Table 9. Again, the analysis is presented on both a per-customer and per-kwh-of-sales basis for residential customers and sales only. Administrative, general and sales expenses averaged $27.08 per customer for the straight electrics and $23.35 for the combination companies. The median values were $26.04 and $22.84 per customer, respectively.

Relating this expense category to kwh of sales, the average for both the straight electric and the combination companies is nearly

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[3/] The individual expense items included are as follows: (1) under administrative and general expenses: administrative and general salaries, office supplies and expenses, outside service employed, property insurance, injuries and damages, employee pensions and benefits, franchise requirements, regulatory commission expenses, miscellaneous general expenses, rents and maintenance of general plant; and (2) under sales expenses: supervision, demonstrating and selling, advertising, costs and expenses of merchandising, jobbing and contract work and miscellaneous sales expenses.

identical ($5.13 per 1,000 kwh of sales for the straight electrics vs. $5.20 for the combination companies). The median value is somewhat lower for the combination companies--$4.90 compared with $4.92 for the straight electrics.

3. Operating and Maintenance Expenses

Table 10 compares operating and maintenance expenses [4/] per customer and per 1,000 kwh of electricity generated in 1966 for the two groups. Operating and maintenance expenses, as defined, per customer were higher for the straight electrics than for the combination companies. The average for the straight electrics was $65.66 per customer and $61.56 for the combination companies. The median figures were $64.99 and $61.99, respectively. The companies are also distributed quite evenly among the various intervals.

Operating and maintenance expenses per 1,000 kwh of electricity generated in 1966 were higher for combination companies than for the straight electrics. The average for the straight electrics was $4.04 per 1,000 kwh generated and for the combination companies it was $4.65. The median values were $3.67 and $4.12, respectively. (See Table 10.) With respect to the distribution of the companies, a greater

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4/ Excluding fuel costs and cost of purchased power from others. The principal categories of expenses included are those associated with production, transmission, distribution customer accounting, sales promotion and administrative and general expenses.

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number of straight electrics are in the lower cost ranges and more of the combination companies are in the higher cost ranges. Interestingly, both groups of companies were virtually uniformly distributed in the middle cost intervals.

4. Gross Electric Plant

A comparison of the gross electric plant in service, at year-end 1966, per 1,000 kwh of electricity generated appears in Table 11. This table indicates that the straight electrics had, on average, less plant per kwh generated than the combination companies. The average for the straight electrics was $75.08 of plant per 1,000 kwh generated and for the combination companies it was $80.12; the respective medians are $68.36 and $76.04. This measure is, of course, affected by load factors (discussed below) and growth and maturity of the service territory.

More of the straight electrics are in the lower plant cost ranges while the combination companies are about symmetrically distributed around their average.

B. Gas

1. Customer Accounts Expenses

Table 12 presents comparative data on customer accounts expenses for the year 1966 on two bases: (1) per residential gas customer and (2) per 1,000 therms of residential sales. As was the case for electric operations, this analysis is also restricted to residential customers and sales due to the lack of systematic data for all companies on commercial customers and sales.

For the combination companies, annual customer accounts expenses per customer averaged $7.04 and for the straight gas companies the average was $8.76 per customer. The median values per customer were $6.46 and $9.02, respectively. The distributions of the two groups also indicate that the combination companies have lower customer accounts expenses per customer than the straight gas companies. For example,63 per cent of the combination companies have customer accounts expenses of less than $7.00 per customer vs. 23 per cent of the straight gas companies in the same category.

The combination companies also have lower customer accounts expenses when these expenses are related to therms of residential sales. In 1966, these expenses averaged $6.73 per 1,000 therms of residential sales for the combination companies and for the straight gas companies the comparable figure was $8.94.

2. Administrative, General and Sales Expenses

The administrative, general and sales expenses for the two groups are shown in Table 13. Again, the analysis is presented on both a per-customer and per-therm-of-sales basis. Administrative, general and sales expenses averaged $16.22 per customer for the combination companies and $18.27 for the straight gas companies. The median values were $15.73 and $17.50 per customer, respectively.

Relating this expense item to residential gas sales, the combination companies had an average of $15.20 per 1,000 therms compared with an average of $18.54 for the straight gas companies.

3. Operating and Maintenance Expenses

Table 14 compares operating and maintenance expenses (excluding the cost of purchased gas) per customer and per 1,000 therms of total sales in 1966. These expenses were $42.36 per gas customer, on average, for the combination companies and $45.09 for the straight gas utilities. The median values were $42.17 and $45.37, respectively.

Operating and maintenance expenses per 1,000 therms of sales were higher for the straight gas companies than for the combination companies. The average for the combination companies was $19.71 per 1,000 therms and for the straight gas companies it was $24.30. The median values were $13.97 and $17.42, respectively.

4. Gross Gas Plant

A comparison of the gross plant in service, at year-end 1966 per 1,000 therms sold is shown in Table 15. This table reveals that both groups had about the same level of gas plant investment, on average--$217 per 1,000 therms sold for the combination companies vs. $216 for the straight gas companies. The frequency distribution of companies is also quite similar for the two groups of companies.

IV. CONSUMPTION AND CUSTOMER DATA

The source of the consumption data for the straight electric and combination companies is the Compustat tape printouts and for the straight gas companies, Moody's Public Utilities Manual and Brown's

Directory of North American Gas Companies. The customer data are from Moody's Public Utilities Manual.

A. Electric

1. Consumption

Table 16 shows residential electric sales (kwh) per residential customer in 1966 for the straight electric and combination companies. We recognize that the data on consumption and customers (which follows) are heavily influenced by the nature of the territory served by the various utilities. This factor, of course, is most difficult to quantify. Thus, to a certain extent, some of the differences between the groups of companies may be due to this factor.

The average annual kwh consumption per residential customer is higher, on average, for the straight electrics than for the combination companies. Average consumption for the straight electrics was 5,744 kwh per residential customer compared with 4,731 kwh for the combination companies. It should be noted, however, that the spread between the straight electric and combination companies narrows when the median values of the two groups are compared--the median consumption for the straight electrics was 5,035 kwh per customer vs. 4,654 kwh for the combination companies. An examination of the distribution of companies further indicates that the straight electrics are predominant in the higher consumption ranges (6,000 kwh and higher), although approximately

20 per cent of the companies in both groups are clustered in the 5,000 - 5,999 kwh category.

Table 16 also compares the growth rate in the period, 1961-1966, of kwh consumption per residential customer of the two groups. The kwh sales per residential customer of the straight electrics grew at an average rate of 5.7 per cent over the 5-year period compared with a 5.2 per cent growth rate for the combination companies in the same period.

Table 17 compares the percentage of residential sales (in kwh) to total electric sales in 1966 of the two groups of companies. This table reveals that residential sales accounted for an average of 27.3 per cent of total sales of the straight electrics and 28.8 per cent of the sales of the combination companies.

2. Customers

Table 18 shows the percentage increase in the number of residential electric customers, from 1960 to 1966, for the straight electric and combination companies. The straight electrics had an average increase of 18.8 per cent in the number of residential customers from 1960 to 1966, compared with an average increase of 15.7 per cent for the combination companies. (The median values for the two groups were 16.2 and 13.5 per cent, respectively.) The two groups of companies are generally distributed quite evenly.

B. Gas

1. Consumption

As was the case in the electric analysis the influence of the territory served must also be kept in mind when analyzing the data on gas consumption and customers. The gas consumption (in Mcf) per residential customer for the combination and straight gas companies in 1966 is shown in Table 19. The average annual consumption was 121 Mcf per residential customer for the combination companies and 108 Mcf for the straight gas utilities. The median values were 130 and 99 Mcf, respectively.

Table 19 also shows the 5-year growth rate in gas sales per residential customer. While the average growth rate is identical for the two groups (2.8 per cent per annum), the median growth rate for the straight gas companies is higher--2.6 per cent vs. 2.2 per cent for the combination companies.

The percentage of residential gas sales to total sales in 1966 appears in Table 20. The two groups have similar averages: 46.7 per cent of the gas sales of combination companies were made to residential customers compared with 48.7 per cent for the straight gas companies.

2. Customers

Table 21 shows the percentage increase in the number of residential gas customers, from 1960 to 1966, for the combination and straight gas companies. The combination companies had an average

increase of 27.2 per cent in the number of customers from 1960 to 1966, compared with an average increase of 23.3 per cent for the straight gas companies. However, the median values for the two groups were 19.7 and 19.0 per cent, respectively. The two groups of companies are also quite evenly distributed among the various intervals of percentage increases, although a somewhat greater percentage of the straight gas companies are in the highest interval.

V. MISCELLANEOUS DATA

The underlying data analyzed in this section are from a variety of sources, as follows: Moody's Public Utilities Manual, Studley Shupert Statistics, McGraw-Hill's Directory of Electric Utilities, Uniform Statistical Reports, and the FPC's All Electric Homes in the United States.

A. Employees Per Dollar Of Revenue

Table 22 shows the number of employees per one million dollars of revenues in 1966 for the straight electric, combination and straight gas companies. The average number of employees was 25.3 for the straight electrics vs. 24.5 employees for the combination companies and 24.7 for the straight gas distributors. While the median value for this measure is similar to the arithmetic average for the combination companies, the median is lower than the arithmetic average for the straight electrics and higher for the straight gas companies. Thus, the median

number of employees is 23.8, 24.7 and 25.5, respectively, for the three groups of companies.

The three distributions are quite similar. Thus, for example, 79 per cent of the straight electric companies were clustered in the range of 20 to 30 employees per million dollars of revenues vs. 75 per cent of the combination companies and 77 per cent of the straight gas utilities in the same range. (See Table 22.)

B. Electric Load Factor

Table 23 shows the electric load factor [5/] in 1966 for the two groups. The straight electrics had a load factor of 60.2 per cent vs. 59.4 per cent for the combination companies. Table 23 further indicates that the distribution of companies in each group within the various load factor intervals also bears a close similarity. It should be kept in mind that differences in the load factor may affect other measures discussed in this report--e.g., expenses and the ratio of residential to total sales.

C. Btu Heat Rate

The 1966 heat rate (in Btu's per kwh generated) for the straight electric and the combination companies is shown in Table 24. The average heat rate for the straight electrics was 10,774 Btu's per kwh vs. 10,803 Btu's

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5/ Load factor is defined as the ratio of the average load in kilowatts supplied during the year to the peak or maximum load occurring in that year.

for the combination companies; the median heat rate for the straight electrics was 10,628 Btu's vs. 10,395 Btu's for the combination companies. 6/

The distribution of companies also presents a mixed picture. Thus, 16 per cent of the straight electric companies were in the lowest (i.e., best) heat rate category (9,500 - 9,000 Btu's) compared with 13 per cent of the combination companies; however, only 27 per cent of the straight electrics were in the next lowest category (10,000 - 10,499 Btu's) while 44 per cent of the combination companies were included in this range.

D. Average Revenue From Residential Electric Sales

Table 25 presents average revenue data for the straight electric and combination companies on two bases: (1) average revenue from residential sales in 1966 7/ and (2) average charge for all-electric service at an annual consumption level of 15,000 kwh, as of January 1, 1967, from the Federal Power Commission publication, All Electric Homes in the United States. Here again the nature of the territory may influence this analysis.

6/ Note that heat rate data are not available for three of the straight electrics and one of the combination companies. (See Table 24.)

7/ The average revenue from residential sales is a weighted average since it represents total residential revenues divided by total residential consumption.

The average revenue from residential electric sales in 1966 was 2.31 cents per kwh for the straight electrics vs. 2.58 cents for the combination companies. Thus, the straight electrics have somewhat lower average revenue per kwh than the combination companies, probably the result of a somewhat greater average consumption per customer, which, in turn, could be caused by territorial differences.

An analysis of the distribution of average revenues between the two groups also reveals that the straight electrics are more concentrated in the lower unit revenue classes than are the combination companies. Thus, for example, 65 per cent of the straight electrics had an average revenue from residential sales of less than 2.50 cents per kwh whereas 35 per cent of the combination companies were represented in this category. (See Table 25.)

The straight electrics also appear to have lower charges, on average, for all-electric service. The charge for such service at a 15,000 kwh consumption level averaged 1.63 cents and 1.80 cents per kwh, respectively, for the straight electric and the combination companies.

The straight electrics likewise dominate the lower intervals of the frequency distribution of companies--47 per cent of the straight electrics had all-electric charges of less than 1.60 cents per kwh vs. only 15 per cent of the combination companies.

E. Average Revenue From Residential Gas Sales

The average revenue per therm from residential gas heating customers in 1966 is shown in Table 26. The average revenue for the

combination companies was somewhat lower than that for the straight gas companies. The average revenue from residential gas sales was 11.3 cents per therm for the combination companies and 12.0 cents for the straight gas companies. (The median values were 10.6 and 11.0 cents, respectively.)

F. Gas Load Factor

Table 27 shows the gas load factor in 1966 for the two groups of companies. The average load factor is 47 per cent for the combination companies and 45 per cent for the straight gas companies.

VI. SUMMARY

The table below presents a summary of the arithmetic averages of the variables previously discussed for the three groups of companies.

	Straight Electric	Combination Companies	Straight Gas
1. Five-year growth rate in earnings per share, 1961-1966 (%)	8.1	7.7	6.0
2. Ten-year growth rate in earnings per share, 1956-1966 (%)	6.9	6.6	5.9
3. Rate of return on invested capital, 1966 (%)	6.8	6.8	7.4
4. Rate of return on common equity, 1966 (%)	12.9	12.5	11.5
5. Customer accounts expenses per electric customer, 1966 ($)	8.55	8.26	-

	Straight Electric	Combination Companies	Straight Gas
6. Administrative, general and sales expenses per electric customer, 1966 ($)	27.08	23.35	-
7. Operating and maintenance expenses per electric customer, 1966 ($)	65.66	61.56	-
8. Gross electric plant per 1,000 kwh generated, 1966 ($)	75.08	80.12	-
9. Customer accounts expenses per gas customer, 1966 ($)	-	7.04	8.76
10. Administrative, general and sales expenses per gas customer, 1966 ($)	-	16.22	17.27
11. Operating and maintenance expenses per gas customer, 1966 ($)	-	42.36	45.09
12. Gross gas plant in service per 1,000 therms sold, 1966 ($)	-	217.00	216.00
13. Electric consumption per residential customer, 1966 (Kwh)	5,744	4,731	-
14. Growth rate in electric consumption per residential customer, 1961-1966 (%)	5.7	5.2	-
15. Percentage increase in residential electric customers, 1960-1966 (%)	18.8	15.7	-
16. Gas consumption per residential customer, 1966 (Mcf)	-	121	108
17. Growth rate in gas consumption per residential customer, 1961-1966 (%)	-	2.8	2.8
18. Percentage increase in residential gas customers, 1960-1966 (%)	-	27.2	23.3
19. Employees per million dollars of revenues, 1966 (No.)	25.3	24.5	24.7

	Straight Electric	Combination Companies	Straight Gas
20. Electric load factor, 1966 (%)	60.2	59.4	-
21. Heat rate (Btu's per Kwh)	10,774	10,803	-
22. Average revenue from residential electric sales, 1966 (¢/Kwh)	2.31	2.58	-
23. Average revenue from residential gas sales, 1966 (¢/therm)	-	11.3	12.0
24. Gas load factor, 1966 (%)	-	47.0	45.0

With respect to the financial variables analyzed (items one thru four above), while there is a close similarity in the averages for the straight electric and combination companies (notably in return on total invested capital), the straight electrics would appear to have a slight overall edge over the combination companies. Similarly, except for return on invested capital, the combination companies have outperformed the straight gas group.

The straight electric utilities, on average, have higher customer accounts expenses; administrative, general and sales expenses; and operating and maintenance expenses per electric customer than the combination companies. The straight electrics have less gross electric plant per kwh generated than the combination companies. The combination companies have lower customer accounts expenses; administrative, general and sales expense; and operating and maintenance expenses per gas customer than the straight gas companies; both groups have the same average amount of gross gas plant per therm sold.

With respect to the consumption and customer increase variables (items 13 thru 18 above), the straight electrics have higher growth rates and percentage increases in customers than the combination companies on the electric side of the business; however, the averages for the combination companies on their gas portion exceed those of the straight gas utilities.

All three groups have approximately the same average number of employees per dollar of revenue and the load factors (both electric and gas) are reasonably similar. The average revenue from residential electric sales is lower for the straight electric than the combination companies, while the average revenue from residential gas sales is lower for the combination utilities than for the straight gas companies.

TABLE 1
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47 STRAIGHT ELECTRIC COMPANIES

		Gas Revenues as Per Cent of Total Revenues, 1966
1.	Allegheny Power System, Inc.	-0- %
2.	American Electric Power Co.	-0-
3.	Atlantic City Electric Co.	-0-
4.	Boston Edison Co.	-0-
5.	Carolina Power & Light Co.	-0-
6.	Central Maine Power Co.	-0-
7.	Central & Southwest Corp.	-0-
8.	Cleveland Electric Illuminating Co.	-0-
9.	Columbus & Southern Ohio Electric Co.	-0-
10.	Commonwealth Edison Co.	2.7
11.	Detroit Edison Co.	-0-
12.	Duke Power Co.	-0-
13.	Duquesne Light Co.	-0-
14.	El Paso Electric Co.	-0-
15.	Florida Power Corp.	-0-
16.	Florida Power & Light Co.	-0-
17.	General Public Utilities Corp.	-0-
18.	Gulf States Utilities Co.	3.5
19.	Hawaiian Electric Co.	-0-
20.	Houston Lighting & Power Co.	-0-
21.	Idaho Power Co.	-0-
22.	Indianapolis Power & Light Co.	-0-
23.	Kansas City Power & Light Co.	-0-

TABLE 1
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47 STRAIGHT ELECTRIC COMPANIES

		Gas Revenues as Per Cent of Total Revenues, 1966
24.	Kansas Gas & Electric Co.	-0- %
25.	Kentucky Utilities Co.	-0-
26.	Middle South Utilities, Inc.	5.3
27.	Minnesota Power & Light Co.	4.8
28.	Nevada Power Co.	-0-
29.	Ohio Edison Co.	-0-
30.	Oklahoma Gas & Electric Co.	-0-
31.	Pacific Power & Light Co.	-0-
32.	Pennsylvania Power & Light Co.	-0-
33.	Potomac Electric Power Co.	-0-
34.	Public Service Co. of Indiana, Inc.	-0-
35.	Public Service Co. of New Hampshire	-0-
36.	Public Service Co. of New Mexico	-0-
37.	Puget Sound Power & Light Co.	-0-
38.	Southern California Edison Co.	-0-
39.	Southern Co.	-0-
40.	Southwestern Public Service Co.	-0-
41.	Tampa Electric Co.	-0-
42.	Texas Utilities Co.	-0-
43.	Toledo Edison Co.	1.6
44.	Union Electric Co.	3.2
45.	United Illuminating Co.	-0-
46.	Utah Power & Light Co.	-0-
47.	Virginia Electric & Power Co.	6.9

TABLE 2

40 COMBINATION COMPANIES

		Gas Revenues as Per Cent of Total Revenues, 1966
1.	Arizona Public Service Co.	27.5%
2.	Baltimore Gas & Electric Co.	31.0
3.	Central Hudson Gas & Electric Co.	17.6
4.	Central Illinois Light Co.	38.9
5.	Central Illinois Public Service Co.	19.1
6.	Central Louisiana Electric Co.	27.1
7.	Cincinnati Gas & Electric Co.	39.4
8.	Consolidated Edison Co.	12.1
9.	Consumers Power Co.	42.1
10.	Dayton Power & Light Co.	36.3
11.	Delmarva Power & Light Co.	17.9
12.	Illinois Power Co.	33.2
13.	Interstate Power Co.	21.3
14.	Iowa-Illinois Gas & Electric Co.	51.7
15.	Iowa Power & Light Co.	35.8
16.	Iowa Public Service Co.	37.4
17.	Long Island Lighting Co.	27.1
18.	Louisville Gas & Electric Co.	35.5
19.	Montana-Dakota Utilities Co.	54.4
20.	Montana Power Co.	34.6
21.	New England Electric System	14.4
22.	New England Gas & Electric Association	47.1
23.	New York State Electric & Gas Co.	22.6
24.	Niagara Mohawk Power Corp.	23.1
25.	Northeast Utilities	11.1
26.	Northern Indiana Public Service Co.	54.2
27.	Northern States Power Co.	16.9
28.	Orange & Rockland Utilities	30.3
29.	Pacific Gas & Electric Co.	36.7
30.	Philadelphia Electric Co.	17.3
31.	Public Service Co. of Colorado	37.9
32.	Public Service Electric & Gas Co.	34.6
33.	Rochester Gas & Electric Corp.	38.0
34.	San Diego Gas & Electric Co.	31.8
35.	Sierra Pacific Power Co.	11.1
36.	South Carolina Electric & Gas Co.	21.2
37.	Tucson Gas & Electric Co.	24.6
38.	Washington Water Power Co.	21.5
39.	Wisconsin Electric Power Co.	16.2
40.	Wisconsin Public Service Corp.	31.9

n/c/r/a

TABLE 3

13 STRAIGHT GAS COMPANIES

		Gas Revenues as Per Cent of Total Revenues, 1966
1.	Alabama Gas Corp.	100.0%
2.	Atlanta Gas Light Co.	100.0
3.	Brooklyn Union Gas Co.	100.0
4.	Elizabethtown Consolidated Gas Co.	100.0
5.	Gas Service Co.	100.0
6.	Laclede Gas Co.	100.0
7.	Louisiana Gas Service Co.	100.0
8.	Minneapolis Gas Co.	100.0
9.	New Jersey Natural Gas Co.	100.0
10.	Northern Illinois Gas Co.	100.0
11.	Northwest Natural Gas Co.	100.0
12.	Providence Gas Co.	100.0
13.	Washington Gas Light Co.	100.0

TABLE 4

GROWTH RATE IN EARNINGS PER SHARE

Growth Rate (Per Cent)	5-Year (1961-1966), Average			10-Year (1956-1966), Average		
	Straight Electric	Combination Companies	Straight Gas	Straight Electric	Combination Companies	Straight Gas
	Number of Companies Included					
Less than 5.0%	4	4	5	11	7	5
5.0 - 5.9	4	4	3	2	7	2
6.0 - 6.9	8	7	1	8	9	1
7.0 - 7.9	6	10	0	11	7	1
8.0 - 8.9	7	5	2	11	6	2
9.0 - 9.9	11	2	0	2	3	1
10.0 & over	7	8	2	2	1	1
Total	47	40	13	47	40	13
Arith. Average	8.1%	7.7%	6.0%	6.9%	6.6%	5.9%
Median	8.1	7.6	5.5	7.1	6.5	6.0
	Percentage of Companies Included					
Less than 5.0%	9%	10%	39%	23%	18%	38%
5.0 - 5.9	8	10	23	4	18	15
6.0 - 6.9	17	18	8	17	22	8
7.0 - 7.9	13	25	0	24	17	8
8.0 - 8.9	15	12	15	24	15	15
9.0 - 9.9	23	5	0	4	8	8
10.0 & over	15	20	15	4	2	8
Total	100%	100%	100%	100%	100%	100%
	Cumulative Percentage of Companies Included					
Less than 5.0%	9%	10%	39%	23%	18%	38%
Less than 6.0	17	20	62	27	36	53
Less than 7.0	34	38	70	44	58	61
Less than 8.0	47	63	70	68	75	69
Less than 9.0	62	75	85	92	90	84
Less than 10.0	85	80	85	96	98	92
Less than 10.0 & over	100	100	100	100	100	100

Source: Basic data from Standard & Poor's Compustat tape and Moody's Public Utilities Manual.

TABLE 5

RATE OF RETURN ON INVESTED CAPITAL

Return on Invested Capital (Per Cent)	1966 Straight Electric	1966 Combination Companies	1966 Straight Gas	1961-1966 Average Straight Electric	1961-1966 Average Combination Companies	1961-1966 Average Straight Gas
	Number of Companies Included					
Less than 5.5%	1	1	0	3	2	0
5.5 - 5.9	6	6	2	6	8	2
6.0 - 6.4	10	6	3	15	14	2
6.5 - 6.9	12	15	1	11	8	1
7.0 - 7.4	8	4	1	7	6	3
7.5 - 7.9	6	4	2	4	1	1
8.0 - 8.4	2	3	0	0	1	0
8.5 & over	2	1	4	1	0	4
Total	47	40	13	47	40	13
Arith. Average	6.8%	6.8%	7.4%	6.5%	6.4%	7.4%
Median	6.8	6.7	7.1	6.4	6.4	7.2
	Percentage of Companies Included					
Less than 5.5%	2%	2%	0%	6%	5%	0%
5.5 - 5.9	13	15	15	13	20	15
6.0 - 6.4	21	15	23	32	35	15
6.5 - 6.9	26	37	8	23	20	8
7.0 - 7.4	17	10	8	15	15	23
7.5 - 7.9	13	10	15	9	2	8
8.0 - 8.4	4	8	0	0	3	0
8.5 & over	4	3	31	2	0	31
Total	100%	100%	100%	100%	100%	100%
	Cumulative Percentage of Companies Included					
Less than 5.5%	2%	2%	0%	6%	5%	0%
Less than 6.0	15	17	15	19	25	15
Less than 6.5	36	32	38	51	60	30
Less than 7.0	62	69	46	74	80	38
Less than 7.5	79	79	54	89	95	61
Less than 8.0	92	89	69	98	97	69
Less than 8.5	96	97	69	98	100	69
Less than 8.5 & over	100	100	100	100	100	100

Source: Basic data from Standard & Poor's Compustat tape and Moody's Public Utilities Manual.

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TABLE 6

RATE OF RETURN ON COMMON EQUITY

Return on Equity (Per Cent)	1966 Straight Electric	1966 Combination Companies	1966 Straight Gas	1961-1966 Average Straight Electric	1961-1966 Average Combination Companies	1961-1966 Average Straight Gas
	Number of Companies Included					
Less than 10.0%	2	4	4	6	6	2
10.0 - 10.9	7	4	2	5	7	3
11.0 - 11.9	6	7	1	12	8	2
12.0 - 12.9	11	9	3	10	10	3
13.0 - 13.9	6	8	1	6	6	2
14.0 - 14.9	7	4	0	4	1	1
15.0 - 15.9	3	2	2	3	2	0
16.0 - 16.9	5	2	0	1	0	0
Total	47	40	13	47	40	13
Arith. Average	12.9%	12.5%	11.5%	12.1%	11.7%	11.5%
Median	12.7	12.4	11.4	12.0	11.5	12.0
	Percentage of Companies Included					
Less than 10.0%	4%	10%	31%	13%	15%	15%
10.0 - 10.9	15	10	15	11	18	23
11.0 - 11.9	13	18	8	26	20	16
12.0 - 12.9	23	22	23	21	25	23
13.0 - 13.9	13	20	8	13	15	15
14.0 - 14.9	15	10	0	8	2	8
15.0 - 15.9	6	5	15	6	5	0
16.0 - 16.9	11	5	0	2	0	0
Total	100%	100%	100%	100%	100%	100%
	Cumulative Percentage of Companies Included					
Less than 10.0%	4%	10%	31%	13%	15%	15%
Less than 11.0	19	20	46	24	33	38
Less than 12.0	32	38	54	50	53	54
Less than 13.0	55	60	77	71	78	77
Less than 14.0	68	80	85	84	93	92
Less than 15.0	83	90	85	92	95	100
Less than 16.0	89	95	100	98	100	100
Less than 17.0	100	100	100	100	100	100

Source: Basic data from Standard & Poor's Compustat tape and Moody's Public Utilities Manual.

TABLE 7

COMMON EQUITY AS PER CENT OF TOTAL CAPITAL, 1966

Equity Per Cent of Total Capital	Straight Electric	Combination Companies	Straight Gas
	-----Number of Companies Included-----		
Less than 30.0%	4	3	0
30.0 - 34.9	12	13	3
35.0 - 39.9	20	15	5
40.0 - 44.9	8	5	2
45.0 - 49.9	2	3	0
50.0 & over	1	1	3
Total	47	40	13
Arith. Average	37.1%	36.7%	42.2%
Median	36.9	35.6	39.5
	----Percentage of Companies Included---		
Less than 30.0%	9%	8%	0%
30.0 - 34.9	26	32	23
35.0 - 39.9	42	38	39
40.0 - 44.9	17	12	15
45.0 - 49.9	4	8	0
50.0 & over	2	2	23
Total	100%	100%	100%
	-Cumulative Percentage of Companies Included-		
Less than 30.0%	9%	8%	0%
Less than 35.0	35	40	23
Less than 40.0	77	78	62
Less than 45.0	94	90	77
Less than 50.0	98	98	77
Less than 50.0 & over	100	100	100

Source: Basic data from Standard & Poor's Compustat tape and Moody's Public Utilities Manual.

TABLE 8

ELECTRIC OPERATIONS: CUSTOMER ACCOUNTS EXPENSES PER
(1) RESIDENTIAL ELECTRIC CUSTOMER AND
(2) 1,000 KWH OF RESIDENTIAL ELECTRIC SALES

Customer Accounts Expenses per Residential Electric Customer			Customer Accounts Expenses per 1,000 Kwh of Residential Electric Sales		
Dollars per Customer	Straight Electric	Combination Companies	1,000 Kwh	Straight Electric	Combination Companies
---------- Number of Companies Included ----------					
Less than $6.00	2	5	Less than $1.00	4	1
6.00 - 6.99	3	3	1.00 - 1.49	17	11
7.00 - 7.99	10	10	1.50 - 1.99	16	15
8.00 - 8.99	15	13	2.00 - 2.49	8	7
9.00 - 9.99	9	5	2.50 - 2.99	1	3
10.00 & over	8	4	3.00 & over	1	3
Total	47	40	Total	47	40
Arith. Average	$8.55	$8.26	Arith. Average	$1.62	$1.86
Median	8.34	8.08	Median	1.54	1.69
---------- Percentage of Companies Included ----------					
Less than $6.00	4%	12%	Less than $1.00	9%	2%
6.00 - 6.99	7	8	1.00 - 1.49	36	27
7.00 - 7.99	21	25	1.50 - 1.99	34	37
8.00 - 8.99	32	32	2.00 - 2.49	17	18
9.00 - 9.99	19	13	2.50 - 2.99	2	8
10.00 & over	17	10	3.00 & over	2	8
Total	100%	100%	Total	100%	100%
---------- Cumulative Percentage of Companies Included ----------					
Less than $ 6.00	4%	12%	Less than $1.00	9%	2%
Less than 7.00	11	20	Less than 1.50	45	29
Less than 8.00	32	45	Less than 2.00	79	66
Less than 9.00	64	77	Less than 2.50	96	84
Less than 10.00	83	90	Less than 3.00	98	92
Less than 10.00 & over	100	100	Less than 3.00 & over	100	100

Source: Basic data from Federal Power Commission, Statistics of Privately Owned Electric Utilities in the United States, 1966 Edition.

TABLE 9

ELECTRIC OPERATIONS: ADMINISTRATIVE, GENERAL AND SALES EXPENSES PER (1) RESIDENTIAL ELECTRIC CUSTOMER AND (2) 1,000 KWH OF RESIDENTIAL ELECTRIC SALES, 1966

Administrative, General and Sales Expenses Per Residential Electric Customer			Administrative, General and Sales Expenses Per 1,000 of Kwh of Residential Electric Sales		
Dollars per Customer	Straight Electric	Combination Companies	Dollars per 1,000 Kwh	Straight Electric	Combination Companies
---------- Number of Companies Included ----------					
$10.00 - $14.99	0	4	Less than $3.00	3	2
15.00 - 19.99	6	7	3.00 - 3.99	7	9
20.00 - 24.99	13	14	4.00 - 4.99	15	11
25.00 - 29.99	15	8	5.00 - 5.99	12	5
30.00 - 34.99	10	5	6.00 - 6.99	6	7
35.00 & over	3	2	7.00 & over	4	6
Total	47	40	Total	47	40
Arith. Average	$27.08	$23.35	Arith. Average	$5.13	$5.20
Median	26.04	22.84	Median	4.92	4.90
---------- Percentage of Companies Included ----------					
$10.00 - $14.99	0%	10%	Less than $3.00	6%	5%
15.00 - 19.99	13	18	3.00 - 3.99	15	22
20.00 - 24.99	28	35	4.00 - 4.99	31	28
25.00 - 29.99	32	20	5.00 - 5.99	26	12
30.00 - 34.99	21	12	6.00 - 6.99	13	18
35.00 & over	6	5	7.00 & over	9	15
Total	100%	100%	Total	100%	100%
---------- Cumulative Percentage of Companies Included ----------					
Less than $15.00	0%	10%	Less than $3.00	6%	5%
Less than 20.00	13	28	Less than 4.00	21	27
Less than 25.00	41	63	Less than 5.00	52	55
Less than 30.00	73	83	Less than 6.00	78	67
Less than 35.00	94	95	Less than 7.00	91	85
Less than 35.00 & over	100	100	Less than 7.00 & over	100	100

Source: Basic data from Federal Power Commission, Statistics of Privately Owned Electric Utilities in the United States, 1966 Edition.

TABLE 10

ELECTRIC OPERATIONS: OPERATING AND MAINTENANCE EXPENSES [1] PER
(1) TOTAL ELECTRIC CUSTOMER AND
(2) 1000 KWH OF ELECTRICITY GENERATED, 1966

Operating and Maintenance Expenses per Total Customer			Operating and Maintenance Expenses per 1,000 Kwh Generated		
Dollars per Customer	Straight Electric	Combination Companies	Dollars per 1,000 Kwh	Straight Electric	Combination Companies
	Number of Companies Included				
Less than $50.00	2	6	Less than $3.00	15	8
50.00 - 59.99	15	13	3.00 - 3.99	13	11
60.00 - 69.99	16	13	4.00 - 4.99	8	6
70.00 - 79.99	9	5	5.00 - 5.99	7	6
80.00 - 89.99	3	3	6.00 - 6.99	2	3
90.00 & over	2	0	7.00 & over	2	6
Total	47	40	Total	47	40
Arith. Average	$65.66	$61.56	Arith. Average	$4.04	$4.65
Median	64.99	61.99	Median	3.67	4.12
	Percentage of Companies Included				
Less than $50.00	4%	15%	Less than $3.00	32%	20%
50.00 - 59.99	32	33	3.00 - 3.99	28	27
60.00 - 69.99	34	32	4.00 - 4.99	17	15
70.00 - 79.99	19	13	5.00 - 5.99	15	15
80.00 - 89.99	7	7	6.00 - 6.99	4	8
90.00 & over	4	0	7.00 & over	4	15
Total	100%	100%	Total	100%	100%
	Cumulative Percentage of Companies Included				
Less than $50.00	4%	15%	Less than $3.00	32%	20%
Less than 60.00	36	48	Less than $4.00	60	47
Less than 70.00	70	80	Less than 5.00	77	62
Less than 80.00	89	93	Less than 6.00	92	77
Less than 90.00	95	100	Less than 7.00	96	85
Total	100%	100%	Total	100%	100%

[1] Excluding fuel costs and cost of purchased power from others.

Source: Basic Data from Federal Power Commission, Statistics of Privately Owned Electric Utilities in the United States, 1966 Edition.

TABLE 11

ELECTRIC OPERATIONS: GROSS ELECTRIC PLANT IN SERVICE PER 1,000 KWH OF ELECTRICITY GENERATED, 1966

Dollars per 1,000 Kwh	Straight Electric	Combination Companies
	-Number of Companies Included-	
Less than $60.00	14	6
60.00 - 69.99	14	6
70.00 - 79.99	7	14
80.00 - 89.99	5	4
90.00 - 99.99	4	3
100.00 & over	3	7
Total	47	40
Arith. Average	$75.08	$80.12
Median	68.36	76.04
	-Percentage of Companies Included-	
Less than $60.00	30%	15%
60.00 - 69.99	30	15
70.00 - 79.99	15	34
80.00 - 89.99	11	10
90.00 - 99.99	8	8
100.00 & over	6	18
Total	100%	100%
	Cumulative Percentage ------of Companies Included------	
Less than $ 60.00	30%	15%
Less than 70.00	60	30
Less than 80.00	75	64
Less than 90.00	86	74
Less than 100.00	94	82
Less than 100.00 & over	100	100

Source: Basic data from Federal Power Commission, Statistics of Privately Owned Electric Utilities in the United States, 1966 Edition.

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TABLE 12

GAS OPERATIONS: CUSTOMER ACCOUNTS EXPENSES PER
(1) RESIDENTIAL GAS CUSTOMER AND
(2) 1,000 THERMS OF RESIDENTIAL GAS SALES, 1966

Customer Accounts Expenses Per Residential Gas Customer			Customer Accounts Expenses Per M Therms of Residential Gas Sales		
Dollars Per Customer	Combination Companies	Straight Gas	Dollars Per M Therms	Combination Companies	Straight Gas
	Number of Companies Included				
Less than $6.00	10	1	Less than $4.00	8	0
6.00 - 6.99	15	2	4.00 - 5.49	12	3
7.00 - 7.99	4	1	5.50 - 6.99	8	1
8.00 - 8.99	6	2	7.00 - 8.49	3	4
9.00 - 9.99	3	4	8.50 - 9.99	3	0
10.00 & over	2	3	10.00 & over	6	5
Total	40	13	Total	40	13
Arith. Average	$7.04	$8.76	Arith. Average	$6.73	$8.94
Median	6.46	9.02	Median	5.54	8.25
	Percentage of Companies Included				
Less than $6.00	25%	8%	Less than $4.00	20%	0%
6.00 - 6.99	38	15	4.00 - 5.49	30	23
7.00 - 7.99	10	8	5.50 - 6.99	20	8
8.00 - 8.99	15	15	7.00 - 8.49	8	31
9.00 - 9.99	7	31	8.50 - 9.99	7	0
10.00 & over	5	23	10.00 & over	15	38
Total	100%	100%	Total	100%	100%
	Cumulative Percentage of Companies Included				
Less than $6.00	25%	8%	Less than $4.00	20%	0%
Less than 7.00	63	23	Less than 5.50	50	23
Less than 8.00	73	31	Less than 7.00	70	31
Less than 9.00	88	46	Less than 8.50	78	62
Less than 10.00	95	77	Less than 10.00	85	62
Total	100	100	Total	100	100

Source: Basic data from Uniform Statistical Reports.

TABLE 13

GAS OPERATIONS: ADMINISTRATIVE, GENERAL AND SALES EXPENSES PER (1) RESIDENTIAL GAS CUSTOMER AND (2) 1,000 THERMS OF RESIDENTIAL GAS SALES, 1966

Administrative, General and Sales Expenses Per Residential Gas Customer			Administrative, General and Sales Expenses Per M Therms of Residential Gas Sales		
Dollars Per Customer	Combination Companies	Straight Gas	Dollars Per M Therms	Combination Companies	Straight Gas
----------Number of Companies Included----------					
Less than $10.00	7	1	Less than $10.00	13	1
10.00 - 11.99	4	0	10.00 - 11.99	4	2
12.00 - 13.99	6	4	12.00 - 13.99	8	1
14.00 - 15.99	5	0	14.00 - 15.99	3	2
16.00 - 17.99	4	3	16.00 - 17.99	2	1
18.00 - 19.99	2	1	18.00 - 19.99	1	0
20.00 & over	12	4	20.00 & over	9	6
Total	40	13	Total	40	13
Arith. Average	$16.22	$18.27	Arith. Average	$15.20	$18.54
Median	15.73	17.50	Median	13.27	16.48
----------Percentage of Companies Included----------					
Less than $10.00	18%	8%	Less than $10.00	33%	8%
10.00 - 11.99	10	0	10.00 - 11.99	10	15
12.00 - 13.99	15	31	12.00 - 13.99	20	8
14.00 - 15.99	12	0	14.00 - 15.99	7	15
16.00 - 17.99	10	23	16.00 - 17.99	5	8
18.00 - 19.99	5	7	18.00 - 19.99	3	0
20.00 & over	30	31	20.00 & over	22	46
Total	100%	100%	Total	100%	100%
---------- Cumulative Percentage of Companies Included----------					
Less than $10	18%	8%	Less than $10	33%	8%
Less than 12	28	8	Less than 12	43	23
Less than 14	43	39	Less than 14	63	31
Less than 16	55	39	Less than 16	70	46
Less than 18	65	62	Less than 18	75	54
Less than 20	70	69	Less than 20	78	54
Total	100	100	Total	100	100

Source: Basic data from Uniform Statistical Reports.

TABLE 14

GAS OPERATIONS: OPERATING AND MAINTENANCE EXPENSES LESS COST OF GAS PURCHASED PER (1) TOTAL GAS CUSTOMER AND (2) 1,000 THERMS OF TOTAL SALES, 1966

Operating and Maintenance Expenses Per Total Customer			Operating and Maintenance Expenses Per M Therms Sold		
Dollars Per Customer	Combination Companies	Straight Gas	Dollars Per M Therms	Combination Companies	Straight Gas
	Number of Companies Included				
Less than $30.00	8	1	Less than $10.00	8	1
30.00-34.99	4	2	10.00-14.99	15	5
35.00-39.99	3	2	15.00-19.99	4	1
40.00-44.99	10	1	20.00-24.99	1	1
45.00-49.99	6	3	25.00-29.99	4	0
50.00-54.99	3	0	30.00 and over	8	5
55.00 and over	6	4			
Total	40	13	Total	40	13
Arith. Average	$42.36	$45.09	Arith. Average	$19.71	$24.30
Median	42.17	45.37	Median	13.97	17.42
	Percentage of Companies Included				
Less than $30.00	20%	8%	Less than $10.00	20%	8%
30.00-34.99	10	15	10.00-14.99	38	38
35.00-39.99	8	15	15.00-19.99	10	8
40.00-44.99	25	8	20.00-24.99	2	8
45.00-49.99	15	23	25.00-29.99	10	0
50.00-54.99	7	0	30.00 and over	20	38
55.00 and over	15	31			
Total	100%	100%	Total	100%	100%
	Cumulative Percentage of Companies Included				
Less than $30.00	20%	8%	Less than $10.00	20%	8%
Less than 35.00	30	23	Less than 15.00	58	46
Less than 40.00	38	38	Less than 20.00	68	54
Less than 45.00	63	46	Less than 25.00	70	62
Less than 50.00	78	69	Less than 30.00	80	62
Less than 55.00	85	69			
Total	100	100	Total	100	100

Source: Basic data from Uniform Statistical Reports.

TABLE 15

GAS OPERATIONS: GROSS GAS PLANT IN SERVICE
PER 1,000 THERMS OF TOTAL SALES, 1966

Dollars Per M Therms	Combination Companies	Straight Gas
	-Number of Companies Included-	
Less than $100	2	1
100 - 149	11	4
150 - 199	7	3
200 - 249	8	0
250 - 299	5	1
300 & over	7	4
Total	40	13
Arith. Average	$217	$216
Median	203	199
	-Percentage of Companies Included-	
Less than $100	5%	8%
100 - 149	28	31
150 - 199	17	23
200 - 249	20	0
250 - 299	13	7
300 & over	17	31
Total	100%	100%
	Cumulative Percentage ----of Companies Included----	
Less than $100	5%	8%
Less than 150	33	39
Less than 200	50	62
Less than 250	70	62
Less than 300	83	69
Total	100	100

Source: Basic data from Uniform Statistical Reports.

TABLE 16

RESIDENTIAL KWH SALES: (1) AVERAGE USE PER CUSTOMER, 1966 AND (2) GROWTH RATE IN AVERAGE USE PER CUSTOMER, 1961-1966

Kwh Sales per Residential Customer, 1966			5-Year Growth Rate in Kwh Sales per Residential Customer, 1961-1966		
Kwh per Customer	Straight Electric	Combination Companies	Growth Rate (Per Cent)	Straight Electric	Combination Companies
---------- Number of Companies Included ----------					
Less than 3,000 Kwh	0	2	Less than 3.0%	4	1
3,000 - 3,999	5	5	3.0 - 3.9	5	5
4,000 - 4,999	18	22	4.0 - 4.9	8	12
5,000 - 5,999	10	8	5.0 - 5.9	10	11
6,000 - 6,999	5	1	6.0 - 6.9	9	9
7,000 - 7,999	5	1	7.0 - 7.9	5	1
8,000 & over	4	1	8.0 & over	6	1
Total	47	40	Total	47	40
Arith. Average	5,744 Kwh	4,731 Kwh	Arith. Average	5.7%	5.2%
Median	5,035	4,654	Median	5.6	5.1
---------- Percentage of Companies Included ----------					
Less than 3,000 Kwh	0%	5%	Less than 3.0%	9%	2%
3,000 - 3,999	11	12	3.0 - 3.9	11	12
4,000 - 4,999	37	55	4.0 - 4.9	17	30
5,000 - 5,999	21	20	5.0 - 5.9	20	28
6,000 - 6,999	11	3	6.0 - 6.9	19	22
7,000 - 7,999	11	3	7.0 - 7.9	11	3
8,000 & over	9	2	8.0 & over	13	3
Total	100%	100%	Total	100%	100%
---------- Cumulative Percentage of Companies Included ----------					
Less than 3,000 Kwh	0%	5%	Less than 3.0%	9%	2%
Less than 4,000	11	17	Less than 4.0	20	14
Less than 5,000	48	72	Less than 5.0	37	44
Less than 6,000	69	92	Less than 6.0	57	72
Less than 7,000	80	95	Less than 7.0	76	94
Less than 8,000	91	98	Less than 8.0	87	97
Less than 8,000 & over	100	100	Less than 8.0 & over	100	100

Source: Basic data from Standard & Poor's Compustat tape.

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TABLE 17

RESIDENTIAL ELECTRIC SALES (KWH) AS PER CENT OF TOTAL ELECTRIC SALES, 1966

Per Cent	Straight Electric	Combination Companies
	-Number of Companies Included-	
Less than 20.0%	5	4
20.0 - 24.9	18	7
25.0 - 29.9	11	16
30.0 - 34.9	7	6
35.0 - 39.9	2	5
40.0 & over	4	2
Total	47	40
Arith. Average	27.3%	28.8%
Median	25.5	27.6
	-Percentage of Companies Included-	
Less than 20.0%	11%	10%
20.0 - 24.9	38	18
25.0 - 29.9	23	40
30.0 - 34.9	15	15
35.0 - 39.9	4	12
40.0 & over	9	5
Total	100%	100%
	Cumulative Percentage ----of Companies Included-----	
Less than 20.0%	11%	10%
Less than 25.0	49	28
Less than 30.0	72	68
Less than 35.0	87	83
Less than 40.0	91	95
Less than 40.0 & over	100	100

Source: Basic data from Standard & Poor's Compustat tape.

TABLE 18

PERCENTAGE INCREASE IN NUMBER OF
RESIDENTIAL ELECTRIC CUSTOMERS, 1960-1966

Percentage Increase	Straight Electric	Combination Companies
	-Number of Companies Included-	
Less than 5.0%	4	3
5.0 - 9.9	8	10
10.0 - 14.9	11	9
15.0 - 19.9	12	7
20.0 - 24.9	4	7
25.0 - 29.9	3	1
30.0 & over	5	3
Total	47	40
Arith. Average	18.8%	15.7%
Median	16.2	13.5
	-Percentage of Companies Included-	
Less than 5.0%	9%	8%
5.0 - 9.9	17	25
10.0 - 14.9	23	22
15.0 - 19.9	25	18
20.0 - 24.9	9	17
25.0 - 29.9	6	2
30.0 & over	11	8
Total	100%	100%
	Cumulative Percentage ----of Companies Included----	
Less than 5.0%	9%	8%
Less than 10.0	26	33
Less than 15.0	49	55
Less than 20.0	74	73
Less than 25.0	83	90
Less than 30.0	89	92
Less than 30.0 & over	100	100

Source: Basic data from Moody's Public Utilities Manual.

TABLE 19

RESIDENTIAL GAS SALES: (1) AVERAGE USE PER CUSTOMER, 1966 AND (2) GROWTH RATE IN AVERAGE USE PER CUSTOMER, 1961-1966

Gas Sales per Residential Customer, 1966			5-Year Growth Rate in Sales per Residential Customer, 1961-1966		
Mcf per Customer	Combination Companies	Straight Gas	Growth Rate (Per Cent)	Combination Companies	Straight Gas
Number of Companies Included					
Less than 60 Mcf	1	1	Less than 1.0%	11	3
60 - 79	8	2	1.0 - 1.9	7	2
80 - 99	7	4	2.0 - 2.9	5	3
100 - 119	1	1	3.0 - 3.9	7	0
120 - 139	7	2	4.0 - 4.9	2	1
140 - 159	6	1	5.0 - 5.9	5	3
160 & over	10	2	6.0 & over	3	1
Total	40	13		40	13
Arith. Average	121 Mcf	108 Mcf	Arith. Average	2.8%	2.8%
Median	130	99	Median	2.2	2.6
Percentage of Companies Included					
Less than 60 Mcf	2%	8%	Less than 1.0%	27%	23%
60 - 79	20	15	1.0 - 1.9	18	15
80 - 99	18	31	2.0 - 2.9	12	23
100 - 119	2	8	3.0 - 3.9	18	0
120 - 139	18	15	4.0 - 4.9	5	8
140 - 159	15	8	5.0 - 5.9	12	23
160 & over	25	15	6.0 & over	8	8
Total	100%	100%	Total	100%	100%
Cumulative Percentage of Companies Included					
Less than 60 Mcf	2%	8%	Less than 1.0%	27%	23%
Less than 80	22	23	Less than 2.0	45	38
Less than 100	40	54	Less than 3.0	57	61
Less than 120	42	62	Less than 4.0	75	61
Less than 140	60	77	Less than 5.0	80	69
Less than 160	75	85	Less than 6.0	92	92
Less than 160 & over	100	100	Less than 6.0 & over	100	100

Source: Basic data from Standard & Poor's Compustat tape, Moody's Public Utilities Manual, and Brown's Directory of North American Gas Companies.

TABLE 20

RESIDENTIAL GAS SALES (MCF) AS PER CENT OF TOTAL GAS SALES, 1966

Per Cent	Combination Companies	Straight Gas
	-Number of Companies Included-	
Less than 20.0%	1	1
20.0 - 29.9	5	0
30.0 - 39.9	4	2
40.0 - 49.9	12	4
50.0 - 59.9	10	3
60.0 - 69.9	8	3
Total	40	13
Arith. Average	46.7%	48.7%
Median	48.2	47.4
	-Percentage of Companies Included-	
Less than 20.0%	2%	8%
20.0 - 29.9	12	0
30.0 - 39.9	10	15
40.0 - 49.9	31	31
50.0 - 59.9	25	23
60.0 - 69.9	20	23
Total	100%	100%
	Cumulative Percentage ----of Companies Included----	
Less than 20.0%	2%	8%
Less than 30.0	14	8
Less than 40.0	24	23
Less than 50.0	55	54
Less than 60.0	80	77
Less than 70.0	100	100

Source: Basic data from Standard & Poor's Compustat tape, Moody's Public Utilities Manual, and Brown's Directory of North American Gas Companies.

TABLE 21

PERCENTAGE INCREASE IN NUMBER OF RESIDENTIAL GAS CUSTOMERS, 1960-1966

Percentage Increase	Combination Companies	Straight Gas
	-Number of Companies Included-	
Less than 5.0%	5	2
5.0 - 9.9	4	1
10.0 - 14.9	6	3
15.0 - 19.9	5	1
20.0 - 24.9	6	0
25.0 - 29.9	4	1
30.0 & over	10	5
Total	40	13
Arith. Average	27.2%	23.3%
Median	19.7	19.0
	-Percentage of Companies Included-	
Less than 5.0%	12%	15%
5.0 - 9.9	10	8
10.0 - 14.9	15	23
15.0 - 19.9	13	8
20.0 - 24.9	15	0
25.0 - 29.9	10	8
30.0 & over	25	38
Total	100%	100%
	Cumulative Percentage ----of Companies Included----	
Less than 5.0%	12%	15%
Less than 10.0	22	23
Less than 15.0	37	46
Less than 20.0	50	54
Less than 25.0	65	54
Less than 30.0	75	62
Less than 30.0 & over	100	100

Source: Basic data from Moody's Public Utilities Manual.

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TABLE 22

EMPLOYEES PER MILLION DOLLARS OF REVENUES, 1966

Employees per $1 Million Revenues	Straight Electric	Combination Companies	Straight Gas
	-----Number of Companies Included-----		
Less than 20.0	5	7	2
20.0 - 24.9	21	16	4
25.0 - 29.9	16	14	6
30.0 - 34.9	3	2	1
35.0 & over	2	1	0
Total	47	40	13
Arith. Average	25.3	24.5	24.7
Median	23.8	24.7	25.5
	----Percentage of Companies Included---		
Less than 20.0	11%	18%	15%
20.0 - 24.9	45	40	31
25.0 - 29.9	34	35	46
30.0 - 34.9	6	5	8
35.0 & over	4	2	0
Total	100%	100%	100%
	-Cumulative Percentage of Companies Included-		
Less than 20.0	11%	18%	15%
Less than 25.0	56	58	46
Less than 30.0	90	93	92
Less than 35.0	96	98	100
Less than 35.0 & over	100	100	100

Source: Basic data from Moody's Public Utilities Manual.

TABLE 23

ELECTRIC LOAD FACTOR, 1966

Per Cent	Straight Electric	Combination Companies
	-Number of Companies Included-	
Less than 50.0%	3	2
50.0 - 54.9	5	7
55.0 - 59.9	14	14
60.0 - 64.9	11	8
65.0 - 69.9	13	8
70.0 & over	1	1
Total	47	40
Arith. Average	60.2%	59.4%
Median	60.0	58.7
	-Percentage of Companies Included-	
Less than 50.0%	6%	5%
50.0 - 54.9	11	18
55.0 - 59.9	30	35
60.0 - 64.9	23	20
65.0 - 69.9	28	20
70.0 & over	2	2
Total	100%	100%
	Cumulative Percentage ----of Companies Included----	
Less than 50.0%	6%	5%
Less than 55.0	17	23
Less than 60.0	47	58
Less than 65.0	70	78
Less than 70.0	98	98
Less than 70.0 & over	100	100

Source: Basic data from Moody's Public Utilities Manual, Studley Shupert Statistics, and McGraw-Hill, Directory of Electric Utilities.

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TABLE 24

HEAT RATE IN BTU'S PER KWH, 1966

Btu's/Kwh	Straight Electric	Combination Companies
	-Number of Companies Included-	
9,500 - 9,999	7	5
10,000 - 10,499	12	17
10,500 - 10,999	15	6
11,000 - 11,499	7	4
11,500 - 11,999	1	3
12,000 & over	2	4
Total	44 1/	39 2/
Arith. Average	10,774 Btu's	10,803 Btu's
Median	10,628	10,395
	-Percentage of Companies Included-	
9,500 - 9,999	16%	13%
10,000 - 10,499	27	44
10,500 - 10,999	34	15
11,000 - 11,499	16	10
11,500 - 11,999	2	8
12,000 & over	5	10
Total	100%	100%
	Cumulative Percentage ------of Companies Included------	
Less than 10,000	16%	13%
Less than 10,500	43	57
Less than 11,000	77	72
Less than 11,500	93	82
Less than 12,000	95	90
Less than 12,000 & over	100	100

1/ Data not available for Idaho Power, Pacific Power & Light, and United Illuminating.

2/ Data not available for Washington Water Power.

Source: Basic data from Moody's Public Utilities Manual, Studley Shupert Statistics, and McGraw-Hill, Directory of Electric Utilities.

TABLE 25

AVERAGE REVENUE FROM RESIDENTIAL SALES, 1/ 1966 AND AVERAGE CHARGE FOR ALL-ELECTRIC SERVICE AT ANNUAL CONSUMPTION OF 15,000 KWH, JANUARY 1, 1967

Average Revenue from Residential Sales, 1966			Charge for All-Electric Service, January 1, 1967		
Cents per Kwh	Straight Electric	Combination Companies	Cents per Kwh	Straight Electric	Combination Companies
	Number of Companies Included				
Less than 2.00¢	9	1	Less than 1.40¢	6	1
2.00 - 2.24	9	6	1.40 - 1.59	16	5
2.25 - 2.49	12	7	1.60 - 1.79	15	16
2.50 - 2.74	13	15	1.80 - 1.99	7	9
2.75 - 2.99	2	6	2.00 - 2.19	2	8
3.00 & over	2	5	2.20 & over	1	1
Total	47	40	Total	47	40
Arith. Average	2.31¢	2.58¢	Arith. Average	1.63¢	1.80¢
Median	2.40	2.60	Median	1.62	1.78
	Percentage of Companies Included				
Less than 2.00¢	20%	2%	Less than 1.40¢	13%	3%
2.00 - 2.24	19	15	1.40 - 1.59	34	12
2.25 - 2.49	26	18	1.60 - 1.79	32	40
2.50 - 2.74	27	38	1.80 - 1.99	15	22
2.75 - 2.99	4	15	2.00 - 2.19	4	20
3.00 & over	4	12	2.20 & over	2	3
Total	100%	100%	Total	100%	100%
	Cumulative Percentage of Companies Included				
Less than 2.00¢	20%	2%	Less than 1.40¢	13%	3%
Less than 2.25	39	17	Less than 1.60	47	15
Less than 2.50	65	35	Less than 1.80	79	55
Less than 2.75	92	73	Less than 2.00	94	77
Less than 3.00	96	88	Less than 2.20	98	97
Less than 3.00 & over	100	100	Less than 2.20 & over	100	100

1/ Total residential revenues divided by total residential consumption.

Source: Basic data from Moody's Public Utilities Manual and Federal Power Commission, All Electric Homes in the United States, Annual Bills - January 1, 1967.

TABLE 26

AVERAGE REVENUE PER THERM: SALES TO RESIDENTIAL GAS HEATING CUSTOMERS, 1966

Cents Per Therm	Combination Companies	Straight Gas
	-Number of Companies Included-	
Less than 7.0¢	2	1
7.0 - 8.9	9	1
9.0 - 10.9	12	4
11.0 - 12.9	3	1
13.0 - 14.9	5	2
15.0 & over	7	4
Total	38	13
Arith. Average	11.3¢	12.0¢
Median	10.6	11.0
	-Percentage of Companies Included-	
Less than 7.0¢	5%	8%
7.0 - 8.9	24	7
9.0 - 10.9	32	31
11.0 - 12.9	8	8
13.0 - 14.9	13	15
15.0 & over	18	31
Total	100%	100%
	Cumulative Percentage ----of Companies Included----	
Less than 7¢	5%	8%
Less than 9	29	15
Less than 11	61	46
Less than 13	69	54
Less than 15	82	69
Total	100	100

Source: Basic data from Uniform Statistical Reports.

TABLE 27

GAS LOAD FACTOR, 1966

Load Factor (Per Cent)	Combination Companies	Straight Gas
	-Number of Companies Included-	
Less than 40%	6	2
40 - 44	11	6
45 - 49	9	3
50 - 54	4	1
55 - 59	1	0
60 & over	5	1
Total	36	13
Arith. Average	47%	45%
Median	45	44
	-Percentage of Companies Included-	
Less than 40%	17%	15%
40 - 44	30	46
45 - 49	25	23
50 - 54	11	8
55 - 59	3	0
60 & over	14	8
Total	100%	100%
	Cumulative Percentage ----of Companies Included----	
Less than 40%	17%	15%
Less than 45	47	61
Less than 50	72	84
Less than 55	83	92
Less than 60	86	92
Total	100	100

Source: Basic data from Uniform Statistical Reports.

GROWTH RATE IN EARNINGS PER SHARE

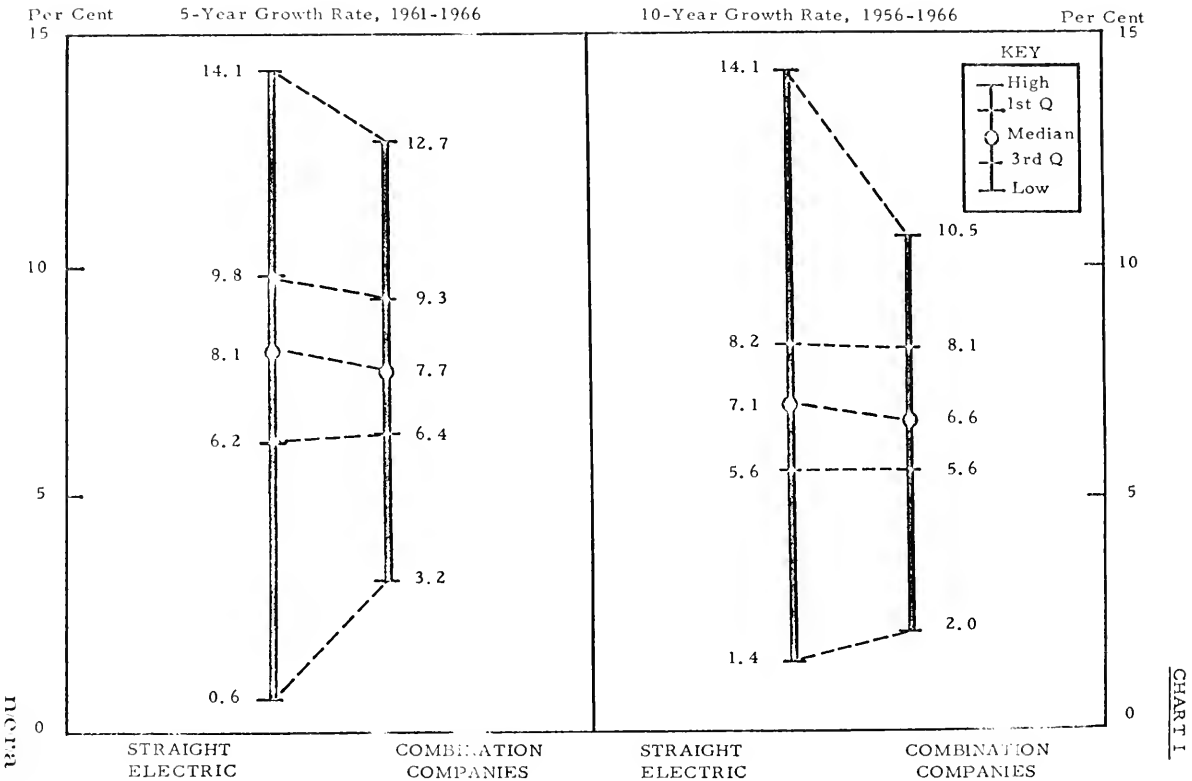


CHART 1

GROWTH RATE IN EARNINGS PER SHARE

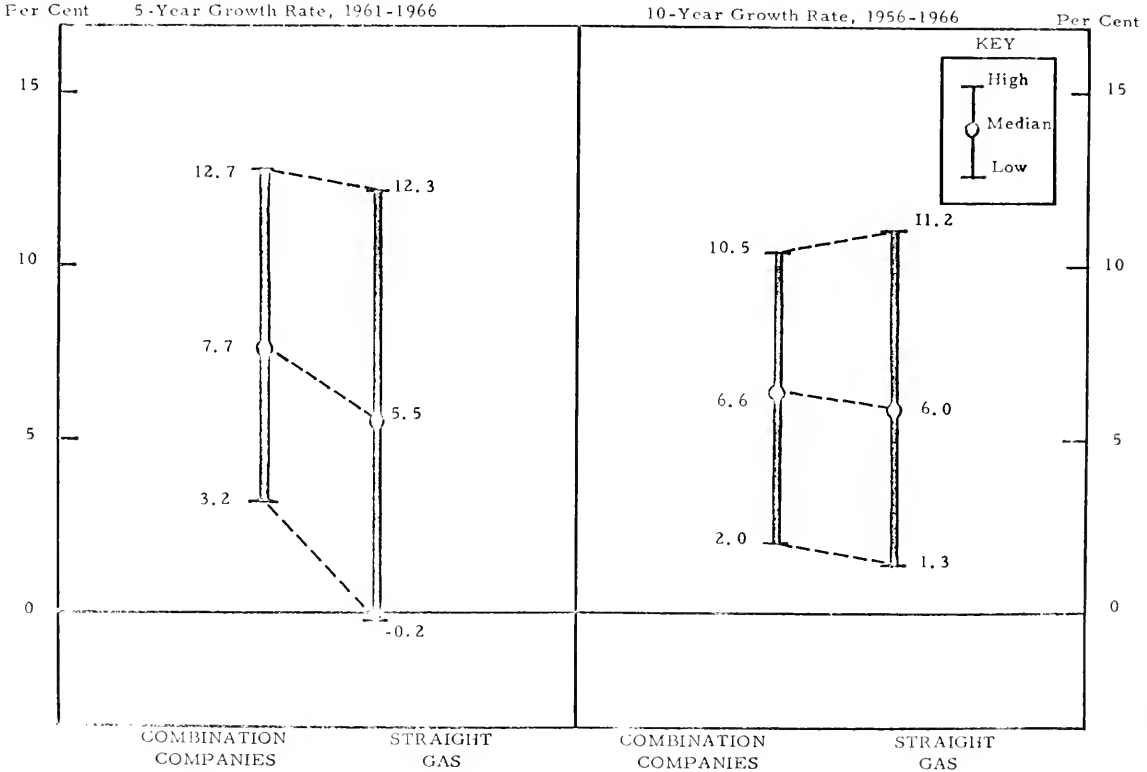


CHART 2

RATE OF RETURN ON INVESTED CAPITAL

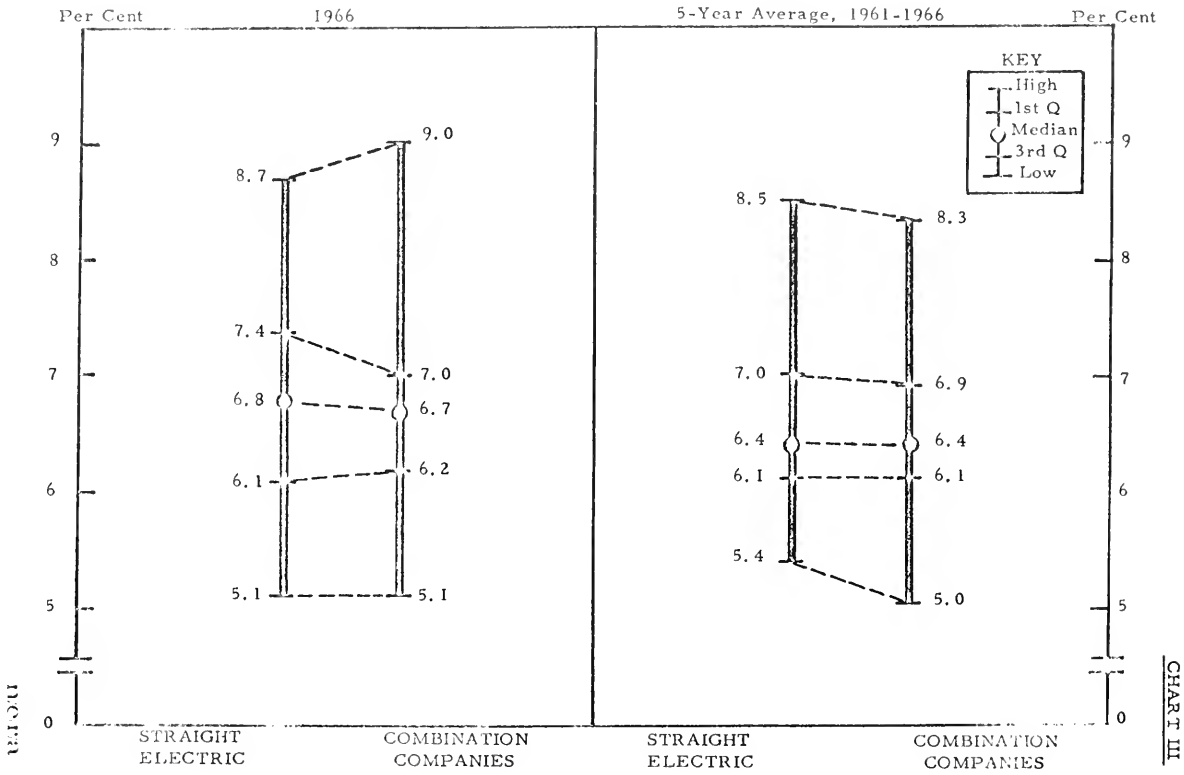


CHART III

CHART IV

RATE OF RETURN ON INVESTED CAPITAL

RATE OF RETURN ON COMMON EQUITY

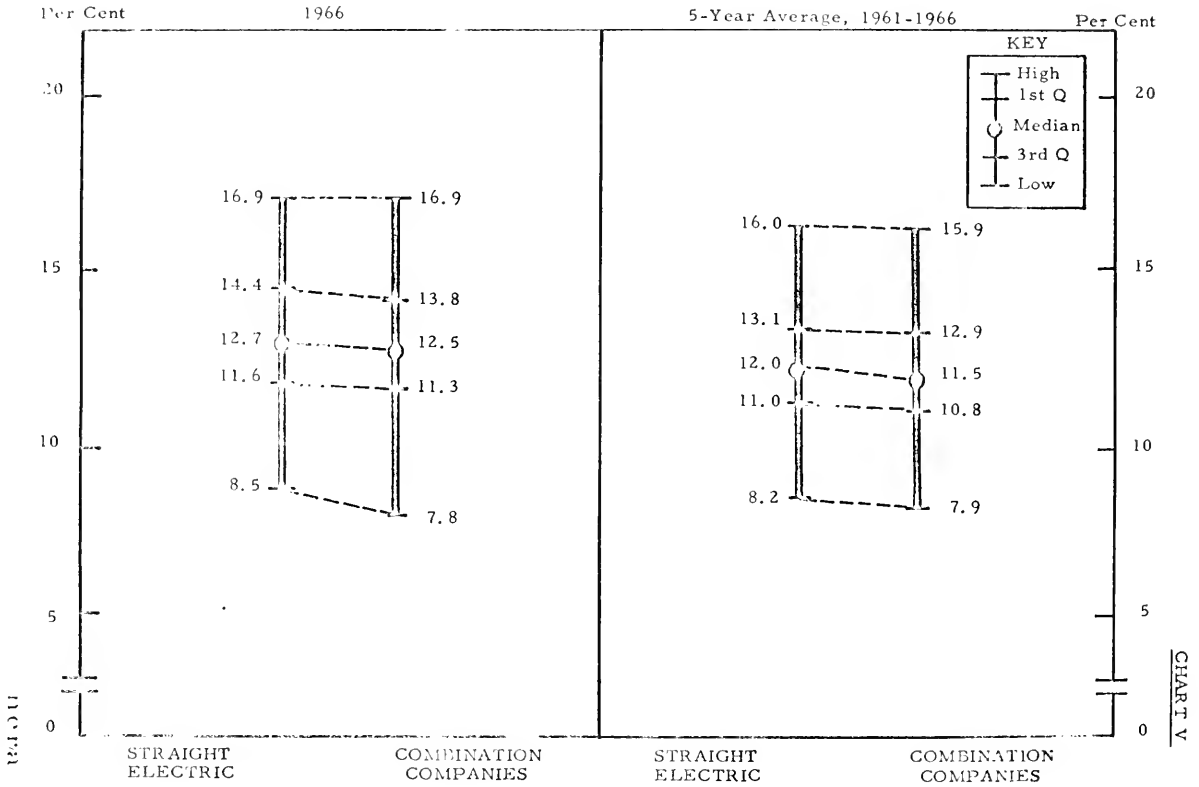


CHART V

CHART VI

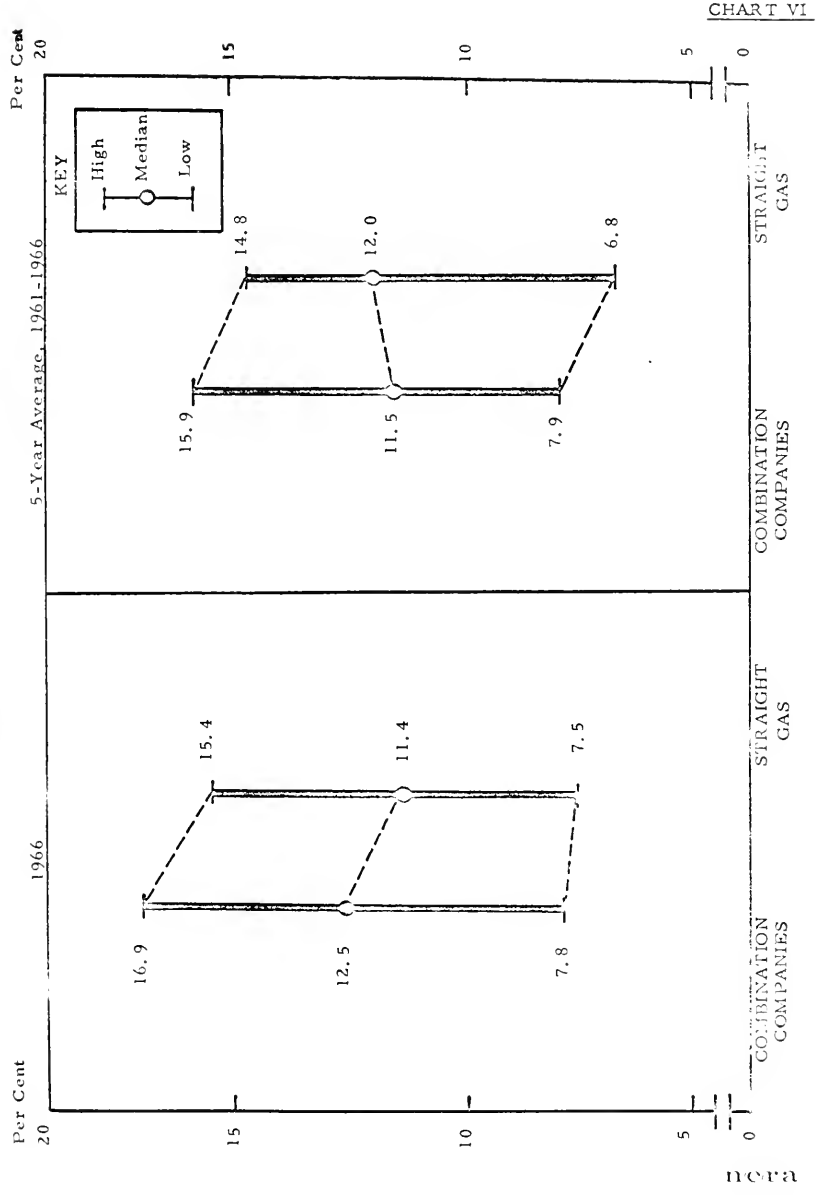
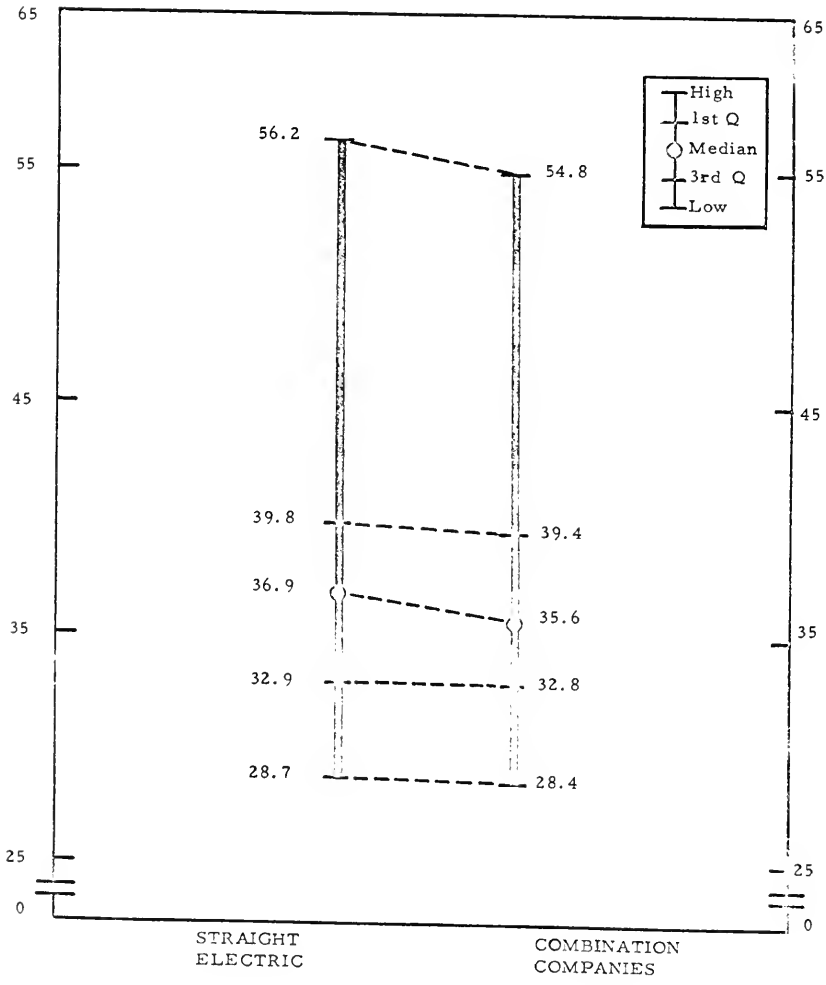

RATE OF RETURN ON COMMON EQUITY
Per Cent
20
15
10
5
0
1966
16.9
15.4
12.5
11.4
7.8
7.5
COMBINATION COMPANIES
STRAIGHT GAS
5-Year Average, 1961-1966
KEY
High
Median
Low
15.9
14.8
11.5
12.0
7.9
6.8
COMBINATION COMPANIES
STRAIGHT GAS
ncra

CHART VII

COMMON EQUITY AS A PER CENT OF TOTAL CAPITAL, 1966



n/c ra

CHART VIII

COMMON EQUITY AS PER CENT OF TOTAL CAPITAL, 1966

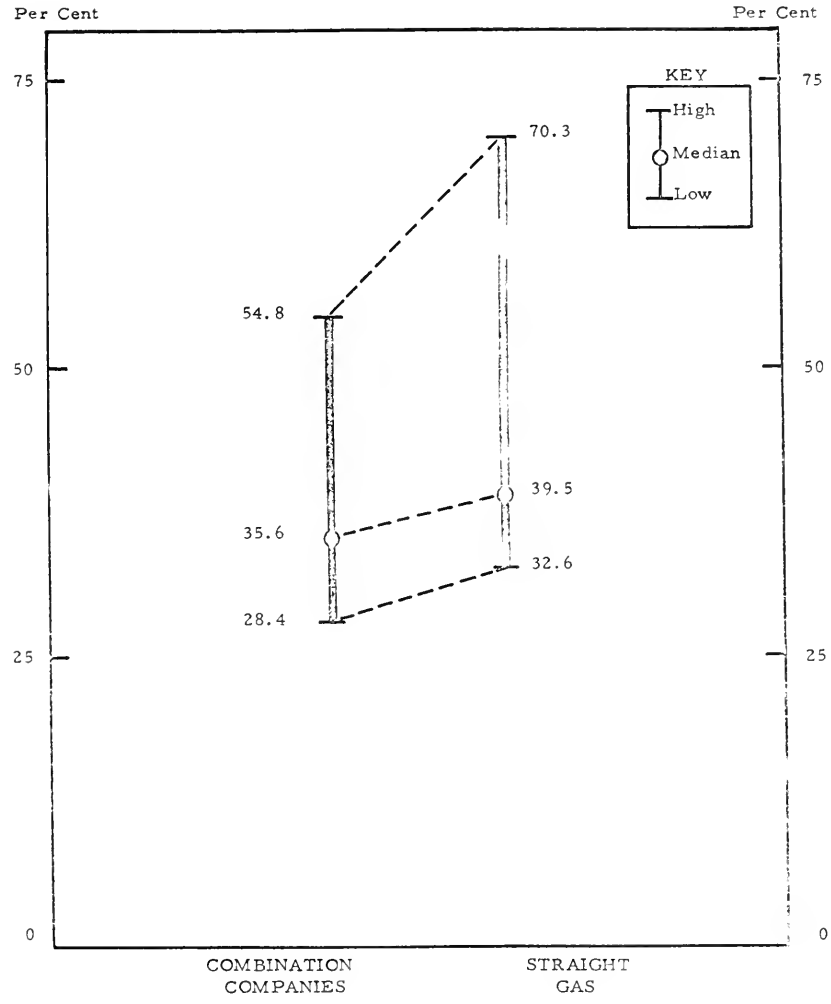
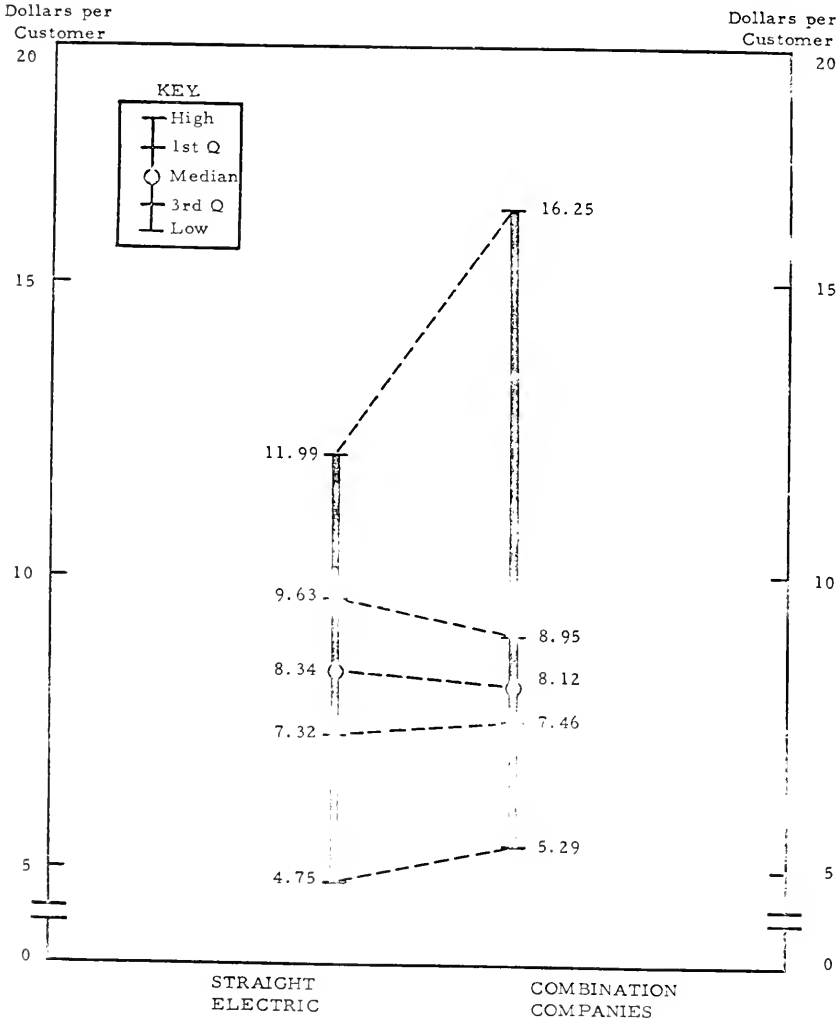


CHART IX

CUSTOMER ACCOUNTS EXPENSES PER
RESIDENTIAL ELECTRIC CUSTOMER, 1966



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X

CUSTOMER ACCOUNTS EXPENSES PER 1,000 KWH OF SALES, 1966

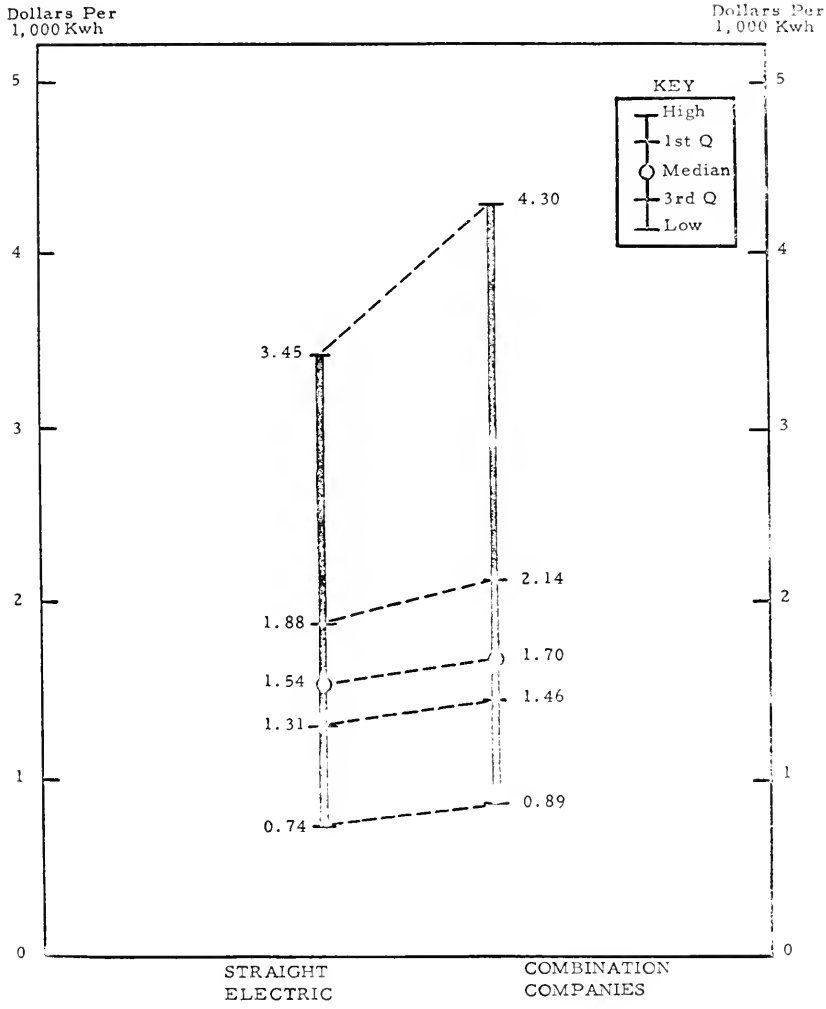

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CHART XI

ADMINISTRATIVE, GENERAL AND SALES EXPENSES
PER RESIDENTIAL ELECTRIC CUSTOMER, 1966

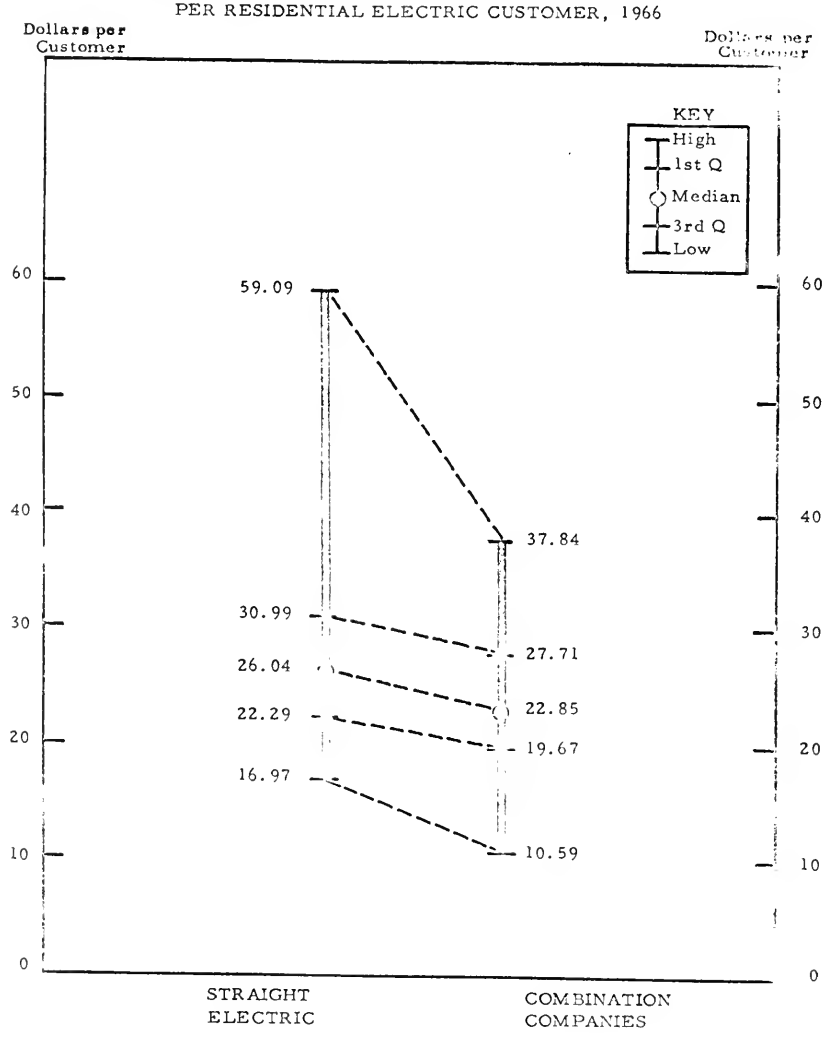


CHART XI

ADMINISTRATIVE, GENERAL AND SALES EXPENSES
PER 1,000 KWH OF SALES, 1966

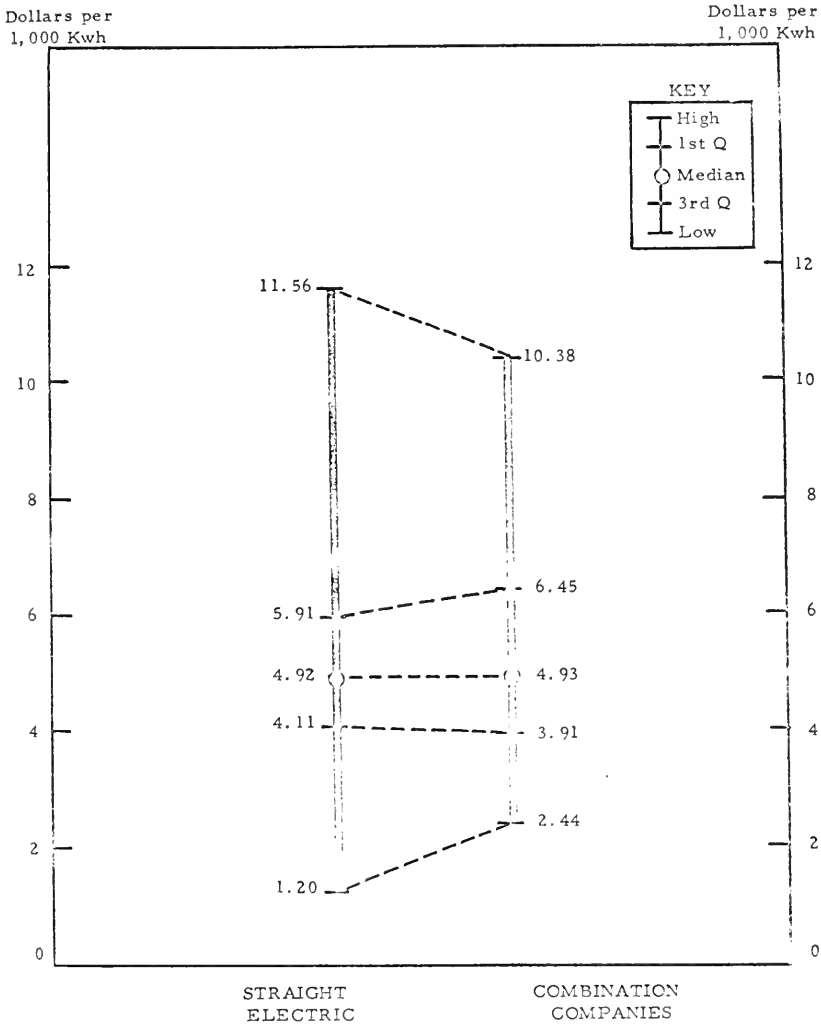


CHART XIII

OPERATING AND MAINTENANCE EXPENSES PER ELECTRIC CUSTOMER, 1966

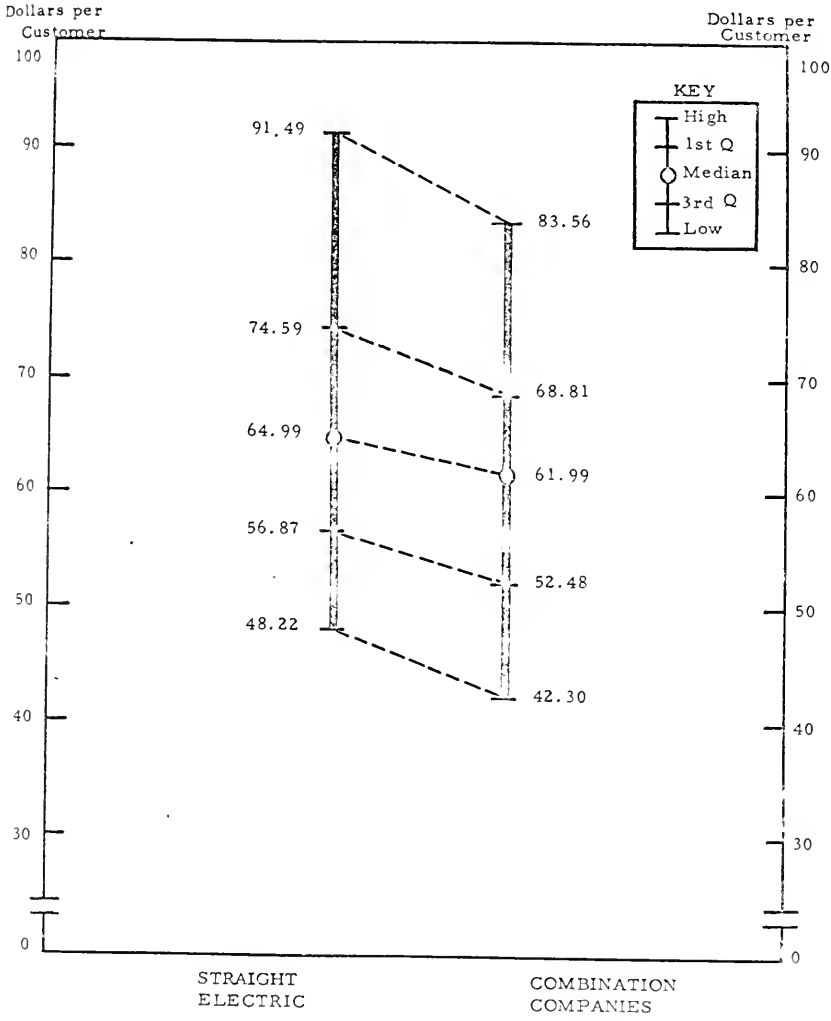


CHART XIV

OPERATING AND MAINTENANCE EXPENSES
PER 1,000 KWH GENERATED, 1966

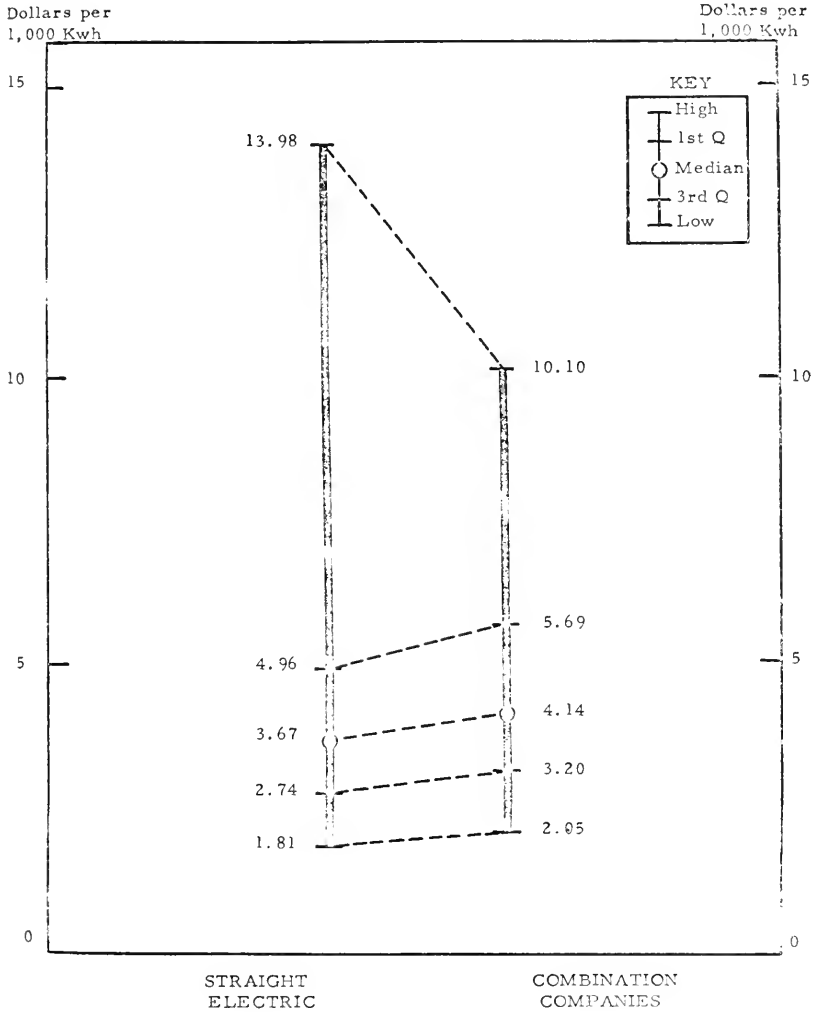
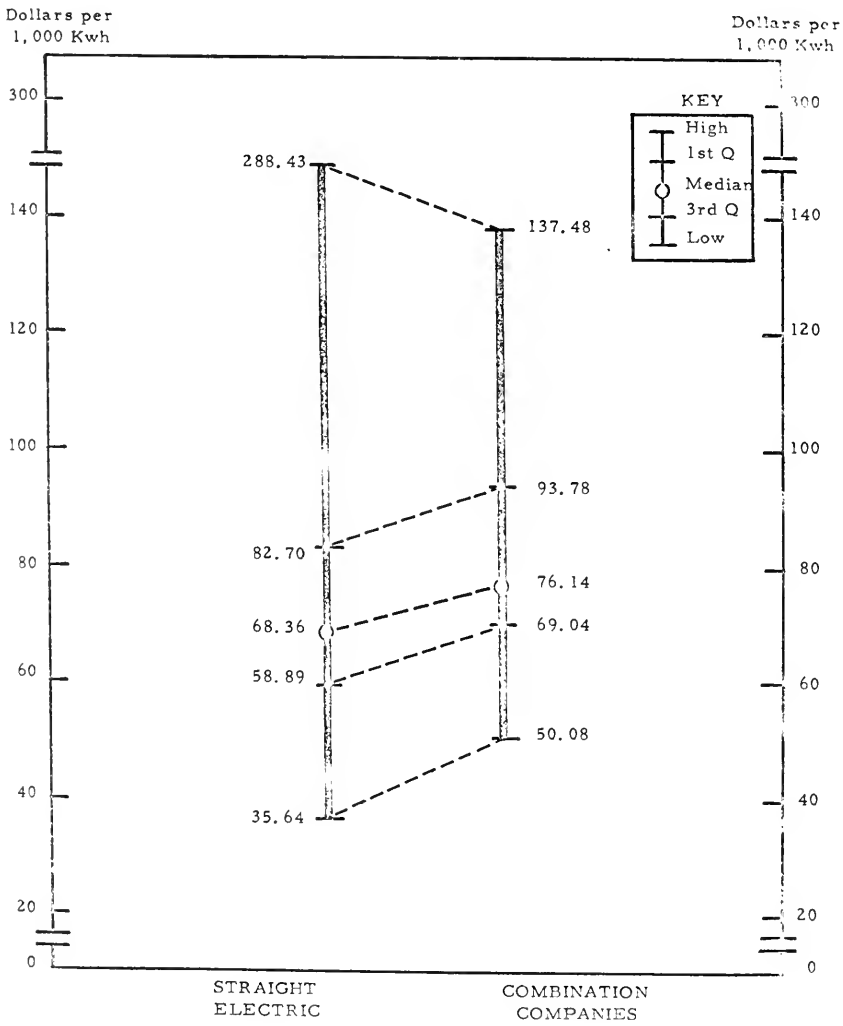


CHART XV

GROSS ELECTRIC PLANT PER 1,000 KWH GENERATED, 1966



CUSTOMER ACCOUNTS EXPENSES PER
(1) RESIDENTIAL GAS CUSTOMER AND
(2) 1,000 THERMS OF RESIDENTIAL SALES, 1966

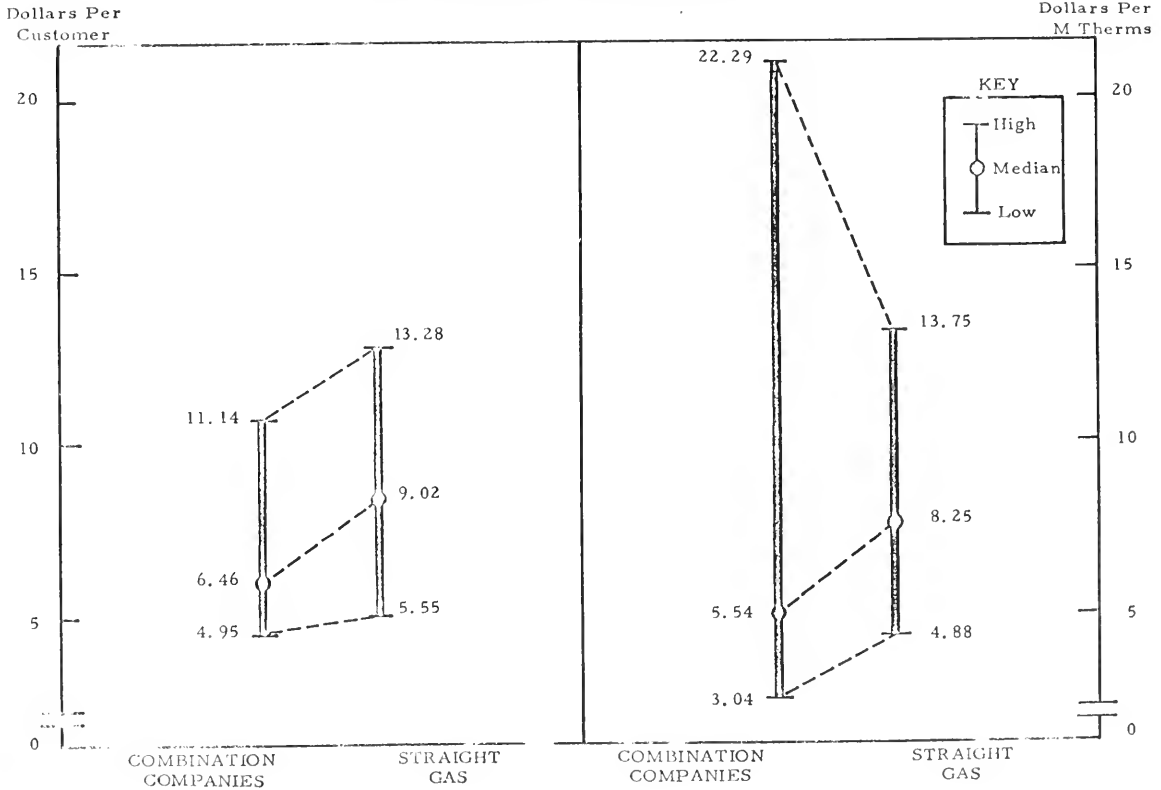


CHART XVI

ADMINISTRATIVE, GENERAL AND SALES EXPENSES PER
(1) RESIDENTIAL GAS CUSTOMER AND
(2) 1,000 THERMS OF RESIDENTIAL SALES, 1966

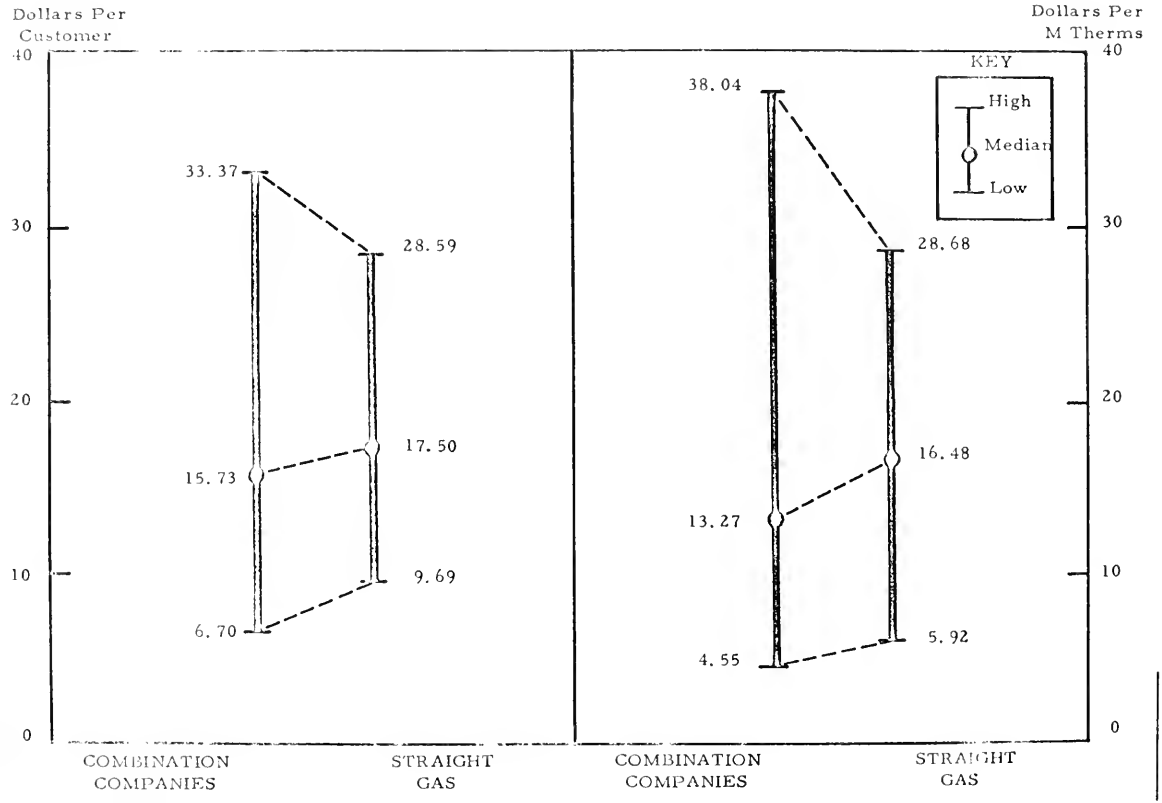


CHART XVII

CHART XVIII

OPERATING AND MAINTENANCE EXPENSES PER GAS CUSTOMER, 1966

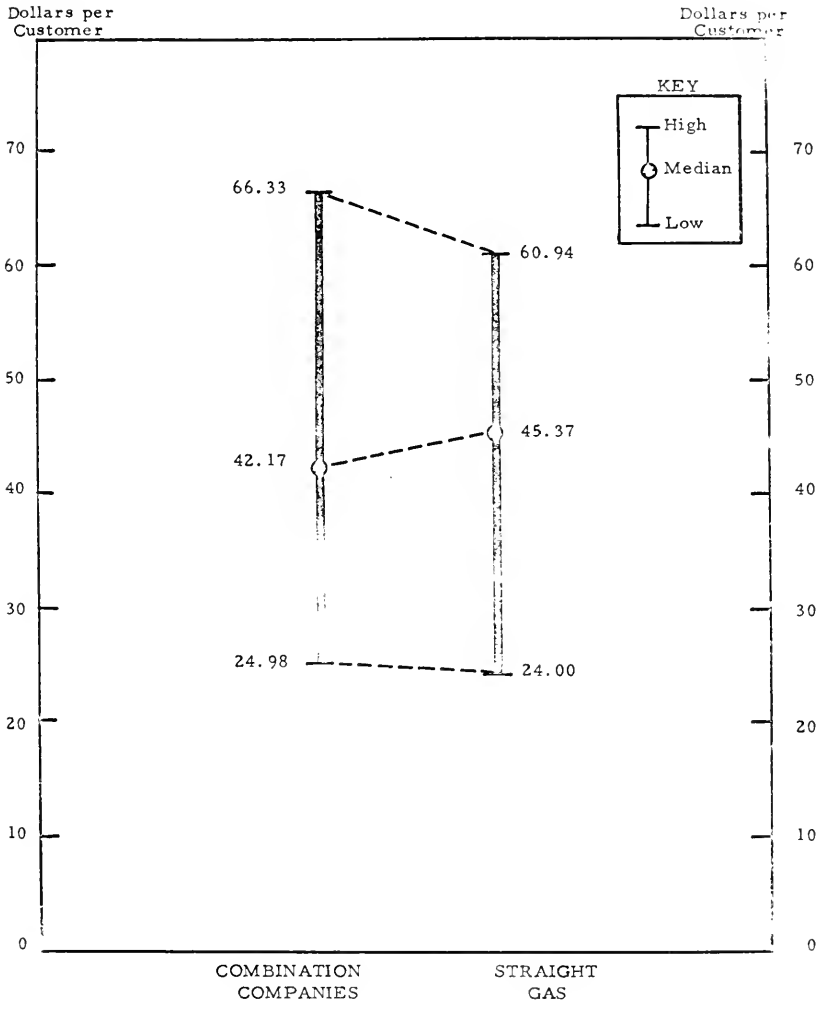


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CHART XIX

OPERATING AND MAINTENANCE EXPENSES PER
1,000 THERMS OF TOTAL SALES, 1966

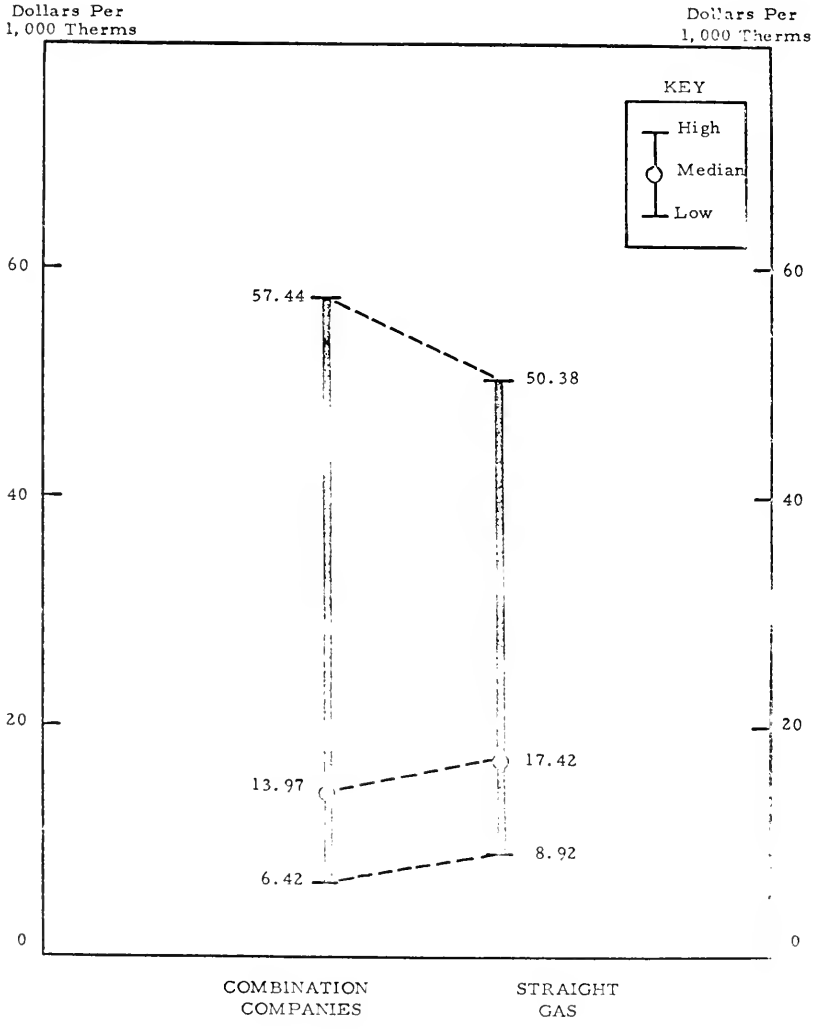

CHART XX

GROSS GAS PLANT PER
1,000 THERMS OF TOTAL SALES, 1966

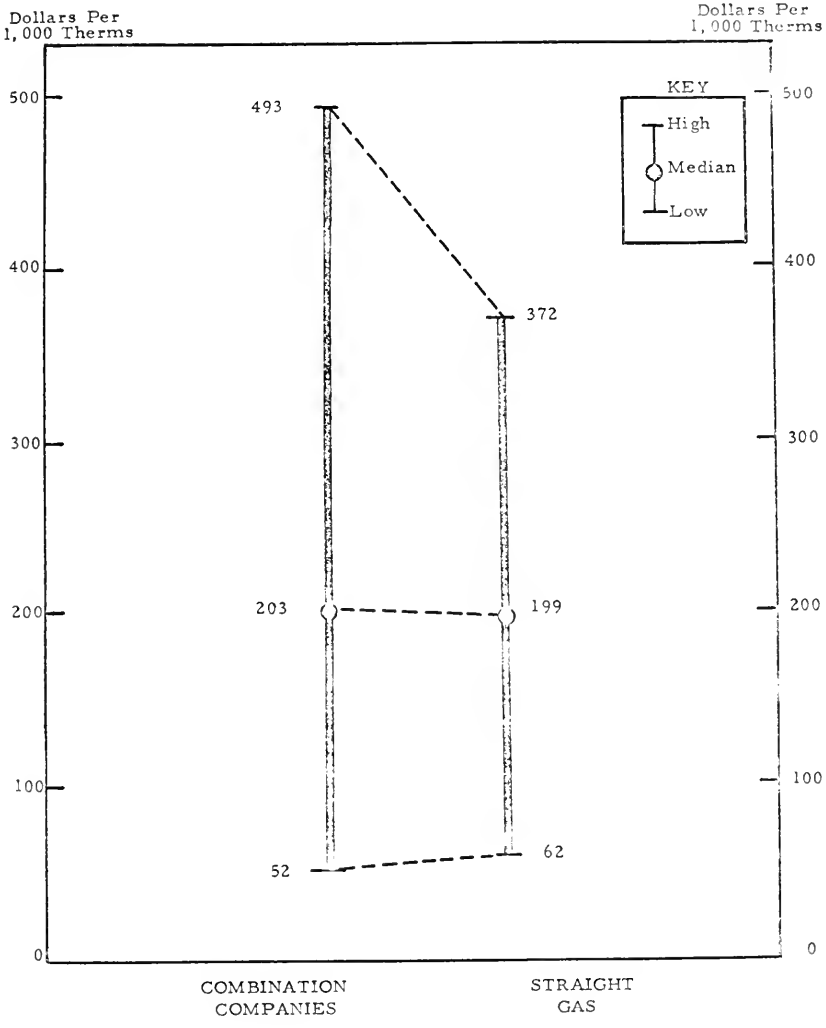

CHART XXI

KWH SALES PER RESIDENTIAL CUSTOMER, 1966

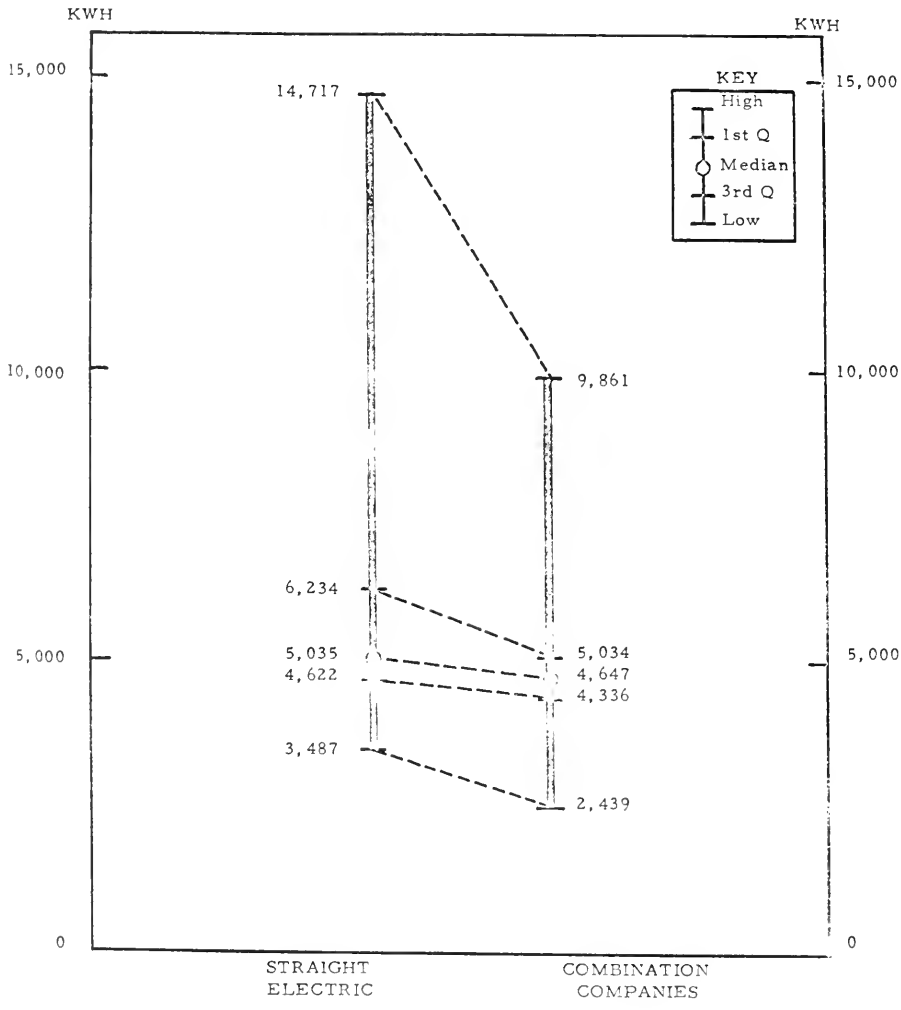

CHART XXII

5-YEAR GROWTH RATE IN KWH SALES
PER RESIDENTIAL CUSTOMER, 1961-1966

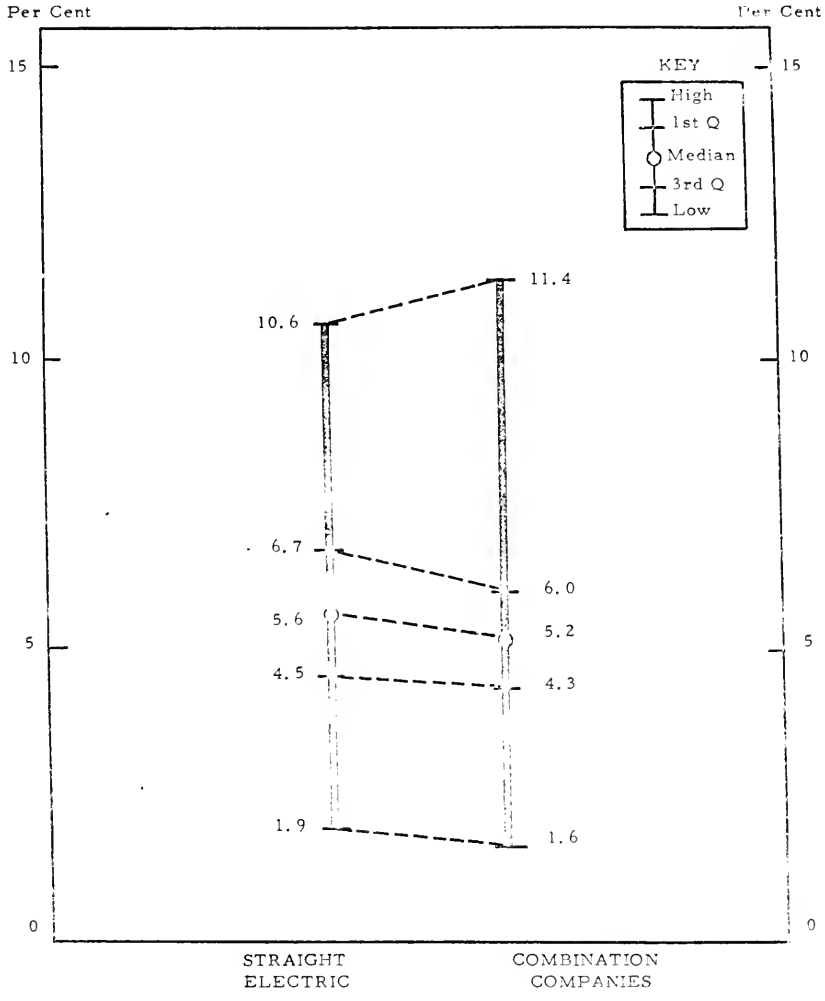

CHART XXIII

RESIDENTIAL SALES AS PER CENT OF TOTAL ELECTRIC SALES, 1966

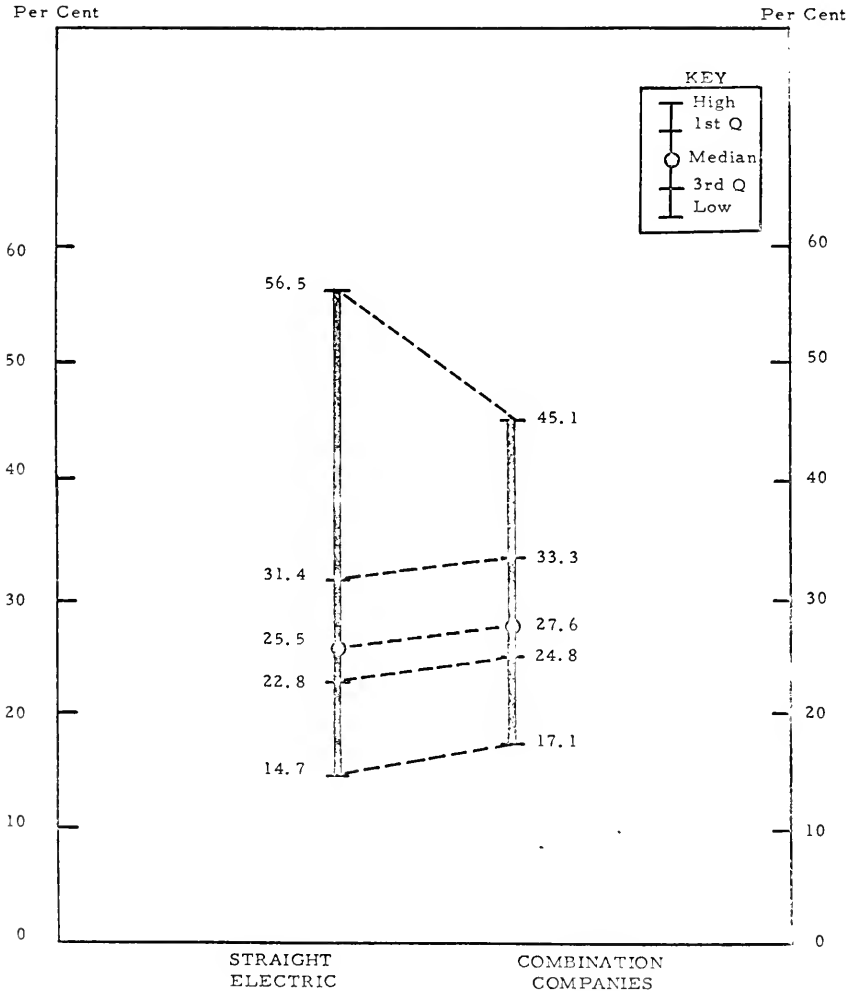

CHART XXIV

PERCENTAGE INCREASE IN NUMBER OF RESIDENTIAL ELECTRIC CUSTOMERS, 1960-1966

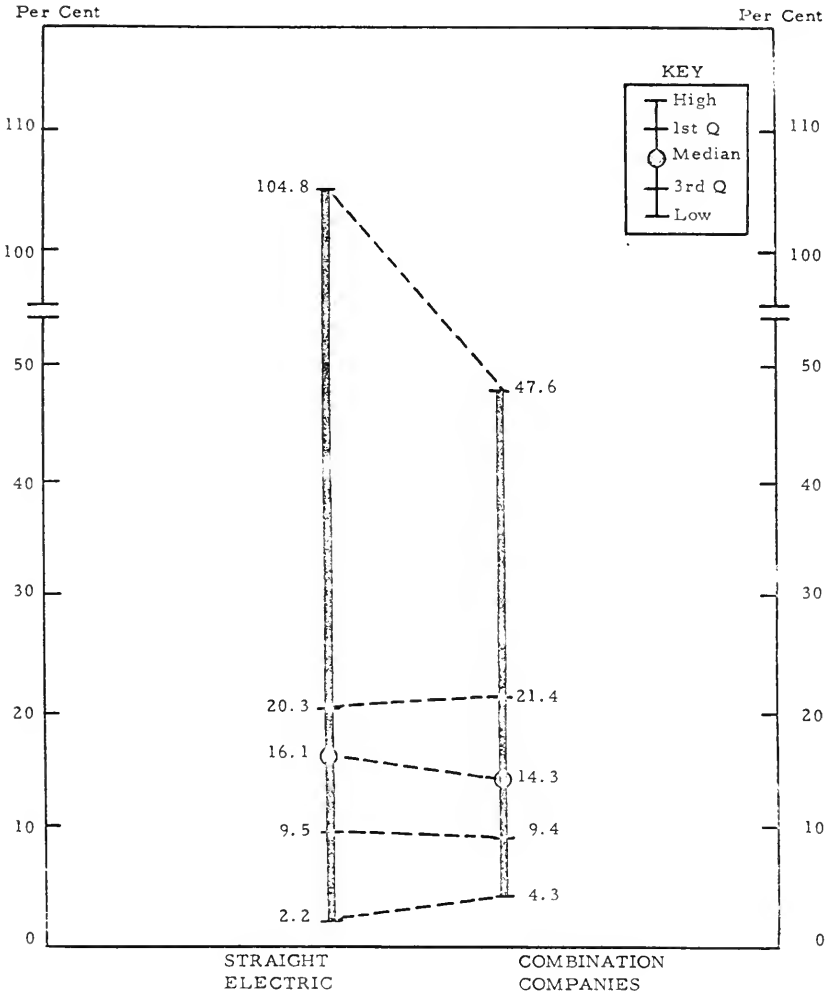

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CHART XXV

GAS SALES PER RESIDENTIAL CUSTOMER, 1966

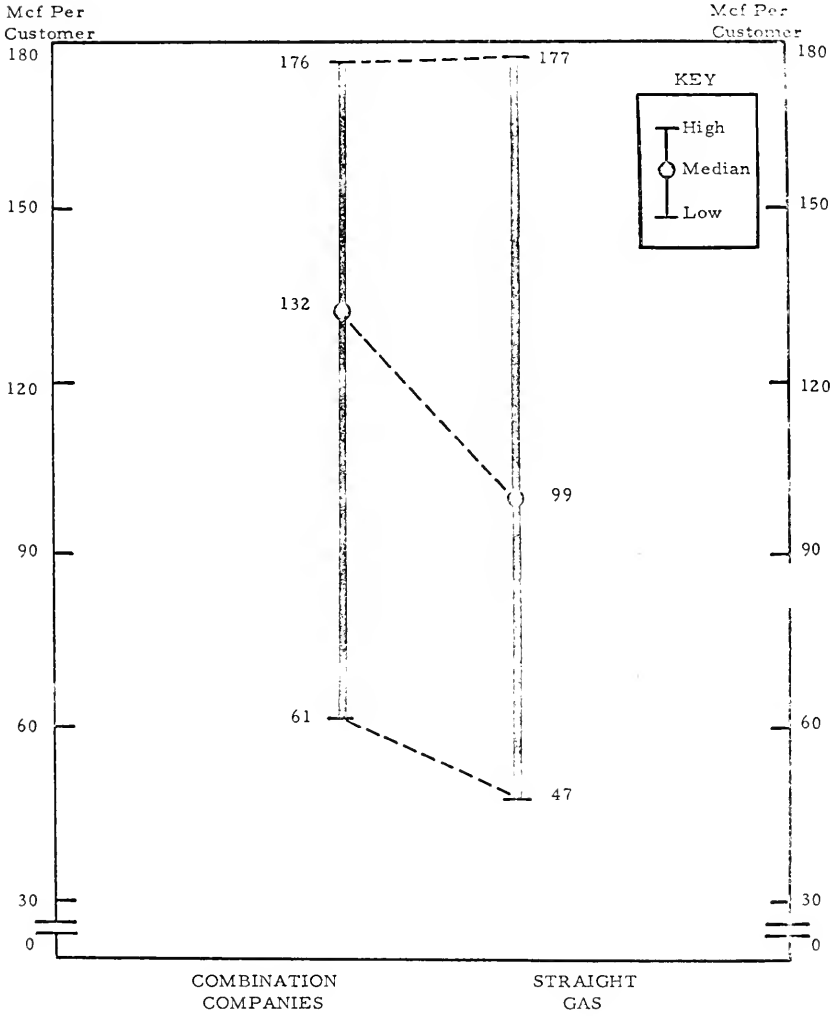

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CHART XXVI

GROWTH RATE IN GAS SALES PER RESIDENTIAL CUSTOMER, 1961-1966

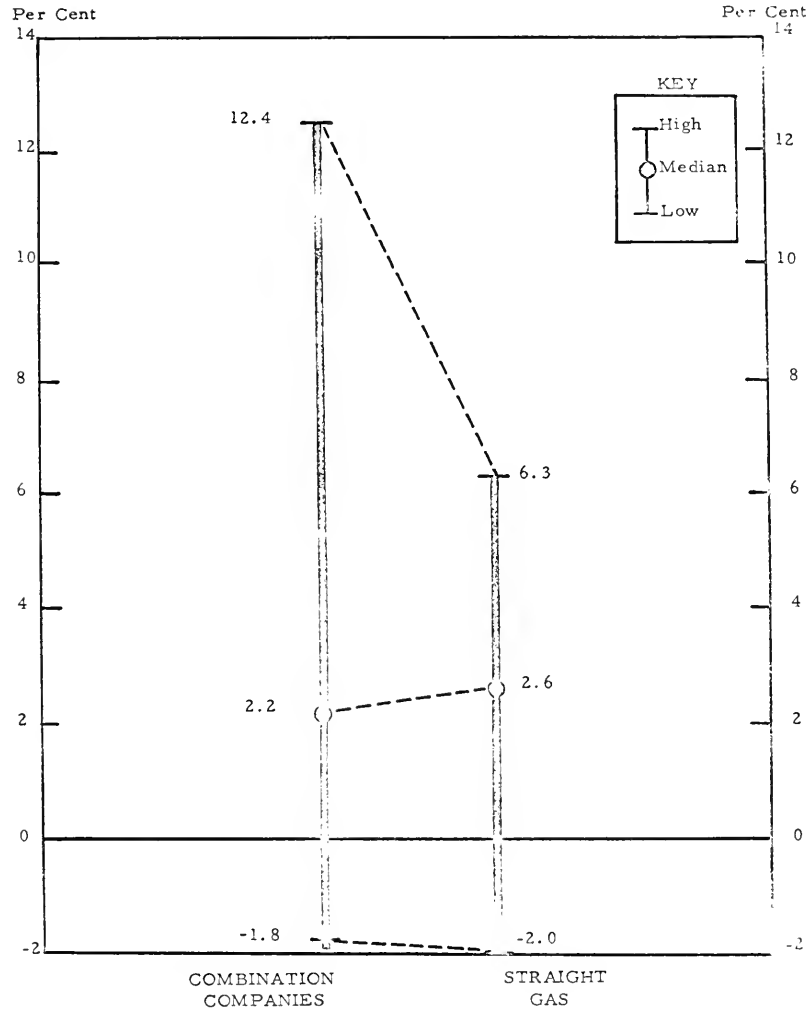

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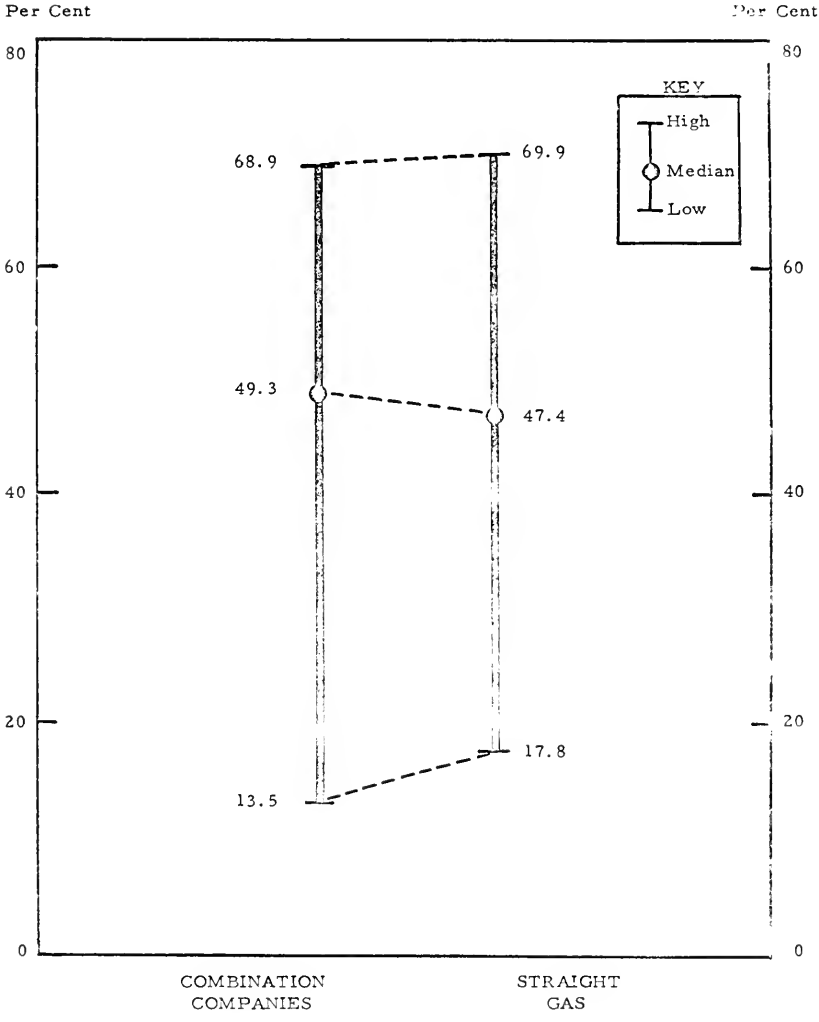
CHART XI

RESIDENTIAL SALES AS PER CENT OF
TOTAL GAS SALES, 1966



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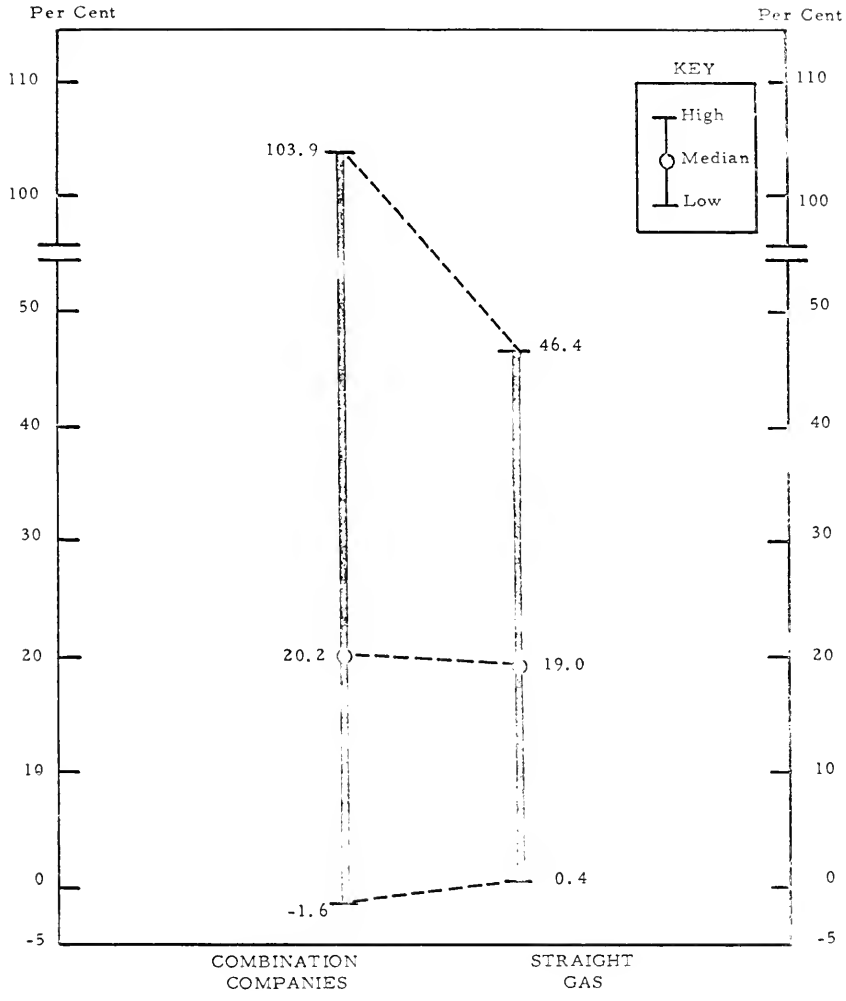
PERCENTAGE INCREASE IN NUMBER OF
RESIDENTIAL GAS CUSTOMERS, 1960-1966



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EMPLOYEES PER MILLION DOLLARS OF REVENUES, 1966

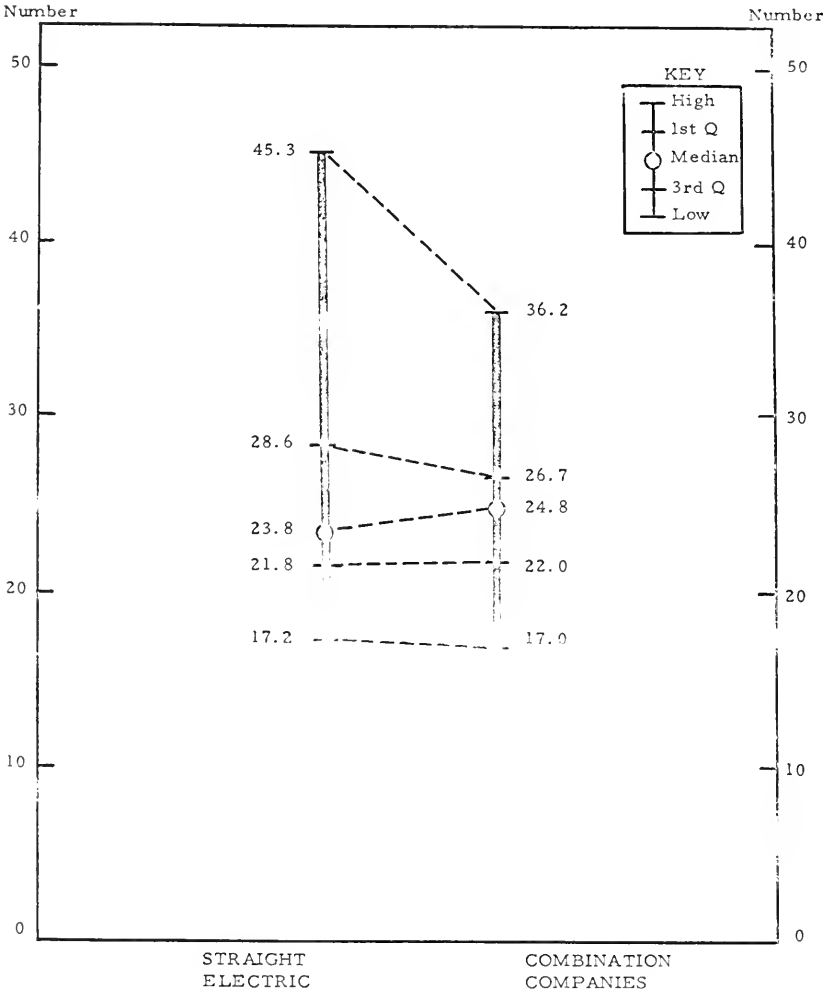

CHART XXX

EMPLOYEES PER MILLION DOLLARS OF REVENUES, 1966

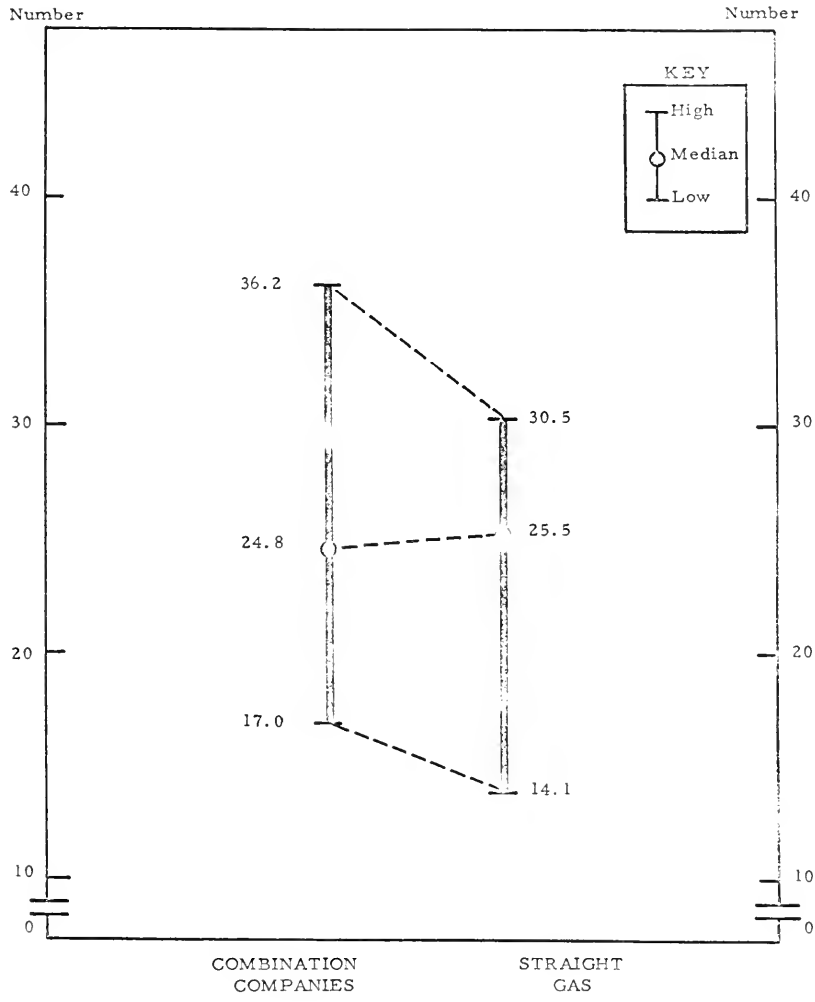

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CHART XXXI

ELECTRIC LOAD FACTOR, 1966

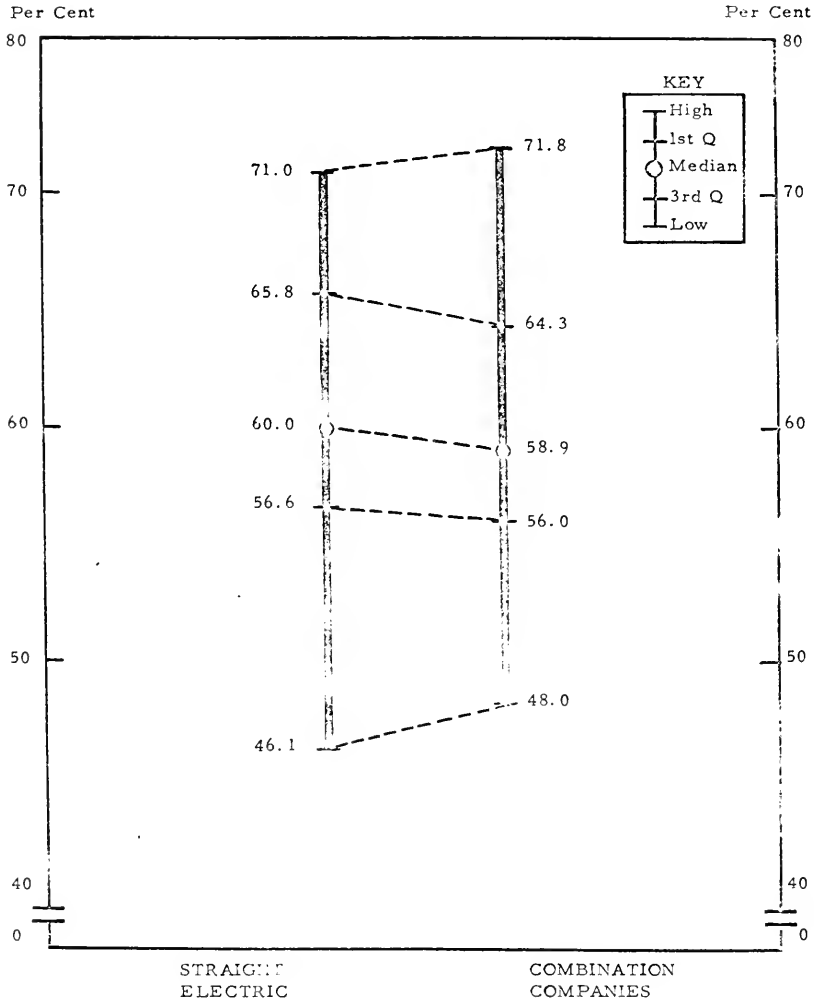

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CHART XXXII

HEAT RATE IN BTU'S PER KWH, 1966

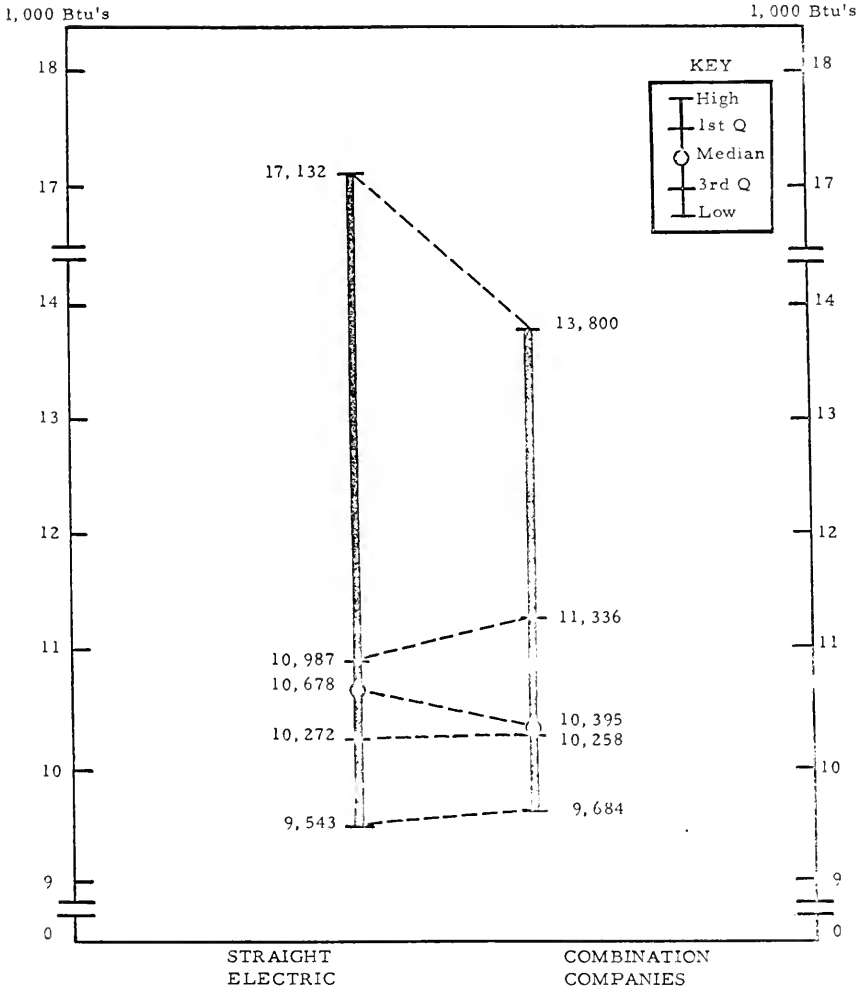

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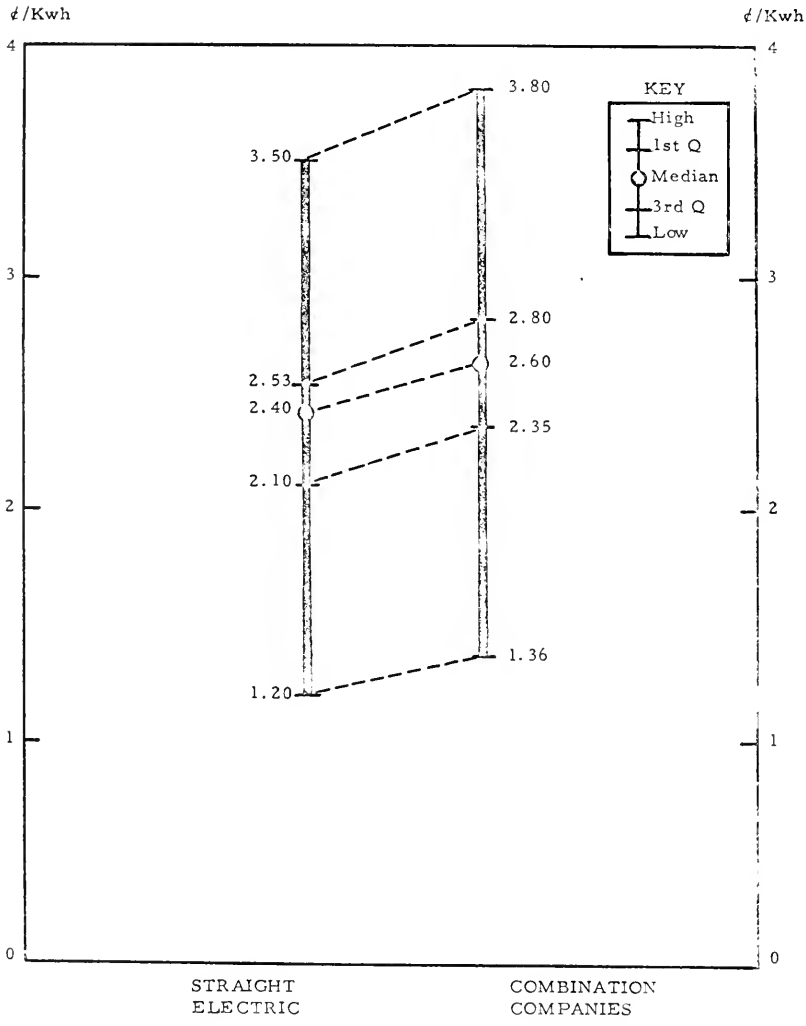
CHART XXXIII

AVERAGE REVENUE FROM
RESIDENTIAL ELECTRIC SALES, 1966



NCPA

AVERAGE CHARGE FOR ALL-ELECTRIC SERVICE
AT ANNUAL CONSUMPTION OF 15,000 KWH
January 1, 1967

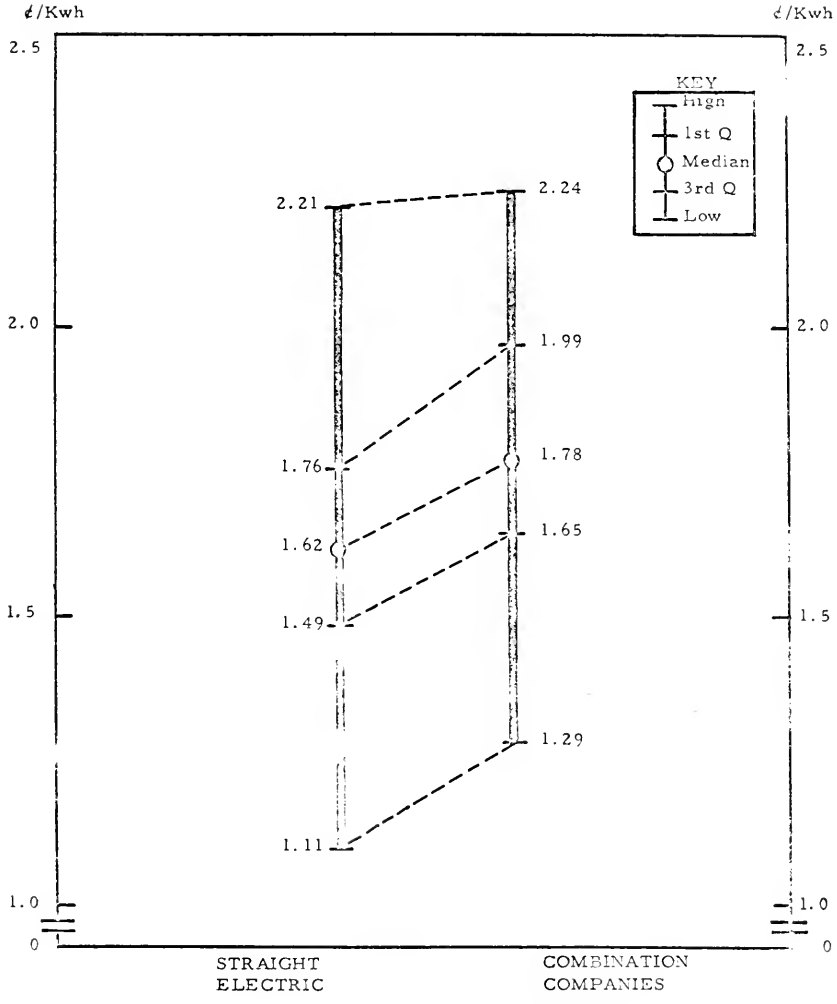
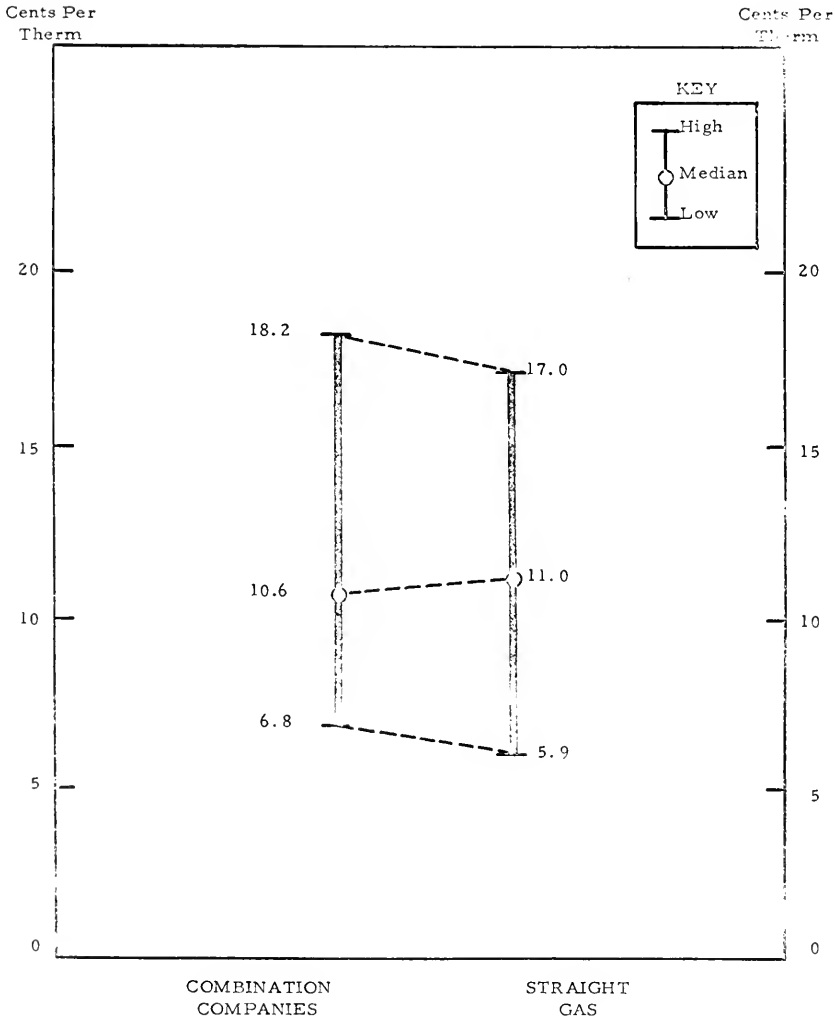


CHART XXXV

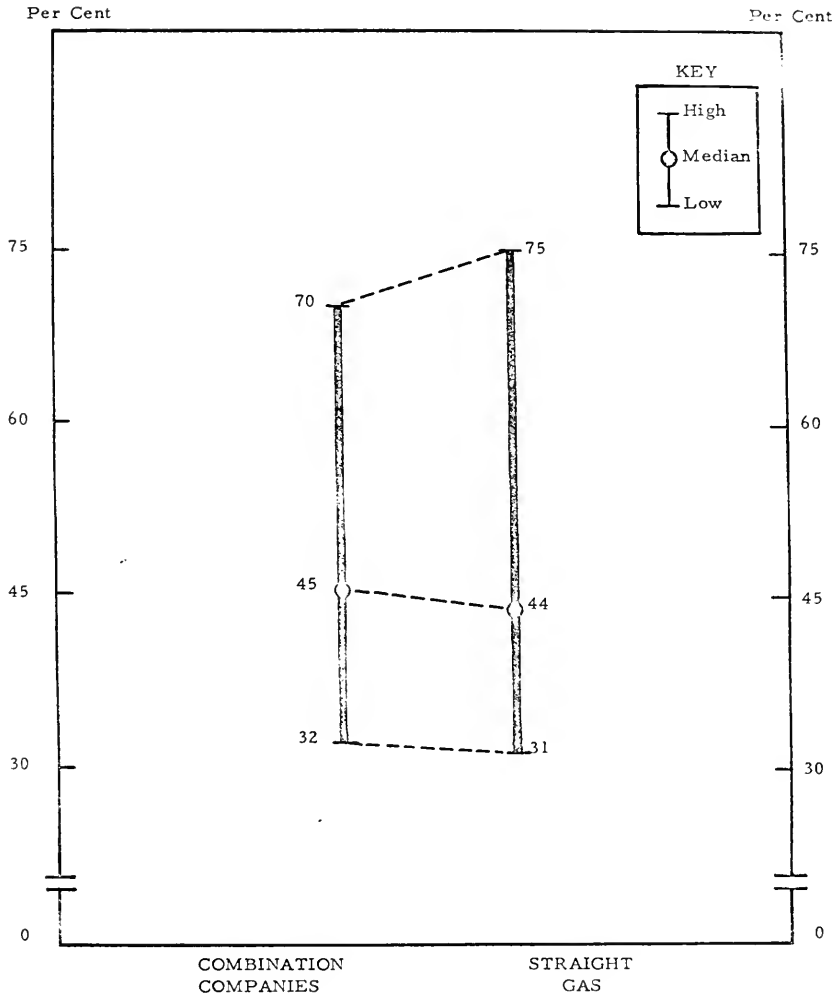
AVERAGE REVENUE FROM SALES TO RESIDENTIAL
GAS HEATING CUSTOMERS, 1966



NOTA

CHART XXXVI

GAS LOAD FACTOR, 1966



DCPA

PROHIBIT CERTAIN COMBINATIONS AND CONTROL BETWEEN ELECTRIC AND GAS UTILITIES

TUESDAY, JUNE 15, 1971

U. S. SENATE,
SUBCOMMITTEE ON ANTITRUST AND MONOPOLY
OF THE COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met, pursuant to recess, at 10:10 a.m., in room 412, Old Senate Office Building, Senator Roman L. Hruska presiding.

Present: Senator Hruska.

Also present: Howard E. O'Leary, staff director and chief counsel; Charles E. Bangert, general counsel; Wilbur D. Sparks, assistant counsel; Walter S. Measday, economist; Peter N. Chumbris, chief counsel for the minority; Patricia Bario, editorial director, and Janice Williams, clerk.

Senator HRUSKA. The subcommittee will come to order.

In the absence of Senator Hart, who is away on official Senate business, I have been asked to serve as acting chairman.

The hearings for this morning will be on S. 403, a resumption of hearings that were started last week. Yesterday we learned from Mr. C. V. McCaffrey that he had written to Senator Hart about 10 days ago stating that he could not appear and testify during this set of hearings.

This letter did not reach Senator Hart. Mr. McCaffrey telephoned after learning he had been announced as a scheduled witness and expressed his regrets at this failure in communication.

Later, yesterday, we received a telegram from Mrs. Regina Herzlinger stating that because of an accident which resulted in an injury to her foot, she had been advised by her doctor not to travel. It will not be possible for her to appear, therefore.

However, Mrs. Herzlinger already had submitted her prepared statement in accordance with the rules of the subcommittee. We would like to have permission, and without objection, will place in the record the statement with this explanation. We would also like permission to interrogate Mrs. Herzlinger through a series of written questions, and unless objection will be registered through the chairman, that will also be ordered.

(The statement referred to follows, testimony resumes on p. 369.)

STATEMENT OF REGINA E. HERZLINGER, ASSISTANT PROFESSOR OF BUSINESS ADMINISTRATION, HARVARD UNIVERSITY

In the period from February 1966 to June 1967, while employed by the Federal Power Commission, I completed three studies of combination utilities. The first study was a background survey of the characteristics of the electric operations of combination utilities and straight electric utilities. The second study was a survey of the gas operations of combination utilities and straight gas utili-

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ties. These two studies were descriptive: that is, there were no prior hypotheses about the differences between combination and straight utilities. Rather, the purpose of the studies was to provide a purely descriptive model of the characteristics of both kinds of utilities.

The descriptive material in these two studies documented the existence of differences in a number of characteristics between combination and straight utilities. I then prepared a third study which analyzed the possible role of different regulatory practices in causing the observed differences. This study was theoretical and tentative. It did not suggest that these imperfect regulatory practices were necessarily used in practice nor did it claim that regulatory practices provided the only possible explanation for the observed differences between combination and straight utilities. Rather, the point of the third study was that if these regulatory practices were utilized they could lead to the observed differences between combination and straight utilities.

I will now summarize the methodology and findings of each of the three studies.

Study 1—Comparisons of Straight Electric Utilities and Combination Utilities

The study population was that of all privately owned electric utilities as reported in the 1963 edition of the FPC's "Statistics of Electric Utilities, Privately Owned". Of the 213 privately owned Class A and B electric utilities, 78 sold both gas and electricity and were, thus, classified as combinations. The following characteristics were studied: sales, revenues, expenses, classes of customers, electric rates, and rates of return on invested capital. Based on the data, the major findings were:

1. In three regions of the country—Middle Atlantic, West North Central, and Mountain States—combination companies sell more electricity than do straight utilities. In the U.S. as a whole, however, the combination companies account for 37 percent of total electricity sales by privately owned utilities.

2. The average combination utility sold about the same number of kwh as the average straight electric utility. However, the composition of the market differed for the two kinds of utilities. The combination utilities were relatively more dependent on residential and commercial sales than the straight electric companies. About 50 percent of the kwh sales of combination utilities were to these two customer classes, while 43.4 percent of the sales of straight electric utilities were to these customers.

3. Although the combinations accounted for 36.6 per cent of the total sales by private utilities in 1963, they received 41.9 percent of total electric operating revenues. In all size categories, as shown in Table I, the combination utilities received a higher percentage of operating revenues than their percentage of kwh sales. This point is emphasized by comparing the average revenue per kwh sold by combination utilities and straight electric companies. In every size class, unit revenues were higher for combination utilities than for straight electric utilities.

Table 1.—Operating Revenues and Kilowatt Hour Sales, 1963, by Size Categories

Class III: companies with sales smaller than 1 billion Kwh.

Class II: companies with sales larger than 1 billion but smaller than 10 billion Kwh.

Class III: companies with sales smaller than 1 billion Kwh.

	Combination utilities, class—				Straight electric utilities, class—				All classes A and B companies, class—			
	I	II	III	Total	I	II	III	Total	I	II	III	Total
Number of companies	8	40	30	78	10	69	56	135	18	109	86	213
Kilowatt-hours sold (percent)	44.6	30.3	43.2	36.6	55.4	69.7	56.8	73.4	100.0	100.0	100.0	100.0
Electric operating revenues (percent)	52.1	34.6	49.0	41.9	47.9	65.4	51.0	58.1	100.0	100.0	100.0	100.0
Electric operating revenues (cents per kilowatt-hour)	1.86	1.84	2.26	1.87	1.37	1.55	1.74	1.50	1.59	1.64	1.99	1.63

The combination utilities also had higher average operating expenses than did the straight electric utilities—sufficiently higher, in fact, to eliminate almost the entire advantage that the combination utiliies enjoyed through their higher average revenue. The average revenue of the combination utilities was 24.9 percent higher than that of the straight electric companies and their average operating expense was 23.8 percent higher; thus, operating income per kwh sold was approximately the same for combination and straight electric utilities.

However, these national averages mask the differences among large, medium and small-sized combination and straight electric companies. The differences in expenses narrow as the company size becomes smaller. Thus, as indicated in Table 2, the Class I combination utilities had operating expenses per kwh sold which were 25.6 percent higher than those of straight electric companies of comparable size, but in Class III the operating expenses of combination utilities were only 15.2 higher.

TABLE 2.—OPERATING REVENUES AND EXPENSES, 1963, BY SIZE CATEGORIES [1]

	Combination utilities, class—				Straight utilities, class—				All classes A and B companies, class—			
	I	II	III	Total	I	II	III	Total	I	II	III	Total
Operating revenues (cents/-kilowatt-hour)	1.85	1.84	2.26	1.87	1.49	1.55	1.74	1.50	1.59	1.64	1.96	1.63
Operating expenses (cents/-kilowatt-hour)	1.43	1.40	1.82	1.43	1.15	1.19	1.58	1.16	1.23	1.25	1.68	1.26
Percentage of operating expenses to operating revenues	76.7	76.3	80.4	76.7	77.6	76.3	90.5	77.4	77.3	76.3	85.5	77.1

[1] See table 2 for definition of size categories.

This trend of narrowing differences between the operating expenses of combination and straight electric utilities as the company size becomes smaller was not true for operating revenues. In Class I the average operating reserves of combination utilities were 25.1 percent larger than those of the straight electric companies; in Class III they were 20.0 per cent larger. Thus, the large combination utilities did not differ very much from the large straight electric companies in percentage of their revenues taken up by expenses. The small combination utilities, however, had 10 per cent less of their operating revenues taken up by expenses than did the small straight electric utilities (see Table 2). Reflecting their favorable operating expense ratio, the small combination utilities had a higher average rate of return than did the straight utilities in the same size classification. The small combination utilities also had a higher average rate of return than did the large ones. In 1963, the rate of return was 7.58 per cent for the small combination companies and 6.62 per cent for the large combination companies. Additionally, the combination companies generally have higher average fuel and distribution expenses than do the straight electric companies, except for the distribution expenses of the smallest combination companies, which are lower than for the smallest straight electric companies.

4. Study of a matched sample of combination utilities and straight electric companies indicated that they charge higher prices than do straight electric companies. The following criteria were used for the selection of "matching" companies: size of community served, volume of kwh sales, and the nature of the market.

The results of this comparison indicated that in 9 out of the 12 pairs of cases, the prices charged for 500 kwh of residential consumption were higher for combination than for straight electric companies. Furthermore, 6 of 12 combination utilities increased their prices, relative to the prices charged by the straight electric companies, over the 1955–1965 period, while only 4 of the combination companies reduced their prices relative to the prices of the comparable straight utility. Also, in 4 out of 5 cases where the variable costs of the combination utility were lower than those of the comparable straight electric company, the combination company still had the higher price.

In the comparison of the prices charged for 1500 kwh of commercial consumption, in 6 out of the 9 pairs of cases the combination utilities charged higher prices than did the straight electric utilities. Also, in 4 out of the 9 pairs of cases, the

prices charged for 60,000 kwh of industrial consumption were higher for combination than for straight electric companies, and in only 3 out of 9 cases were the prices lower. Furthermore, 6 of the 9 combination utilities increased their industrial prices, relative to the prices charged by the straight electric companies, over the 1959–1963 period.

5. The higher prices of the combination utilities are reflected in relatively higher earned rates of return on their investment. In 1963 the 78 privately-owned combination utility companies in the United States earned an average return of 7.45 percent on the electric portion of their operations. In that same year, the straight electric utilities received an average return of 7.10 percent. Throughout the years 1961–64 the rates of return were higher for combination utilities than for straight electric companies.

STUDY 2—COMPARISON OF STRAIGHT GAS UTILITIES AND COMBINATION UTILITIES

The data for this study were obtained largely from Moody's *Public Utilities Manual, 1963*, and the American Gas Association's *Gas Facts 1963*, as well as the Federal Power Commission's *Statistics of Privately Owned Electric Utilities, 1963*. Where data on all 78 utilities were available, they were used. In other cases, where data were available for only 38 out of 78 combination utilities, the available data were used and statistically validated for representativeness of the total population.

The following findings emerged from the data:

1. In the U.S. as a whole, the combination companies account for 24 percent of total gas sales by privately-owned utilities.

2. Combinations are relatively more dependent on residential sales and relatively less dependent on industrial sales than are straight gas companies.

3. Largely reflecting this concentration of sales in the residential category, the average revenue per Mcf of total sales by the combinations is higher than it is for straight gas utilities. In several regions the average revenues for residential, commercial and industrial customers are significantly different for the two groups of companies—sometimes they average much higher for combination utilities and sometimes much lower.

4. The comparisons of typical monthly bills for pairs of presumably comparable combination and straight gas companies indicate lower bills for combination companies in 8 out of the 10 cases studied. The cases selected, however, are not necessarily representative of the overall situation.

5. The combination companies earn a relatively lower rate of return on their gas business than on their electric business, and they also earn a lower rate than do the straight gas companies.

6. In 1953, the ratio of operating expenses to operating revenues was 88.7 percent for the combinations and 90.0 percent for the straight gas utilities. By 1963, the combination utilities had reduced their operating expense ratio to 85.5, while the ratio for straight gas utilities had decreased to 89.1 percent. On the basis of these operating ratio figures, the combinations had relatively lower expenses than the straight gas companies.

STUDY 3—FOUR THEORETICAL MODELS OF THE ECONOMIC BEHAVIOR OF COMBINATION UTILITIES

These models delineate the impact of four types of regulatory practices on the economic behavior of combination utilities. They are:

Model 1: Regulation of Overall Return

The first case is overall rate-of-return regulation; that is, regulation which does not review the allocation of costs or the design of rates—either between gas and electricity or among the customers of each—and controls only the rate of return of the company as a whole. The combination utility faced with this form of regulation may decide either to seek the allowed rate of return on both electricity and gas, or to aim for more than the allowed rate on one and a correspondingly lower rate on the other.

Model 2: Separate Regulation of Gas and Electric Rates

A second possible form of regulation is one which requires separate cost-of-service determinations for each of the services sold by a combination company and prohibits a lower rate of return on one than on the other. This type of regulation leaves no room for outright price discrimination between the two

sources. If the gas and electric rates are established on the basis of the allocated costs in accordance with principles approved by the regulatory authorities, all customers will be charged on the basis of the same regulatory standard.

Model 3: Absence of Meaningful Regulation

Wherever there is no meaningful regulation of rates of return, combination utilities have a decided business advantage over straight utilities, simply because the combination utilities are in a much stronger monopolistic market position. A combination utility has no incentive to price competitively in those markets in which electricity and gas are substitutable forms of energy, except to the extent that sales of one form of energy provides larger profit-making opportunities than do sales of the other form. Absent regulatory surveillance, the utility can exploit monopolistic price discrimination to its fullest extent. Straight utilities, on the other hand, if motivated by competitive behavior, will be restrained from exacting a monopoly price in competitive markets, since the seller of the competing service may undercut the price and capture more of the market. Competitive pricing offers dual benefits to consumers, through lower rates and cost savings flowing from decreasing costs with higher consumption.

Model 4: Incomplete Regulation

There is also the possibility of some sort of half-way regulation, that is, rate-of-return plus detailed cost-of-service regulation of one service but not the other. A combination utility faced with this type of regulation will seek to maximize its profits on the sale of the unregulated (or loosely regulated) service while its profits on the regulated sales are being held close to the permitted rate of return. (Admittedly, this model of regulation may not have an exact parallel in the real world. However, situations similar to it—in which one service is more closely regulated than the other—do exist. Thus, for analytic completeness, this case is included).

Senator HRUSKA. The witness this morning is Mr. Robert Willis, president, Connecticut Natural Gas Co. Mr. Willis, will you come forward and proceed with your testimony.

We have a statement that you filed with us. You may either read the statement or, if you choose, we will put it in the record in its entirety, including the exhibits attached to it, and you can then either highlight it or read it as you choose.

STATEMENT OF MR. ROBERT H. WILLIS, PRESIDENT, CONNECTICUT NATURAL GAS CORP., HARTFORD, CONN.

Mr. WILLIS. Thank you, Mr. Chairman, members of the committee and the staff. I appreciate the opportunity to be here today and to respond to Chairman Hart's invitation to present my views on S. 403.

Since I will testify with respect to certain technical and financial matters related to the thrust of S. 403, I ask the committee's indulgence while I present my qualifications so that the committee may be in a position to evaluate the weight to be given to my views.

My name is Robert H. Willis. I am president and chief executive officer of Connecticut Natural Gas Corp., which has its principal office at 233 Pearl Street, Hartford, Conn. I also serve currently as president and chief executive officer of the Hartford Steam Co. and the Hartford Steam Service Co., both headquartered at the same address. In addition, I am a corporate director of the Connecticut Mutual Life Insurance Co., the C.B.T. Corp., and its subsidiary, The Connecticut Bank & Trust Co., the Smyth Manufacturing Co. and the SAGA Development Corp. My other civic and education affiliations currently include directorships of the American Gas Association, The New England Gas Association, the Greater Hartford Corp., Connecticut Business and Industry Association, Manufacturers Association of

Hartford County, immediate past chairman of the Greater Hartford Chamber of Commerce, vice chairman of the Connecticut Public Expenditures Council and corporator or director of a number of hospitals, youth, and welfare organizations. I also serve as vice chairman of the board of trustees and executive committee of Northeastern University in Boston, Mass., as a trustee and member of the executive committee of the Institute of Gas Technology in Chicago, as a trustee of the Kingswood-Oxford School, Inc., West Hartford, Conn., and as a member of the advisory boards of Rennselaer Polytechnic Institute of Connecticut, Inc., and the University of Hartford School of Business Administration.

After graduating from high school in Fall River, Mass., I received a bachelor of science degree from Northeastern University in Boston, Mass. in 1943. I served 3 years of active duty as an officer in the U.S. Navy followed by brief periods as plant engineer for the Fall River Gas Works Co. in Fall River, Mass.; and as engineer for the Ohio Gas Co. in Bryan, Ohio. From January 1949 to April 1953, I was a senior consulting gas engineer for Stone and Webster Service Corp. (now Stone and Webster Management Consultants) of New York City. From April 1953 through November 1957, I served as a director, executive vice president and general manager of the Lake Shore Pipe Line Co. and the Lake Shore Gas Co., both headquartered at Ashtabula, Ohio. From November 1957 through May 1959, I was again in New York as a financial consultant and later assistant to the president of Stone and Webster Management Consultants. From May 1959 until April 1964 I served as vice president of Stone and Webster, Inc. the parent company of the Stone and Webster organization, involved in engineering, management consulting, and investment banking. At the same time, I served as director and president of Jamaica Public Service Ltd. of Montreal, a Canadian utility holding company, and as director and chairman of the board of Jamaica Public Service Co., Ltd., an electric operating company serving the entire island and country of Jamaica in the Caribbean. I was also a director, president, and chief executive officer of Commercial Cold Storage, Inc., of Atlanta, Ga. Since April 1964 I have held my present positions in Hartford, Conn.

In testifying today I am in support of the philosophy represented by S. 403 that there should ultimately be a complete separation of gas and electric utility operations in order to provide the public with the benefits of improved service stimulated by competition.

President Nixon in his April 26, 1971, remarks in Constitution Hall at the 59th annual meeting of the U.S. Chamber of Commerce, underscored the administration's view that the American public should have confidence in the American system of economics, founded as it is upon free enterprise and the maximum stimulation of free competition in the public interest. He has asked that we have confidence in the American system and the competition which has caused it to thrive since the founding of our Nation. I certainly agree with President Nixon that the prosperity we seek "will be the road of free markets, free competition, free bargaining and free men," which are the reasons I believe in the thrust of S. 403.

A Time magazine feature article a year or so ago said:

The U.S. home has become a battleground. Producers of everything are involved in a fierce fight to win a bigger part of this growing market. The hottest war of all is the battle between gas and electric utility companies for the right to provide the heat, do the cooking, and run the appliances.

This comment by Time was followed by a Newsweek article stating that:

Electric and gas companies are stealing each others' traditionial customers at a rate that would do a Chevrolet or Ford dealer proud.

I doubt that even the combination companies would argue that a merger of Ford and Chevrolet would be in the public interest.

Much has been said to this committee by various witnesses to urge that regulation is the only adequate substitution for competition in the utility business, generally understood to have monopoly characteristics. Without question, enlightened regulation can protect the public against excessive prices and poor service, but every enlightened regulator with whom I have discussed the subject, including several who have appeared before this committee, readily admit that competition can be a more effective force in serving the public interest than most arbitrary regulatory standards.

Various witnesses have outlined in great detail the economies to be achieved through joint operation of gas and electric businesses in the area of meter reading, accounting, purchasing, billing, inspection, service and common management. No one can argue with the theories that such economies should exist. However, as witness Irwin Stelzer has testified, earnings of utility companies are limited by law to a fair rate of return on invested capital. This being so, it follows that economies of joint operation, if they exist in fact, must be reflected in lower rates to utility customers. Notwithstanding all of the alleged economies from joint operations and the reference by president Bloom of the National Association of Regulatory Utility Commissioners, to a report by the National Economic Research Association, Inc., entitled "Combination Companies—A Comparative Study, November 1968," there is not one shred of evidence in this record that any one of the 70-some combination utility companies in the United States has achieved such economies.

If the NERA report is not presently a part of the record of these proceedings, it should certainly be made a part, and careful examination of this report will disclose no evidence whatsoever that these economies of joint operation has been realized. Therefore, all of the arguments to this effect must be disposed of as being theoretical in terms of their practical effect upon the public. This is to say nothing of the shortcomings of the NERA report itself, which was based on the data from 47 straight electric companies, 40 combination companies, and 13 straight gas distribution companies. None of the gas companies which are also producers and transporters nor gas holding company systems were included, and obviously they represent the bulk of the gas industry. Conversely, studies based on information compiled by the Edison Electric Institute and the American Gas Associations used in the preparation of a paper which I presented at a Briefing Conference Toward a Comprehensive National Energy Policy, sponsored by the Federal Bar Association in cooperation with the Bureau of National Affairs, Inc., on December 3, 1968, shows clearly the straight gas and electric

companies demonstrate advantages to the public over the operations of combination companies. A copy of this paper is contained in the Congressional Record of June 23, 1970, and is attached as exhibit A to my statement today.

(Exhibit A referred to follows, testimony resumes on p. 377.)

EXHIBIT A

S. 4013—INTRODUCTION OF A BILL TO PROHIBIT CERTAIN COMBINATIONS AND CONTROL BETWEEN ELECTRIC AND GAS UTILITIES

Mr. METCALF. Mr. President, I introduce for appropriate reference a bill to require divestiture of combination gas-electric companies, and other interlocking interests between these forms of energy.

There presently are 78 such combination companies. Together they account for 43 percent of the total sales of electric power by private companies.

I offer this legislation because competition between electricty and gas induces lower rates and better service. We need more competiton to curb inflation.

The record made during 6 days of hearings by the Senate Antitrust and Monopoly Subcommittee, headed by the distinguished senior Senator from Michigan (Mr. HART), shows that it is time to rein in galloping oligopoly in the energy industries. Oil companies have acquired the major coal companies. Large investor-owned utilities are leasing coal reserves crucially important to municipal electric systems. The traditional source of federally generated electricity—hydropower—is a steadily decreasing component of our total generation. And in a giveaway scheme worse than Dixon-Yates, the administration has proposed the sale of the Federal Government's uranium enrichment plants to private industry.

The right to choose—one of the basic consumer rights enunciated by President Kennedy—is a sharply diminished right for utility consumers. As their options in shopping for utility service dwindles, the control of energy accumulates in fewer and fewer hands, farther and farther removed from the ineffectual regulatory commissions and the public, whose only function is to pay the bills emitting from distant computers.

Mr. President, the legislation today introduced is supported by officials of straight gas companies. They point out that investors in straight gas companies do as well as investors in combination companies, but that straight gas companies provide more service at lower rates, because they have to compete. Later in my remarks I shall include in the record pertinent comments by President Robert H. Willis of the Connecticut Natural Gas Corp. Part IV of the hearings on S. 607, the utility consumers' counsel bill, also includes supporting commentary from William J. Crowley, executive vice president of the American Gas Association.

However, the Edison Electric Institute, which represents combination and straight electric companies, has hedged on the important question of competition through divestiture. I hope that the spirit of the Fourth of July will imbue EEI speakers with the good old American free enterprise competition concept embodied in my bill.

It is my hope, Mr. President, that the industries and agencies affected by this bill and other interested parties will offer their comments on it during the next 6 months. I intend to reintroduce the bill, or a revision incorporating suggested changes, early next year, and to request hearings at that time.

Mr. President, I ask unanimous consent to include at this point in the Record the text of the bill, remarks by Robert H. Willis, president of the Connecticut Natural Gas Corp., and the names of the 78 combination companies.

The PRESIDING OFFICER (Mr. SPONG). The bill will be received and, by unanimous consent, referred to the Committee on the Judiciary; and, without objection, the bill, statement, and list of combination companies will be printed in the Record.

The bill (S. 4013) to prohibit certain combinations and control between electric and gas utilities, introduced by Mr. Metcalf, was received, read twice by its title, referred to the Committee on the Judiciary by unanimous consent, and ordered to be printed in the Record, as follows:

S. 4013

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Federal Power Act is amended by inserting at the end thereof a new part as follows:

PART IV—SEPARATION BETWEEN ELECTRIC AND GAS UTILITY FACILITIES, OPERATIONS, AND INTERESTS

SEC. 401. Declaration of Policy. It is declared that the national public interest, the interests of consumers of electrical and gas services, aind the interests of the national defense in a strong and competitive energy industry, may be materially affected when the generation, transmission, distribution or sale of electricity and gas are under common ownership or control within, or outside, a general sales area; and that it is in the national interest to promote inter-energy competition between electricity and gas whenever possible, and to ensure that their rates and the quality of their services, shall relate to costs of providing such forms of energy, as well as to the independent management decisions of their respective operations.

SEC. 402. Definitions. As used in this Part, unless the context otherwise requires—

(a) The term "person" means an individual or company.

(b) The term "company" means a corporation, a partnership, an association, a joint stock company, a business trust or an organized group of persons, whether incorporated or not; or any receiver, trustee or other liquidating agent of any of the foregoing in his capacity as such; having an annual gross operating revenue in excess of $1 million; but not including any cooperatively, federally, muncipipally, or other publicly owned person, company or organization.

(c) The term "electric utility" means any company which owns or operates facilities used for the generation, transmission or distribution of electric energy for sale, other than sale to tenants of the employees of the company operating such facilities for their own use and not for resale.

(d) The term "gas utility" means any company which owns or operates facilities used in the production, generation or distribution of natural or manufactured gas for heat, light and power (other than distribution to tenants or employees of the company operating such facilities for their own use and not for resale.)

(e) The term "control" means actual as well as legal control, whether maintained or exercised through or by reason of the method or circumstance surrounding organizations or operations, through or by common directors, officers, or stockholders, a voting trust or trusts, a holding or investment company or companies, or through or by any other direct or indirect means, and also includes the power to exercise control.

(f) The term "commission" means the Federal Power Commission and a member thereof, respectively.

SEC. 403. Prohibited Conduct. On or after January 1, 1972, it shall be unlawful:

(a) for any electrical utility, directly or indirectly, to own or operate facilities used in the production, generation or distribution of natural or manufactured gas for heat, light and power; and for any gas utility, directly or indirectly, to own or operate facilities used for the generation, transmission or distribution of electric energy for sale;

(b) for any electric utility, or any person controlling, controlled by, or under common control with such a utility, directly or indirectly, to acquire any interest in or control of, or to continue to maintain any interest in or control of, any gas utility;

(c) for any director, officer, or agent of an electric utility or of any person controlling, controlled by, or under common control with such a utility, in his or their own personal pecuniary interest, to own, lease, control, or hold any interest in any gas utility, directly or indirectly;

(d) for any gas utility or any person controlling, controlled by, or under common control with such a utility, directly or indirectly, to continue to maintain any interest in or control of, any electric utility; or

(e) for any director, officer, or agent of a gas utility or of any person controlling, controlled by, or under common control with such a utility, in his or their own personal pecuniary interest, to own, lease, control, or hold any interest in, any electric utility, directly or indirectly.

SEC. 404. Authority of the Commission: Investigation and Enforcement.

(a) The Commission is hereby authorized, upon complaint, or upon its own intiative without complaint, but after notice and hearing, to investigate and determine whether any person is violating any of the provisions set forth in Section 403 of this part. If the Commission finds after such investigation that any person is violating any of such provisions, it shall by order require such person to take

such action as may be necessary, in the opinion of the Commission, to prevent continuance of such violation. The provisions of the subsection shall be in addition to, and not in substitution for, any other enforcement provisions contained in, or applicable for purposes of enforcement of, this Act.

(b) The district court of the United States shall have jurisdiction upon the complaint of the Commission or any other party in interest, alleging a violation of any of the provisions of Section 403, or disobedience of any order issued by the Commission thereunder by any person; and to issue such writs of injunction or other proper process, mandatory or otherwise, as may be necessary to restrain such person from violation of such provision or to compel obedience to such order.

(c) The Commission may from time to time, for good cause shown, make such orders supplemental to any order made under the foregoing provisions of this section as it may deem necessary or appropriate.

SEC. 405. Penalties. Any individual who willfully violates any provisions of this Part or any rule, regulation or order, thereunder, shall upon conviction be fined not more than $100,000 or imprisoned for not more than two years or both, except that in a case of violation by a person which is not an individual the fine imposed upon such person shall be a fine not exceeding $1,000,000.

The material presented by Mr. Metcalf is as follows:

ARE COMBINATION UTILITIES IN THE PUBLIC INTEREST?

(By Robert H. Willis, president, Connecticut Natural Gas Corp.)

Honorable moderator O'Connor, fellow panelists and guests. It is an honor and a pleasure to be a panelist in this Second Briefing Conference Toward a Comprehensive National Energy Policy. It so happens that my views on National Energy Policy and on combination utilities are almost identical, namely—that the public interest is served best by policies which stimulate maximum competition amongst energy suppliers.

As the only member of this panel from a non-combination utility operating company, I hope to convince you that a straight gas or electric company, with a marketing strategy dictated by competition, will perform better than a combination company. I am fortunate to represent this position on the panel since it is the one in which I believe deeply. In fact, I hope to prove to you that non-combination companies, which for convenience I will call straight utilities, show *superior* performance.

As would be reasonably expected, my directness in answering the question posed to the panel is based in part on personal prejudice, since I am very much involved in what is referred to in the utility business as a "straight" company. For more than 120 years, Connecticut Natural Gas Corporation, as our name describes, has been serving only one master—gas! More importantly, however, my answer is based on fact and first hand experience.

The superiority of performance of straight utilities lies in the fact that their singularity of energy source carries with it healthy, built-in competition which provides far greater benefits to the public than are possible under two-headed electric/gas, arrangements. Admittedly, a combination company can achieve measurable economies in meter reading, billing and certain administrative expenses, but these fall short of the basic obligation of serving the interests of the public to the fullest. A fair "public interest standard" is the rendering of the highest quality utility service to the greatest possible number of people at the lowest possible costs.

I want to turn shortly to some actual cases from the Connecticut Natural Gas Corporation's service area as the best proof of my thesis that straight utilities serve the public interest better than combination companies, but permit me to succumb for a moment to national statistics. The annual survey of gas appliance use in residential dwellings compiled by the American Gas Association Bureau of Statistics shows:

(1) That 12% more new homes install gas heat in straight gas company service areas than in combination company areas.

(2) That the number of new homes *without* available gas service has increased from 15% in 1963 to 19% in 1966 for combination companies compared with a constant 11% for straight companies.

(3) That competition for the air conditioning market made gas air conditioning available to ten times the number of new multi-family structures using gas in straight gas company areas than in combination company areas.

(4) That average gas use per residential customer is 9% higher in straight gas utility areas than is gas use in combination company areas.

(5) That average residential gas rates are 75% *higher* in combination company areas than in straight gas areas.

(6) That average residential gas rates have been *declining* in straight gas areas over the last three or four years while these rates have not declined in combination company areas.

This past January, a distinguished panel made a straight vs combination company presentation to the New York Society of Security Analysts. One of our panelists today also participated in that presentation, defending combination utilities. In that debate there was rather surprising unanimity that the results *for investors* in straight utility companies had been about the same as for those investing in combination companies.

If the conclusion can be accepted as valid, and if the previously enumerated AGA statistics are also supportable, and I believe they are, then only one logical conclusion can be drawn:

If results for investors are the same, but straight gas companies provide more service at lower rates, the straight gas companies must be forced by competition to conduct more efficient operations; the beneficial effects of competitive forces on economy-of-operation must be *substantially greater* than the savings from single meter reading, billing and administrative costs.

I may appear to be critical of the management of combination utilities. Nothing could be further from my intention. Rather, I believe it is inherent that the manager of a combination company carry water on both shoulders. The combination company system requires this. No, the fault is not with management. It is with the system and its lack of the competitive hormone which, in turn, stunts its economic performance with the public.

To focus more clearly on these forces, permit me to deal briefly with several case histories of some first hand comparisons of straight vs combination utility company operations in and near the franchise area of our company.

In Connecticut, we enjoy *no exclusive* franchise to serve the public. In some territories, the state legislature has granted franchise rights to several companies to serve customers with identical utility services. In other areas within the state, the legal background of franchise rights is controversial. In these situations, several utilities find themselves serving the same territory. For example, in 1964, we inaugurated gas service to the Town of Windsor, one of the fastest growing communities in the area; a town that has been served by a combination utility since 1905. During the past 10 years the number of gas customers served by them has remained virtually static while the number of electric customers has increased rapidly. From a standing start in 1964, CNG is presently supplying one-third the number of gas customers still retained by the combination company.

By 1974, a period of nine years, at the present rate of growth, our company will be serving a far greater number of customers than the number the combination company could retain after seventy years.

Another indication of comparative growth rates in serving the public with gas can be found in the readily available statistics of wholesale gas supply. Algonquin Gas Transmission Company supplies gas to wholesale to the two combination utilities in Connecticut as well as to several straight gas utilities. Our gas requirements have been growing at a rate 17% faster in the last three years than the fastest growing gas operation of the combination companies. In contrast with a 34% growth for Connecticut Natural Gas in requirements from this pipeline supplier, one of the combination companies actually *reduced* its gas requirements ½% in the past three years.

In another case history, one of our large swimming pool dealers built a new sales office, model demonstration area and warehouse in a location served by a combination company. Much of this dealer's business was conducted in our service area. Naturally, he wished to install *operating* swimming pools complete with heaters to keep the water at comfortable temperatures in spring and fall. Unfortunately, in his new location the dealer was 1600 feet from the nearest gas line.

For a contribution of approximately $2,500 from the dealer, the combination utility would install a gas line extension. The same company, however, would run underground electric lines to the dealer's location at no cost whatsoever. When he checked into the shockingly high cost for the electricity required to

sufficiently heat his pool water as compared to gas, the dealer came to us for help. Had he located in our service area, the pool dealer's gas requirements would have easily justified our extending a gas line to provide service, but a combination company was unable to find economic justification for anything other than an underground electric extension. Our swimming pool dealer is not alone in his high-priced dilemma. I am aware from conversations with some of our leading builders that this episode is representative of many similar experiences in new home, commerical and industrial construction.

Another interesting point deals with installation of cooking equipment in the home economic kitchens of schools. We believe that it is very important for the future of our business to provide modern equipment for use by future homemakers. Therefore our policy is to install gas ranges in schools within our service area and replace these ranges at least every four years. If natural gas service is not available we still provide the ranges at no cost and arrange for bottled gas service.

Our combination utility neighbors do not provide ranges. Instead, they pressure the large electric appliance manufacturers to provide equipment at no cost to the schools and insist upon replacement every 18 months to two years. As a result in many of the schools in this area, the classrooms are equipped with the most modern electric ranges but the gas ranges are as much as 20 years old and many are inoperative.

Although there are exceptions to the rule, gas operations usually are the minority business in combination gas and electric utilities. It is natural that company managements concentrate their best efforts on the major contributors to their business. Thus, it is not surprising to see and hear the overwhelming preference given to electric advertising in newspapers and on radio and television by combination companies. Gas takes a back seat, if any seat at all, in the advertising scheme.

In many respects, this ability of the combination company to promote and expand one portion of its business while "keeping the lid" on the competing service in the same area, is the best means yet devised for stifling competition which is the life-blood of public utility service. It is both a subtle and effective device but one that cannot be acknowledged by any combination company official.

A series of 1966 hearings before the Connecticut Public Utilities Commission inquiring into utility promotional practices was quite revealing as to the disparity of promotional treatment accorded gas and electric services. A combination company president testified that his company devoted nearly twice as much per unit to the promotion of electric homes as to the promotion of gas homes. Ironically, a second combination utility's cost allocation system showed four to eight times as much promotion is accorded electric units than gas units, while 8% of the electric promotion costs are charged against gas operations and ultimately paid by gas customers.

A word might also be in order on the legal status of combination companies in relation to the Clayton and Sherman Acts. I have the advantage of not being a lawyer and therefore, less constrained with my legal opinions than if I were a member of the profession. However, I have discuss this matter with several specialists in anti-trust law and have been surprised at the degree of unanimity they express.

The Public Utility Holding Company Act contains a presumption in favor of divesture of one of the operations of a combination utility unless the Holding Company could prove serious adverse economic results. This was a statement of Congressional Public policy contained in the Act and seems to imply an antitrust exemption for only one exclusively franchised utility service. Of course, there are no cases directly on the point, and exemptions from the anti-trust point, and exemptions from the anti-trust laws, if any, seem to have been read into the laws based on the peculiarities of the utility field.

Most franchises are granted by state or local authority, although the Federal Power Commission has the right and duty to award certificates of Public Convenience and Necessity. It seems, possible, therefore, that any governmental authority (Federal, State, or Local) which has granted an exclusive franchise to a combination utility to render a second utility service in an area, where one utility service is already rendered, might be engaged in a conspiracy with the combination utility in restraint of trade, if the governmental authority acquiesces in any way in the underdevelopment of one energy source. This may constitute unlawful monopolization in violation of Section 2 of the Sherman Act. The serious

injury to competition resulting from the existence of combination utilities is not offset by any substantial benefit to the governmental authority granting a franchise, and no serious governmental interest would be injured by application of antitrust laws by the FTC or Justice Department.

So far, neither the Federal Trade Commission nor the Justice Department has chosen to act under any of the presumptions I have outlined, but time may vindicate my presently "far out" view of the possible legal ramifications of this problem.

In summary, I would like to reiterate that I am strongly in favor of a national energy policy, a policy which to the best of its ability will stimulate competition. In this day of consumerism, A.D. 1968, I am convinced that the free enterprise system is more important than ever, that the consumer wants and is entitled to a choice, and that the modern utility is a far different entity than it was just a few years ago when electricity would serve certain markets and gas other. The public charter of a utility is to provide the best possible service to its customers at the most economical cost, realized by the ability to market its services in open competition, with the final choice or decision within the consumer's control.

I would like to add categorically that the comparative studies to which I have referred here for the Edison Electric Institute and the American Gas Association involve the total universe of these two groups of companies. It was not just selected companies as in the NERA report, but all of the companies in each of the industries, so it is a total sample.

Notwithstanding all of the statistical arguments, however, the real test of competitive service, where gas and electric utilities vie with each other for the favor of individual customers, is the quality of the service enjoyed by these customers. Neither straight nor combination utility operations demonstrate any particular rate advantage. Since straight utility customers enjoy superior quality of service, resulting from competition between gas and electric utilities, the public interest would be served by separation of the combination companies and the injection of competition into the regulated business wherever such competition becomes possible. Today there is no gas product or service for which a competitive produce or service is unavailable. This is not necessarily true for electric utilities as to lighting and motor service, but is true for most of the other services offered by electric utilities.

Although situations vary widely amongst combination companies, the gas business is generally the smaller, with the result that it becomes the stepchild of combination companies and is the part of the business neglected, if one or the other is to receive special attention. This means that the managements of combination companies are predominantly oriented toward the electric side of the business. I know of no combination company chief executive whose background and experience was on the gas side; most such executives are electric men. Hence, attention is concentrated on electric growth and problem solution. As an example, in Connecticut which has no exclusive utility franchises, the town of Windsor has natural gas service from our company, as well as the gas service from a competing combination company. The current energy crisis has been well enough publicized to merit little further discussion here, but suffice it to say that the electrical energy crisis and the limited life index of nuclear reserves is no less severe than the current gas supply shortage, induced by over-zealous regulation. The management of our company and that of our combination competitor were equally challenged to plan ahead to avoid the crisis of short gas supply. The comparative results of this planning by a

straight gas utility and a combination company demonstrate, as vividly as anything I know, the shortcomings of the combination service to the public.

In the town of Windsor, Conn., today we are able to serve all comers including new industrial and residential consumers. In contrast, our combination competitor, which incidentally expects to be required under the Public Utility Holding Company Act of 1935, to divest its gas operations, is unable to serve any new gas customers, residential, commercial or industrial, and has advised its present customers that they cannot add to their gas appliances. You will find other references in the June 23, 1970, Congressional Record article which demonstrate other characteristics of service to the public by a straight versus combination company in Windsor, Conn.

The fact is that a combination company, by failing to compete as aggressively in marketing one energy as opposed to another, is by this omission engaging in my opinion, in restraint of trade.

For virtually every single use of energy, the homemaker has a choice. If she decides to buy a range, she must determine what energy she wants before she decides on the brand name product. A family building a home faces a choice among three heating fuels. In the operation of commercial and industrial buildings, gas and electricity compete directly and intensively for many loads. We maintain in our company a large marketing staff to talk directly with consumers, architects, builders, and industrial executives about the benefits of gas as opposed to electricity.

It would be extremely naive to assume that the representatives of a combination company exercise equal competitive vigor in marketing two strictly competitive fuels. Simply by the even unconscious act of not competing in their own house, of not in effect pitting one equal sales force against another sales force, they are lessening competition and exercising monopoly power, denying consumers the service benefits and information that competition would automatically provide.

Allow me to turn now to the question of financing divestitures, which has been the subject of a great deal of testimony before this committee. Federal Power Commission Chairman Nassikas properly outlined in his tetsimony the nature of the provisions of first mortgage indentures securing the outsanding debt of utility companies. He referred specifically to the release and substitution of property provisions of these instruments, but most of the witnesses who have testified regarding the financial impact of spinoffs, have ignored these provisions altogether. They have chosen rather to use recently prevalent conditions in the money markets where the cost of new securities is higher than the cost of imbedded securities, to argue that spinoffs will require increases in gas rates.

I believe it is generally understood, but I think it bears reiteration here, that the cost of securities in the money markets varies from day to day, week to week, and year to year. Although we have been through a period in recent years of high senior money costs, these costs have been declining recently and can be expected over the long term to reach a moderate level with which we all must live for the future. Utilities which are growing, and most of them are growing at a rapid rate, will continually issue new securities at the costs prevailing from time to

time at the date of issue. The inevitable result of this phenomenon will be to increase imbedded security costs, even though the costs of new securities may be declining. At present growth rates, it will not take many years for the cost of new debt or preferred stock to equalize with the cost of imbedded debt and preferred. When this occurs, rate payers will suffer no penalty whatsoever as a result of spinoffs.

Even if spinoffs were forced at a date earlier than the break-even point between new and imbedded costs, the cash received by the present combination utilities will be used to finance additions to the retained properties in substitution for the securities which would otherwise have to be issued at a higher cost. Thus, the customers of the retaining utility would enjoy lower rates by the same dollar amount as the higher rates of the spun-off utility. After we pass the break-even point, the reverse would be true and the customers of the spun-off utility would enjoy certain rate advantages in comparison to those of the retained utility. In no event, however, would the public overall be hurt in the form of higher rates, under present utility regulation. We are dealing with a balancing of the equities as to one group of customers versus another, depending on the conditions in the money market at any given point in time.

Even the vice president of Kidder, Peabody, and Co., Inc., appearing as a witness against this bill, readily admits that spin-off financing can be successfully accomplished, given the interest coverage which is necessary for any successful utility financing today; but he failed to take into account the balancing of equity question with regard to various groups of customers. Thus, it is clear that the spin-off financing could be accomplished under the proper money market conditions without an adverse impact on any particular group of customers. It is always possible for those opposing the principle of separation to throw up a strawman based on a particular set of adverse money market conditions, but the fact is this bill would have no adverse effect on ratepayers if spin-offs are accomplished under optimum money market conditions.

I would next address myself to various provisions of S. 403 which concern me and which may require some amendment in order to accomplish what I believe to be the intent of the bill to create competition by separation of combination utilities. Several witnesses have testified that such separation should be accomplished on a case-by-case basis when findings could be made that the public interest would be benefited and not adversely affected by such separation. The long delays suffered under the Public Utility Holding Company Act, which already requires such separation, demonstrate that nothing would happen unless the bill contains a presumption that separation is in the public interest. A waiver of separation should be allowed only when a particular company could demonstrate a serious or adverse impact on the public.

I might add categorically that that would be very similar to the provisions of the Public Utility Holding Company Act separations sections.

S. 403 would require such separation by January 1, 1973. It is clear that the complicated process of separation and the necessary flexibility of money market conditions, require a more extended period than the 1 to 2 years embodied in the bill. However, the period should

not be so long as to allow procrastination in the implemention of the intent of separation. Therefore, I offer to the committee the suggestion that a 10-year period might be more appropriate and that the separation be conducted under the auspices of either the Federal Power Commission or the Securities and Exchange Commission, whichever at the time is administering the Public Utility Holding Company Act of 1935, and that separation be required except on a definitive evidentiary showing by the combination company and findings by the Commission that such separation would seriously and adversely affect the public interest.

Likewise, the bill grants an exemption from separation to cooperatively, federally, municipally, or other publicly owned (utility) person, company or organization. If combination utility operations are not in the public interest, they are adverse to the public interest regardless of their ownership or control and nothing would be healthier in the public interest than an investor-owned gas utility in competition with a municipally owned electric utility or vice versa.

My third and most important suggestion for amendment to the provisions of S. 403 concerns the definition of an electric utility, which is defined in the bill as "any company which owns or operates facilities used for the generation, transmission or distribution of electric energy for sale." Our company in cooperation with the 31 other members of the Team to Advance Research for Gas Energy Transformation, Inc. (TARGET) and the Pratt and Whitney Division of United Aircraft Inc., last month announced the opening of the world's first natural gas fuel cell home, in our territory, in Farmington, Conn. The objective of the 9-year TARGET program ending on December 31, 1975, is to produce commercially competitive natural gas fuel cells for industrial, commercial and residential use. The natural gas fuel cell involves direct electrochemical conversion of natural gas to produce electricity. This is accomplished without combustion, without noise, with essentially no air or thermal pollution and with appreciable conservation of limited natural resources. Therefore, commercial production of natural gas fuel cells can be a great benefit to society in helping to solve a great part of the energy crisis, our ecological and other environmental problems and the proper utilization of our natural resources. More importantly, however, the natural gas fuel cell would allow every straight gas utility company to provide a competitive service with every straight electric utility company in the Nation.

In my judgment, this probably affords the greatest opportunity for public service through competition which has occurred during my career in the utility industry, and which I can foresee in the future. The definition in the bill would appear to prohibit the natural gas industry from entering this toe-to-toe competition. Since the intent of the bill is to stimulate competition in the public interest, it seems clear that the present definition is in adequate and needs to be amended to stimulate the competition which the bill seeks to create.

Finally, the bill is proposed as an amendment to the Federal Power Act which, of course, applies only to electric utilities dealing in interstate commerce. It seems obvious that the intention of the bill is to broadly apply to all utilities in the country, whether or not they presently come within the purview of the Federal Power Act. It may

be necessary, therefore, for the legislation to deal more broadly with the situation than the presently proposed amendment to the Federal Power Act. I leave to the lawyers and other experts the problem of how this may best be accomplished, but with these suggested amendments wish to support the thrust and the principle of the separation contained in S. 403.

To sum up, separation of combination companies is the only way to assure that the natural forces of competition react to the benefit of consumers in an energy industry that has become intensively competitive today. The principle of separation embodied in this bill would not add 1 cent to the energy costs of consumers, but would instead assure them of the high quality of service and price benefits which are inherent in the competitive free enterprise system that is a basis of this Nation's strength.

I thank you very much, Mr. Chairman.

Senator HRUSKA. Thank you, Mr. Willis.

Counsel O'Leary, have you any questions?

Mr. O'LEARY. Yes, Mr. Chairman.

Mr. Willis, would you give us some background on Target which you describe briefly in your statement?

Mr. WILLIS. Yes; Target is a privately financed roughly $50 million research and development effort. To my knowledge, it is the biggest research effort in the utility industry that is privately financed. No government money is involved and the 32 companies in it by and large are the largest gas companies in the country. Our own company I suspect is the smallest member of Target. This group started in 1967 by employing Pratt and Whitney Division of United Aircraft as a prime contractor and the Institute of Gas Technology in Chicago as a subcontractor to do all of the necessary research and development work including market research and field testing of the natural gas fuel cell to end up producing fuel cells that were economically competitive and we have now moved all through basic research stages to the point where commercially viable fuel cells are being produced for field testing, and the first one of the field tests was the one I referred you to in Farmington, Conn.

Before next year is over, these field tests will take place—I think there are 60 fuel cells in 39 locations and about 29 States and they will be tested in apartment houses, shopping centers, as well as condominiums and private homes and with all of this goes a market sensing operation and the hope is that by the end of 1975 we end up with a production line turning these out at the rate of 100,000 a year or so, so that this can be generally available to the public.

Mr. O'LEARY. That leads into my next question. When do you anticipate that the commercial production of the natural fuel cell will be a reality? Do you think you are going to make the 1975——

Mr. WILLIS. Well, I am an eternal optimist on the subject, but Pratt and Whitney is the outfit that has to produce, and they are very cautious about dates and so forth.

I think I can say it is the object of the Target program to be ready to go into production by the end of 1975, and nothing has been discovered yet in all of the work that has been undertaken that appears to be an insoluable problem in achieving the objectives of the program.

Mr. O'Leary. What other work does Target do in addition to work on the fuel cell, if any?

Mr. Willis. None. It is organized solely for this research and development work on the fuel cell. It is a non-profit private corporation which is designed to really serve the industry because no member of Target will have any proprietary interest in a fuel cell once it is produced. So in effect we contribute the money as research and development and when it is all over, whatever benefits come from this are generally available to the whole industry and to the whole public.

Mr. O'Leary. Mr. Willis, as you note in your statement, the subcommittee has heard a great deal about theoretical economic advantages of combination companies. During the course of our first set of hearings, reference was made to the Collins and Herzlinger studies which indicated that combination companies may be less efficient than straight companies.

On the other hand, we also heard testimony relating to the NERA 1968 study which was conducted at the behest of a combination company, Long Island Lighting Co., and then also a further study by NERA which underlay Dr. Stelzer's testimony—the general thrust of those two studies being that they were unable to find any clear statistical evidence of greater efficiencies in the combination companies.

As a practical utility executive, would you agree that if combination companies have the advantages which are claimed for them by their supporters, that these advantages would show up in these studies?

Mr. Willis. I think that is absolutely right. The advantages would show in the studies, but more importantly, the advantages would show up in rates to consumers, a clearly measurable device to find out whether these economies exist, since rates of return are regulated and they are fixed at a percentage of a thing called rate base in regulatory circles and whatever operating economies there are must be reflected in lower rates to consumers.

It is mathematically impossible for it to work out any other way if the economies exist in fact. Therefore, you can compare the rates of combination companies and the rates of straight companies and if these economies exist in fact, they should be reflected in lower rates for the combination companies. But every study to my knowledge that has ever been made shows clearly that this is not so. That includes the NERA study which was commissioned by a combination company obviously with the hope that it would show that combination companies demonstrated some advantages and their hope was frustrated by the report itself which showed just the opposite.

Mr. O'Leary. In view of the fact that separate electric and gas utilities do compete vigorously—and certainly if the natural gas fuel cell becomes a reality as you hope it will, that competition would be more intense—your position is, I take it, that divestiture would be an appropriate remedy.

Mr. Willis. Yes, sir. Appropriate remedy in serving the public.

Mr. O'Leary. In your statement, you point out that the imbedded costs of capital for existing utilities is rising and that this has to be taken into consideration in any discussion of financing new enterprises.

Last year, Pacific Gas and Electric retired $53.5 million of matured bonds presumably carrying interest rates of about 3 percent and issued for refunding and expansion $175 million worth of new bonds at

nearly 9 percent. Is this what you are getting at in this part of your statement—that any short run differences of capital costs will be ironed out in, say, 10 or 15 years?

Mr. WILLIS. Right. There are two phenomena in terms of imbedded costs. One is the fact that most of the utility bonds issued at low-interest rates, 25, 30 years ago, are now maturing so these bonds have to be paid off. And as they are paid off with new money at sometimes three times the cost as in the case of your P.G. & E. example, this obviously raises the imbedded weighted average debt cost for the utility, but in addition to that, most utilities are roughly doubling their size every 10 years and they have to issue new securities to do that so that is an added impetus of forcing up the weighted average imbedded debt cost because of expansion, so you get the two phenomena at work one the refunding of old, long-term maturing, low-cost issues, and new money for expansion.

If a utility doubles its size in 10 years, presumably something more than half of its debt 10 years from now will represent this kind of 9 percent money or 8 percent as probably P.G. & E. could issue today.

Mr. O'LEARY. In your statement you make reference to Windsor, Conn., and a combination company which is a competitor of your company. I take it that is Connecticut Light & Power?

Mr. WILLIS. Yes sir.

Mr. O'LEARY. You also indicate that they anticipate being required to divest themselves of their gas properties. Is there a proceeding presently pending against them before the SEC?

Mr. WILLIS. Unfortunately the answer to that question is no. Northeast Utilities is a public utility holding company formed about 4 to 5 years ago. As I understand the provisions of the act, the minute it became a holding company, the retention of both nonintegrated properties became illegal. So it would be my assumption that enforcement of the act would require some sort of action, but as of this moment, to my knowledge, none has been taken other than very informal things.

As an example, Hartford Electric Light Co., one of the subsidiaries had a bond issue a year or so ago and the Securities and Exchange Commission required them in the prospectus used in connection with their bond issue to spell out the fact that ultimately the gas properties must be divested. That is about as far as it has gone legally and publicly at this point.

Obviously the longer the delay in doing this, the more my side of the business, the gas business, is harmed. When a company knows that this is an inevitable consequence—that the spin-off must come—the longer the delays in bringing that result, more time is permitted for doing everything possible to minimize later competition from that gas business.

Mr. O'LEARY. You indicate that they say they are unable to serve any new gas customers, that they have advised their present customers that they cannot add to their gas appliances, whereas your company is able to serve all comers, including new industrial and residential consumers.

Are you alleging that in view of the fact that they anticipate being forced to divest that they are pushing electricity and not pushing gas which they anticipate in the future competing against them?

Mr. WILLIS. I have with me a group of newspaper announcements where they announce to the public—this I guess was a New Year's present, because it was announced on December 30, last year—spelling out that customers could no longer add appliances and what have you. I think it might help the record if copies of these were in the record. There are four pages of them which I have here and will be glad to supply.

Senator HRUSKA. Without objection they will be included.

(The announcements referred to follow, testimony resumes on p. 388.)

[From the Times, December 30, 1970]

STATE GAS FIRM HALTS ALL SERVICE EXPANSION

(By Dave Williams)

The Connecticut Light & Power Co. is cutting off, at least for two years, all expansion of natural gas service in the 38 towns and cities in which it sells this fuel.

The utility also is asking its customers in a billing memo to be sent out over the next few weeks to conserve gas and not to buy any new gas appliances.

In a memo the company asked retailers to cooperate by not selling any new appliances and informed industry and institutions it can't increase their gas supplies.

GAS PRODUCERS AND PIPELINE SUPPLIERS CAN'T DELIVER NEEDED QUANTITIES

The reason: an inability of gas producers and pipeline suppliers to deliver needed quantities, according to Robert Bromage, CL&P vice president of sales.

CL&P is the second largest retailer of natural gas in Connecticut, listing 113,000 customers last year.

Bromage said he wants "to reassure our customers that we can handle their present requirements with the equipment they now have." But CL&P won't be able to expand its natural gas service for an indefinite time—"two, three or four years, no one knows at this point," he added.

He said the ultimate problem is federal regulations for producers that are too stringent and the high cost of discovering new gas.

A spokesman for the Connecticut Natural Gas Co., which serves the Greater Hartford area and is only slightly smaller than CL&P, said the gas shortage hasn't hit CNG yet.

He said CNG contracted in advance for more gas than it now is using and will have gas available for regular customers and normal expansion "for the next year."

After that, CNG is hoping new sources of gas will be available.

The Southern Gas Co. is the largest in the state and, like CNG, hasn't had to curtail expansion.

Bromage said he expects the cutback to hurt the business of plumbing and heating contractors, but not seriously. He pointed out that these contractors also do business in oil equipment.

"We appreciate that this, in effect, means limiting their sales to replacement equipment," Bromage said.

Val Mancuso, sales manager for a large Waterbury plumbing and heating firm, said he will cooperate with CL&P because it wouldn't do any good to sell equipment that can't be supplied with adequate gas.

He said it would hurt his business "slightly" because gas is more popular than oil with his new customers. He stressed, however, that he isn't angry with CL&P and said "maybe they weren't foresighted enough, I don't know."

It is not possible for other state gas companies to service CL&P customers during the shortage, according to a CNG spokesman, because of existing franchises and pipelines.

Towns serviced with CL&P gs are Ansonia, Derby, Shelton, Bristol, Plainville, Plymouth, Danbury, Bethel, Monroe, Newtown, Brooklyn, Killingly, Plainfield, Putnam, Meriden, Southington, Wallingford, Cheshire, Middletown, Cromwell and East Windsor.

Also, Ellington, Enfield, South Windsor, Suffield, Tolland, Vernon, Windsor Locks, Norwalk, Waterbury, Naugatuck, Seymour, Thomaston, Watertown, Wolcott, Windham (Willimantic), Winchester, Winsted and part of Windsor.

[From the Times, Feb. 1, 1971]

GAS CHARGE

DEAR GEORGE: I live in Hartford. My landlord lives in an apartment close to mine. The gas heaters for both apartments are in the landlord's basement.

The landlord has moved and the house is in the hands of a real estate agent. Previously, the landlord presented me with my bill and I paid it myself. Now that the landlord has moved, he wants me to have the meter put in my name. I called the gas company about it and I understand there is a $50 charge. Because I do not own the house, I don't feel I should have to pay this $50. I realize I still have to pay my gas bill but is this the right thing for me to do?

G. L., HARTFORD.

Apparently, there was a misunderstanding because the Connecticut Natural Gas Corp. does not have a charge for a meter installation. The gas corporation does, however, require a $50 deposit from potential gas heating customers who have not established a credit rating. This money is returned with interest at the end of the year if the customer has had a good payment record. The gas corporation is asking you to get in touch with its credit manager to inquire about establishing proof of a good credit rating and not paying the deposit.

[From the Journal Inquirer, Feb. 1, 1971]

SPRENKEL QUESTIONS CL&P SERVICE POLICY

South Windsor.—Town Manager Terry V. Sprenkel said today he would attend the State Public Utilities Commission hearing Wednesday which will inquire into the policy of the Connecticut Light and Power Company to restrict sales by not accepting new customers or expanding service to present ones.

Sprenkel said the investigation by the Commission "is completely justified in view of the fact that the general public and users in South Windsor, specifically, have been under the impression that natural gas supplies were adequate for future growth."

"In several instances," Sprenkel said, "the Town has been asked to work with existing or new industrial firms in the community needing natural gas for expansion or new development of facilities. Our efforts have been discouraging and there has been no assurance of future capacity even though public advertising has led the consumer to believe that natural gas was available. This situation has worked to the detriment of South Windsor in its efforts to work with and cooperate with commercial and industrial enterprises that have made major financial commitments in the community."

The Town Manager added that recent news releases by the natural gas utility, a subsidiary of the Connecticut Light and Power Company, "have not resolved the questions of why this situation happened and when it will be corrected to meet the needs of the community and the area."

[From the Courant, Feb. 2, 1971]

EDDY REQUESTS PUC INVESTIGATE POWER FAILURES

In the wake of two more blackouts for large portions of Newington, State Sen. Roger Eddy said Monday night he has formally requested an investigation of the situation by the Public Utilities Commission.

Eddy said he called Gov. Meskill Monday night and asked that he request an investigation through the PUC. Eddy said additional information received since he toured the East New Britain Substation last week indicates that some facts may have been withheld.

Connecticut Light & Power Co. officials blame a fire on Dec. 13 as the source of the numerous difficulties since that date.

Eddy said the facts he has learned, "if true, should be made public." He demanded that the PUC "become involved."

Monday night's blackout of about one hour between 5 and 6 p.m. was followed by another at 6:45 p.m. Power was again restored to about one-third of the area at 7:05 p.m. and to the rest at 7:20 p.m.

A total of 2,964 customers were affected, according to the Connecticut Light & Power Co.

[From the Courant, Dec. 31, 1970]

BLAMES U.S.—CL&P SLOWS GAS GROWTH

The Connecticut Light & Power Co. said Wednesday federal pricing policies on natural gas pipeline companies is forcing CL&P to stop the expansion of gas service to its 113,000 customers.

A CL&P spokesman said the federal policy of freezing the price of natural gas at the well head has halted the exploration of new gas supplies.

"This," said the spokesman, "is forcing us to discontinue our promotion of more gas usage and soliciting of new customers. We are also not accepting large added loads from large users, and asking our present customers not to use more gas than they are using now."

The prospect of new natural gas wells in the past has spurred CL&P to look for new customers and to promote the use of more gas. Since the exploration of new wells has in effect been halted, this practice has been discontinued.

CL&P hopes the federal government will do something to spur the exploration of new gas deposits, but until then their present policy will stand. Company Vice President Robert Bromage said CL&P is ready to continue the slowdown for two, three or perhaps four years.

The states other two large gas companies are reported unaffected as yet. They are the Connecticut Natural Gas Corp. and the Southern Connecticut Gas Co.

CL&P said it is taking three other steps to meet the shortage—working with other gas companies to increase the supply of pipeline gas, working to get more propane or bottled gas and working to build or take part in building a "Liquid Natural Gas" storage plant.

CL&P vice president Bromage said the company can handle the present requirements with present equipment, "but CL&P won't be able to expand its natural gas service for an indefinite time," he said.

The 49 towns serviced by CL&P are Ansonia, Beacon Falls, Bethel, Bristol, Brookfield, Brooklyn, Cheshire, Cromwell, Danbury, Derby, East Granby, East Windsor, Ellington, Enfield, Hartford, Killingly, Mansfield, Meriden, Middlebury, Middletown, Monroe and Naugatuck.

Also, Newtown, Norwalk, Oxford, Plainfield, Plainville, Plymouth, Prospect, Putnam, Ridgefield, Seymour, Shelton, Southington, South Windsor, Suffield, Thomaston, Tolland, Vernon, Weston, Wallingford, Waterbury, Watertown, Wilton, Winchester, Windham, Windsor, Windsor Locks, and Wolcott.

[From the New Britain Herald, Dec. 31, 1970]

CL&P ASKS HALT IN BUYING NEW GAS APPLIANCES

HARTFORD.—The Connecticut Light and Power Company, a major supplier of natural gas and electricity in the state, is asking its customers to refrain from installing new gas appliances.

Robert Bromage, a CL&P vice president in charge of sales, said Wednesday that the company has decreed a halt to expansion of its natural gas service in the 38 cities and towns it serves.

The reason, Bromage says is a list of Federal Trade Commission regulations that he said have cut the profits made by gas producers and pipeline suppliers. As a result, Bromage said, these producers and suppliers can no longer deliver their goods in quantities sufficient for expansion.

The cutback, Bromage said, may last as much as three years.

CL&P serves 113,000 natural gas customers, making it the second largest gas retailer in the state. It also is one of the largest suppliers of electric power in the state.

The gas customers will be getting an enclosure with their current bills asking them not to install any new gas appliances, Bromage said.

CLEAN AIR AGENCY KILLS EXEMPTION BIDS

The state Clean Air Commission Monday rejected pleas by public housing authorities in Meridian and Waterbury for exemption from clean air laws dealing with incinerators.

A similar request by the Connecticut Valley Hospital, a state mental institution in Middletown, was also turned down.

The Waterbury authority had asked for an exemption until Oct. 31 when, it said, it will have proper incinerators operating. The commission first rejected a motion to approve the request and then tabled it until it gets more details on when Waterbury plans to buy an incinerator. The town has solicited bids for a disposal system.

The Meriden request was turned down when the commission heard the housing authortiy has not yet decided how to pay for updating of its incinerator system. This was also the reason for rejecting the hospital's request. Officials pointed out that no state funds have been approved to even study the air pollution problem caused by disposal methods at the hospital.

Other discussion by the clean air group dealt with pollutors and companies trying to halt pollution.

The commission turned down a request from the Connecticut Natural Gas Co. for a tax credit for installing special equipment on some of its vehicles. The equipment lets the trucks operate on smokeless natural gas.

The commission decided that no tax relief should be given because the vehicles involved are often used on normal fuel—not with the special natural gas devices which halt pollution. The commission briefly dicussed the entire question of tax relief for anti-pollution installation. There were indications the commission may ask the legislature to eliminate all tax credit for firms installing anti-pollution methods. United Aircraft Corp. was granted tax relief for spending $67,000 on anti-pollution equipment.

The clean air group considered plans now being developed to report on daily pollution in the state's five largest cities. There have been discussions both about reporting daily pollution levels and about developing a system to predict pollution. The state Health Department has equipment which could be used to report how badly each town has been polluted daily but there is a question of whether the department can spare the time and manpower to do so.

The commission voted to give the Anaconda American Brass Co. of Waterbury and the Bristol Brass Corp. temporary exemptions from the anti-smoke section of the clean air law.

MORE TIME NEEDED

The Waterbury firm was allowed until Dec. 1 to eliminate emission of occasional heavy black smoke. The Bristol firm was given until March 31 to halt the same thing. Both firms have programs underway which require further time to become operational, according to the commission.

The commission heard a report on staff activity which indicated there are now 150 requests for exemptions under consideration. About 40 requests to build approved incinerators are being studied, 25 to 30 violation notices are being processed and about 300 firms are being watched for possible violations.

The commission was unable to act on several items on its lengthy agenda because, after more than two hours of the meeting, three members left and there was not a quorum. Several commissioners expressed displeasure at members who often leave early, halting the business of the group. Others indicated meetings should be run more rapidly. Those who left early Monday were Edward F. Bannon, William J. Scully and Richard B. Erickson. Absent from the entire session were Philip D. Blanchard and Warren A. Greten.

[From the Courant, Feb. 2, 1971]

SOUTH WINDSOR—SPRENKEL WILL ATTEND HEARING ON GAS SALES

Town Manager Terry V. Sprenkel Monday announced he will attend a public hearing Wednesday called by the Public Utilities Commission. The hearing is to investigate the Connecticut Light and Power Company's policy of restricting natural gas sales by not accepting new customers or added requirements from present customers.

Sprenkel stated that an investigation by the (PUC) is now "completely justified" in view of the fact that the general public, and users in South Windsor specifically, have been under the impression "that natural gas supplies were adequate for future growth."

The manager noted that in several instances, the town "has been asked to work with existing or new industrial firms in the community needing natural gas for expansion or new development of facilities."

"Our efforts," he said, "have been discouraging and there has been no assurance of future capacity even though public advertising has led the consumer to believe that natural gas was available. This situation has worked to the detriment of South Windsor in its efforts to work with and cooperate with commercial and industrial enterprises that have made major financial commitments in the community."

Sprenkel added that "recent news releases by the natural gas utility, a subsidiary of the Connecticut Light and Power Company, have not resolved the questions of why this situation happened and when it will be corrected to meet the needs of the community and the area."

Mr. WILLIS. But I think the important point is that following this announcement, our State Public Utilities Commission had a hearing at which all of the utilities in the State were asked to outline their gas supply situation and why some companies seemed to have plenty of gas in spite of a national shortage and Connecticut Light & Power was fresh out.

Connecticut Light & Power explained to our own State commission that this was a matter of policy with them, that they had planned for years as to how they were going to conduct the gas business and the fact that they now didn't have any was the result of those policies adopted 5 or 6 years ago.

Conversely, we explained that our policy starting 5 or 6 years ago was to look down the road and anticipate that there was going to be a gas shortage. As a matter of fact, I think many gas utility executives did exactly that. So we started then to make plans as to how we would handle it.

We figured there was going to be a 5-year period during which every gas utility was going to have some supply problems, so we made plans to handle our affairs during that 5-year period.

Connecticut Light & Power explained to the Public Utilities Commission of Connecticut that their policy was just the opposite.

If I put myself in their position, and I were to be forced to get rid of my gas business ultimately, I probably would do exactly what I suspect might be happening here, to try to minimize the competitive impact from that gas business ultimately when it got in somebody else's hands.

Mr. O'LEARY. Apart from the divestiture issue, is it possible that sales of gas for that company are less profitable than sales of electricity?

Mr. WILLIS. I think that is a difficult question for anyone to answer, because in a combination company you have a number of these joint costs that have been referred to as savings. In my management-consulting days, I used to try to find out how one utility after another handled these joint costs, and in some cases, I used to hear about an ability-to-pay formula and I never could quite understand exactly what that was supposed to mean. But with a little probing it usually boiled down to the fact that in any one year if one business looked like it was making more money than the other, you loaded the costs on that particular business that particular year.

So I think it is very difficult to say that one side of the business is more or less profitable than the other side of the business. If they are both conducted properly, they can both be very profitable.

I think if any combination utility promotes at any given time what it probably conceives to be the most profitable, but I think this involves an awful lot of stipulation and opinion.

Mr. O'Leary. Do you have any idea what effect the Connecticut Light & Power policy has had on the sales of gas appliances by gas heating and cooking manufacturers and dealers?

Mr. Willis. Yes, as a matter of fact, one of the biggest repercussions we had from the Connecticut Light & Power announcement was the fact that dealers throughout the State of Connecticut thundered down on us figuring that the announcement really was a statewide announcement. We had to do all kinds of things to try to set the record straight—that gas companies were not in this position—and the biggest impact from those calls and concerns was in the appliance dealer area.

You might be interested that the Caloric Corp., which is probably the largest range manufacturer in terms of market in the New England area, has a Connecticut manager who has written to me just to express some of his problems with all of this, and you might be interested in what he has to say.

I should add categorically this man used to be a salesman for Connecticut Light & Power Co. before he became the regional manager for the Caloric Corp. But he says:

> I am not certain when I was first bitten by this gas bug, but I do recall when selling at retail with the Connecticut Light & Power Co. that we were paid a percentage of the sales price in commission on all ranges, water heaters, dryers, and base heating units that we sold. This percentage was the same on any sale, but we had some added goodies called loadup bonuses that we were paid in addition to our commission. We were told that these load bonuses were figured by our management against profit potential of certain types of appliances burning either gas or electricity.
>
> We received $4 bonuses on gas ranges, $7 on electric ranges, and $6 or $7 on gas water heaters, and $11 on the electric water heaters. We were further instructed that if the home in question did not contain the adequate voltage to handle the electric appliance sold, that a rewiring allowance would be given to accommodate this high-use appliance. I do not recall any such program for gas-burning appliances, and in fact, if we found a home that needed a new gas appliance which required a ¾-inch gas pipe and only a ½-inch pipe was presently installed, it was the buyer's problem and expense in acquiring this added pipe size.
>
> With a program like this it was most easy way back then to switch fuels on all too many unsuspecting people because when the higher inherent bills for electric cooking and water heating began to present themselves to these good customers, this now became a problem of the billing department, and as salesmen we were off the hook, as it were.

He goes on in this letter to talk about what all of this has done to his appliance business in the whole State of Connecticut, practically dried up because of these announcements on gas shortage, and in fact, even sent me a letter from an appliance dealer in Danbury that is telling Caloric about his problems, practically putting him out of business because of inability to sell appliances.

Mr. O'Leary. Mr. Chairman, could I ask that those letters be made a part of the record?

Senator Hruska. Without objection they will be made a part of the record.

(The letters referred to follow, testimony resumes on p. 393.)

CALORIC CORP.,
Topton, Pa., June 8, 1971.

Mr. ROBERT W. WILLIS,
President,
The Connecticut Natural Gas Co.,
Hartford, Conn.

DEAR MR. WILLIS: As you know, my planned visit to Washington next week has been cancelled due to other circumstances and rather than letting my proposed comments on this "Combination Utility" business go unstated, I feel it worth a try in presuming on the relationship that has developed over the years between you and your Company and myself and am going to ask you to hear me out as it were with the hope that if anything I shall mention in this letter has merit, that you will pass it on to those most honorable men in the Senate for their edification. I ask most sincerely for your patience during this disertation of mine as it is a first for me and will probably appear cumbersome to those more skillful.

What I intend to convey is my very strong feeling that someone, somewhere, somehow, must get our Combination Utilities here in Connecticut to divest themselves of their gas business because over the past recent years they have, in a rather insidious manner, blocked me and the company I work for into the position where we can no longer fairly compete in the marketplace. They have also placed several retail appliance dealers who inventory gas appliances in a rather binding position and, worst of all, have now denied the ultimate consumer of her right to choose the type of fuel she wishes to cook with or heat with, and in certain circumstances, actually force Mrs. Consumer to pay higher prices for these services because there is no competitive alternative.

I'd best begin at the beginning: Upon graduation from High School in Watertown, Massachusetts in 1946, I served 6 years as a non-commissioned officer in the United States Air Force and during this time attended Tulane University and served for nearly 3 years in the Orient. After my return from the Korean situation I was discharged and went to work for a fuel Oil & Bottled Gas Company in Waterbury, Connecticut where I gained some experience in fuel and retailing of heating and appliances. In 1954 I went to The Connecticut Light & Power Company, also in Waterbury, Conn. as an outside salesman of Gas and Electric Appliances, to the retail trade. On 1 January 1955 I was hired as a factory representative of my present company and am now employed as District Manager of our Connecticut territory where I do business with Utility and dealer outlets and the LP or bottled gas distribution people. I hold no degrees from institutes of higher learning, but I do hold certificates of completion in courses of Gas Marketing and LP gas operations from the University of Bridgeport, A federal Pilot's License, a Coast Guard Passenger Carrying Small Boat License, am a member of the New England Gas Association, have four children, a lovely wife and home and the mortgage that goes with it. My biggest problem at the moment, other than those that perplex the average American family man, is one of Utter frustration over this gas versus electric situation that has been foisted upon me and is restraining my ability to trade in combination areas, which cuts down my earning potential and forces a second choice cooking appliance with higher inherent cooking and service costs onto those who should not be monopolized into this position; and until now, there was absolutely nothing that I as an individual could do about it.

I'm not certain when I was first "bitten" by this "gas bug", but I do recall, when selling at retail with the CL&P company that we were paid a percentage of the sales price in commission on all ranges, water heaters, dryers and space heating units that we sold. This percentage was the same on any sale, but we had some added "goodies" called load bonuses that we were paid in addition to our commission. We were told that these load bonuses were figured by our management against "profit potential" of certain types of appliances burning either gas or electricity. We received $4.00 bonus on gas ranges, $7.00 on electric ranges and $6.00 or $7.00 on gas water heaters and $11.00 on the electric water heaters. We were further instructed that if the home in question did not contain the adequate voltage to handle the electric appliance sold, that a "wiring allowance" would be given in each case to accommodate this high use appliance. I do not recall any such program for gas burning appliances, and in fact, if we found a home that needed a new gas appliance which required a ¾" gas pipe and only a ½" pipe was presently installed, it was the buyer's problem and expense in acquiring this added pipe size.

With a program like this it was most easy way back then to switch fuels on all too many unsuspecting people because when the higher inherent bills for electric cooking and water heating began to present themselves to these good customers, this now became a problem of the billing department and as salesmen we were "off the hook" as it were. I didn't then, nor do I now, wear a halo, because I did from time to time sell electric appliances knowing quite well that it was not in the best interest of the home owner or renter, but these "sleazy" sales policies did not give me occasional pangs of conscience and when the opportunity came to go into the wholesale end of the business with a straight gas manufacturer, I took it and have never been sorry nor conscience striken. I am convinced deep inside of me that gas cooking is the absolute best dollar value for the American housewife and is certainly the better fuel to cook with. The overwhelming preference of gas for cooking among professional chefs throughout the world points out this fact much more clearly than I can.

Our industry enjoyed some good, competitive growth years with the introduction of Natural gas into Connecticut. Our dealer group sold both types, our builder customers sold both types and even the combination companies sold both types of appliances which, if nothing else, allowed the thinking among the dealer and customer people that both fuels must be OK.

Then came the crash . . .

The combination companies stopped merchandising appliances; the chatter was that they would promote the fuels through cooperation with the dealers in the form of advertising assistance and service help. For a time this did take place but the funds available for the promotion of gas appliances seemed to dry up. It became harder and harder for builders to secure gas main extensions to new developments. Electric Heat was rearing its ugly head and began to be promoted by the most unfair, most expensive hard hitting promotional campaign I have ever witnessed. I was present at many meetings between builder representatives of the utility and the builder himself were "formulating" the plans for new developments and apartments as I was trying to sell my product as I had done in the past. I soon began to see that we gas people were in a great deal of trouble because it was apparent that electricity was going to be sold and that was that. I cannot compete where there is no gas pipe and Mr. Builder is not going to the expense of paying for his own gas piping, even if he were allowed to order it, when he is "arm twisted" into going "all electric" with such items as $200.00 bonuses and a "free electric water heater thrown in" per home. He generally didn't want to be a "crusader" for the gas industry, because it was too costly to him and what did he really care what the utility bills for his eventual customer would be? He'd be out, with his profit on the home and his Electric bonus and building elsewhere.

It is understandable why the "all electric" promotion has been so successful on the surface because of the overwhelming advertising and inherent trust that most people have in their utility. The big "clincher" in their pitch was "your all electric home is specially insulated against New England weather and you are placed on a special heating rate so that total costs will certainly be quite competitive." It doesn't dawn on the unsuspecting that this same insulation applied to any type of heating job will certainly cut down substantially on the heating cost. There is nothing whatsoever that limits this saving to electricity, but if you're thinking now what happened when the high bill complaints began to come back to these electric heat proponents?, please remember that in a normal electric heat installation, to convert this to gas or oil is a major undertaking and the irate customer is often led into another false sense of security by the budget payment of the heating bill or a re-selling of the clean-safe-modern story or the biggest bromide of all . . . Nuclear electricity is here now and in a very short time our rates will certainly go down; so just be patient and the wonder of the century will put money back into your pocket. With never an admission that they would have been just as safe, just as clean and just as modern and way ahead in dollars had they installed gas heating and appliances to begin with.

Another cute trick that thrust upon the consumers of combination utility fuels in this area was the "Silver Star" home. This ploy took place when the builder was fortunate enough to have a development underway that already has gas piped to it or was so close to a main that the company just couldn't refuse the service at that time, so, rather than allow the builder to produce the so called "all Gas Home" they advertised to the builders that if the heat was gas and a range (any fuel) was installed in the kitchen he qualified for a $25.00 allowance, BUT, if the builder further built the home under the then called "Bronze

Medallion" (all electric, except for heating, as opposed to Gold Medallion which includes heating), he would pick up an addition $100.00 bill. For this the builder made the decision of electric cooking (any range, $25.00), place electric lights in the closets throughout the house and provided the 220 volt wire for an electric dryer, and he earned his additional $100.00. Another squeeze on gas.

It should be stated here that these facts I am presenting were general information and mailed to the *trade* in bulletin form, but some of assertations and opinions and comments I bring out are gleaned from the so called "middle-management" group within these companies that I had known and called upon for several years with possibly a bit extra "inner-sanctum" treatment given me due to my status as a past employee.

During my normal visits to these management people at various branches in Bristol, Meriden and Waterbury I found myself complaining bitterly to these gentlemen because of these unfair, anti-gas policies and programs that were now the vogue and I questioned these people most directly as to why this course of action? I was told by all that "it appears the Security and Exchange Commission is going to force us to divest of our gas properties as was done in Rhode Island to Blackstone Valley Gas & Electric and when it finally comes it only makes sense that our own properties today will be in competition with us at that time and we'd be damn fools not to weaken the position of a competitor now when we are in the driver's seat. I must say that I grudgingly accepted this philosophy as it probably makes good business sense, even though it is quite blatantly self serving and so very unfair to the consumer and to people in a position like me.

Our industry has suffered along these past several years watching our share of this once good gas market dry up and we tried to satisfy ourselves on the "remains" so to speak wherein we picked up some replacement business and some remodeling business and ever so rarely a builder development, but during this winter just passed, lo and behold our two combination companies, now merged into Northeast Utilities Company come out with publicity in the press and TV & radio that there is a drastic shortage of gas and no one is any longer permitted to add a gas appliance to their existing service whatsoever. Replacement appliances will be permitted, of course!

This means that if one desires to convert from oil to gas heat or from electric to gas heat, or hot water or cooking or clothes drying, it would be refused. In light of the fact that straight gas companies in the area were advertising service on all levels to all comers old or new, it looked rather silly. Why did one company have gas and another have none to spare? The confusion it caused in the areas served by combination people was immediate and general. People began calling or visiting the appliance dealers in a bit of a panic and that small group of potential replacement buyers that we were trying to hang on to begin to dwindle and now I and my company are in the worst possible situation. We have been prohibited from competing in the new home market or the replacement market wherein the customer may now cook electrically and want to switch to gas and now the last group that we have any chance with at all, the present gas user, feel that gas is a lost cause, there is no more to be had and they had better go electric and get it over with.

Several of my dealers have been caught with gas range inventories that are gathering dust with no time in sight as to when they will be sold. It is true that these same dealers can and do, turn around and accommodate the customer with an electric range or dryer, but in many many cases, this causes an additional expense to the customer who may not have the proper wiring for this new type of fuel and the "wiring allowance" I mentioned in paragraphs past, is no longer in the offing. They don't need this allowance any longer because now they are in a position of dictators.

In the territory served by combination companies, there are around 145,000 gas meters, out of a total in Connecticut of 390,000, approximately, or something in the area of 35% of my business potential has been, for all intents and purposes, taken out of the realm of competition, and, in my opinion, is a staggering and completely senseless loss.

It is generally accepted that gas burning appliances have greater longevity, lower operating costs, lower service costs and highly competitive initial costs; our fuel is clean, flexible and less expensive and it strikes me as criminal that we are now not to be allowed to continue to compete in these combination areas: Is it our destiny that this gargantua called "Reddy-Killowatt" is to be allowed to blacken all our skys at and near the generating stations, entangle us with overhead wires, give continued excuses for power failures, overcharge for serv-

ice because of lack of competition, while on the other hand screaming against conservationists who stand in the way of nuclear generation (which, I understand itself is not in boundless supply)?

Did you ever stop to think that if there was no electric heating available, there probably would be no power shortage during those winter months?

Let me close this document out with a story involving the Federal Government: Post Office Department;

Five years ago in Pittsfield, Massachusetts, a city served by two separate utilities, but within its limits dwells a facility of the General Electric Company employing some 11,000 people, it was decided to build a new Post Office that would be a major sized enterprise occupying one city block. As is generally the case in new buildings, the bids went out with the normal comparison figures being submitted by the electric company for their service and the gas company for their's and attention was also paid to oil for heating & hot water purposes. In the midst of all this selling and figuring and planning, the idea of a complete self contained "Total Energy" complex was submitted. The idea being the best dollar investment from an immediate cost and long range cost standpoint. It was proposed that two Catipillar Natural Gas driven engines be installed to drive generators with the exhaust heat and internal cooling water derived from these engines themselves being utilized to heat & cool the building and to supply hot water. There was to be no energy from the outside with the exception of a gas pipe. The units were installed at the expense of the gas company and tested for one full year before they could or would be accepted by the Post Office department and paid for by whomever signs checks in Washington. This was quite a financial risk it seemed to me for a small company, but talk about putting your money where your mouth is in a competitive situation. . . . They did it!, it worked, and is now operating quite satisfactorily and I am told it now is only the first of many other installations of this type planned. My point is: The Federal Government wanted service; this service was opened to fair competition and when the dust had settled our gas industry got the job.

In all honesty now, shouldn't John Q. Public at least be allowed a choice? What the duece is happening to free enterprise?

Thanks most kindly Mr. Willis for taking the time to wade through all these words.

I am, cordially yours,

GEORGE HOWLAND.

ZUCCA'S DANBURY HOME APPLIANCES, INC.,
Danbury, Conn., June 3, 1971.

Mr. GEORGE HOWLAND,
Caloxic Co.

DEAR GEORGE, as you know the C.L.&P. has curtailed its gas services to the extent that they will not accept any new customers.

I have a large inventory of Nat gas self-cleaning ranges in stock that cannot be converted to LP.

To be able to sell these ranges I will have to wait for a replacement of a gas range that is already in use.

I strongly suggest that something be done now to insure the people of Danbury Nat gas to their homes, as long as they live on the Nat gas lines.

Sincerely,

HAROLD L. ZUCCA, *President.*

Mr. O'LEARY. My last question, Mr. Willis, relates to a statement you made to the effect that straight utility customers enjoy superior quality of service. Would you care to enlarge on that?

Mr. WILLIS. Yes. I think generally, people have a tendency to think of service as calling somebody to send a service man to your house to fix something—television sets or appliances. That certainly is one form of service, and I think generally gas utilities try to render a higher caliber of their kind of service than you find generally in the electric business. So it is a form of competition in terms of trying to provide what the customers want, providing promptly, and having it good quality.

There are many other forms. For instance, in my exhibit A, I refer to a swimming pool dealer who had some problems. If he had been in our territory, we would have run gas lines at no cost to him, right up to his building so he could have heated the building, heated the water in his demonstration swimming pool, and so forth. He happened to be just over the line in the combination company territory. So in their territory, he could get a free underground electric wire if he wanted to do all this with electricity, but if he wanted to do it with gas, it was going to cost him $2,500 for the lines.

That is an example of the kinds of things that are involved in service. We, for instance, provide all kinds of services to builders in terms of planning and laying out underground systems prior to paving so that we don't have to go back to disrupt newly paved streets. This is not generally done by our neighbors, to the point where practically every new building contractor in the area continually compliments us on the way we do it and makes somewhat nasty remarks about the way it is done next door.

These are typical of the kinds of things, that to my mind, are all embodied in the concept of quality of service.

Mr. O'Leary. Thank you. I have no further questions, Mr. Chairman.

Senator Hruska. Mr. Willis, this Target organization to which you refer, how many members has it?

Mr. Willis. There are 32 utilities companies in the organization, Mr. Chairman.

Senator Hruska. And what kinds of companies are they?

Mr. Willis. Up until a year ago, they were all straight gas companies. No combination companies. Last year two combination companies joined the group. One is right in my own territory, Northeast Utilities—pardon me. I guess there are three now, Consumers Power and Service Electric & Gas of New Jersey.

Senator Hruska. And are they nationwide in scope?

Mr. Willis. Yes; the 32 companies are spread geographically across the whole United States and they involve the large gas utility systems like the Columbia System, Consolidated System, Pacific Lighting System, and all of these large users.

Senator Hruska. Now, as I understand it, it is a unit, you say, which involves direct electrochemical conversion of natural gas to produce electricity and that it is for any user, industrial, or residential?

Mr. Willis. Yes, sir; anyone who needs electricity.

Senator Hruska. What communities does your company serve?

Mr. Willis. We serve the cities of Hartford, New Britain, and I think 19 surrounding towns, roughly the central one-third——

Senator Hruska. Yours is a straight utility?

Mr. Willis. Yes.

Senator Hruska. Straight gas utility?

Mr. Willis. Yes, sir.

Senator Hruska. And then there are straight electricity distribution systems within that same area, is that correct?

Mr. Willis. I wish it were, but I think every electric company with which we compete is also in the gas business in our service area.

Senator Hruska. Now, this Target product, this fuel cell—if you do make it—would enable you to take your area there that you serve and

take a condominium and go into the electric generation and transmission business.

Mr. WILLIS. Yes, sir. Correct.

Senator HRUSKA. Would you still consider yourself a straight gas utility if you do that?

Mr. WILLIS. I think we would be because there is a common denominator to what is called broadly the total energy business and the fuel cell is one form of total energy. There are other total energy installations that use gas-fired engines, some that use turbines, but they all fall broadly in the category of total energy.

The common denominator of all of these, however, is that they use gas onsite as fuel. The onsite is a very important thing, to produce the electricity for the customer right at the site, eliminating all the overhead lines and the big generating plants that would otherwise be required, which I think as the chairman knows creates a lot of ecological problems today, and pollution and all the other things.

Now, this used to be impossible to do on a small scale because of economy of scale. The power company could build a 500 megawatt unit and produce power substantially cheaper. Now, with the fuel cell it is possible to produce 10 kilowatts of power at roughly twice the efficiency of a central powerplant. So you can do it in any size.

As long as this is confined to the Connecticut site power produced with gas, and I am in the gas business, it seems to me that I have not become an electric company, but I am a pretty formidable competitor to any electric company, and I think this would be good.

Senator HRUSKA. So you think, therefore that the bill should be amended so as to exempt that type of operation from the functioning of the bill.

Mr. WILLIS. Yes, sir.

Senator HRUSKA. It kind of impresses at least one Senator out of 100 that you want the best of all possible worlds and wish a lot of bad things for other people. Don't you think that is about right? You say the bill is good and should be enacted, but don't make it applicable to us. Isn't that what you are saying?

Mr. WILLIS. No, sir. I think I am saying——

Senator HRUSKA. Well, would it apply to you if this were amended, if this definition were amended as you suggested, would the bill apply to that part of the operation?

Mr. WILLIS. The divestiture portion of the bill would not apply to me in any event because I have no business to divest.

Senator HRUSKA. It would apply to anyone who uses Target, wouldn't it? The target fuel cell?

Mr. WILLIS. Well, I think Target is irrelevant.

Senator HRUSKA. That is only a matter of describing it. Anyone who uses the fuel cell would not be in this bill.

Mr. WILLIS. It certainly would have to be amended in a way different than that because any combination company that wanted to use a fuel cell in order to avoid divestiture, it could simply use one, so I think it has to be carefully amended so that it allows companies that are primarily in the gas utility distribution business who can provide total energy service to do so.

Now, there may be competitive electric situations where the electric companies are allowed to compete with gas companies, toe-to-toe on

some things. I think they already have that. If I understand the intent of the bill, it is to create competition and I think it does exactly that. I don't think it is a special privilege for one group or another group. It just keeps the door of competition open, which I understand to be the intent of the bill.

Senator HRUSKA. Well, if your company went into the business in a big way of that fuel cell, you would be competing with the product with straight electric utility companies, wouldn't you?

Mr. WILLIS. Yes, sir.

Senator HRUSKA. And you couldn't do it under the way the bill is now written.

Mr. WILLIS. That is correct.

Senator HRUSKA. So I still think you are going to be subjected to a little criticism by saying we are selling gas and we are going to put it in a total energy system, and therefore we don't want this bill to apply to the electric companies.

Mr. WILLIS. I am saying it should apply to everybody, but I think that the intent of the bill is to create competition, and I think therefore the bill should be drawn to achieve that intent.

Senator HRUSKA. Isn't it true, though, Mr. Willis, that most State laws—I am not an expert in this field—this is not the Commerce Committee, so I would plead ignorance. But my general idea has been that most State laws, when they grant a franchise to an electric distribution company for their municipality, say you shall have a monopoly. You shall be it. And that is for the purpose of avoiding wasteful competition, and instead of competition, what they then crank into the picture is the form of regulation and a fair return and this and that and the other thing, together with other regulatory features.

If that is true, and I imagine it is true, in many, many States, how would that be affected by your situation?

Could you still come in with the fuel cell without getting a State to amend its laws and, of course, you would then have to make a settlement for the vested interests which lie within a monopolistic franchise that you have just described.

How would that impair the thing or affect the thing?

Mr. WILLIS. That is a very broad question, Senator.

Senator HRUSKA. Oh, it is indeed.

Mr. WILLIS. I will try to respond to it.

Senator HRUSKA. Some of your statements here are quite broad, too.

Mr. WILLIS. First, it is generally true that utility franchises are exclusive. This does not happen to be true in the State of Connecticut, and there are many other jurisdictions where it is not true, but I think a preponderance probably represents an exclusive franchising type of operation.

Now, I don't think that was done in the first instance in these States in order to create monopolies. I think it was done for the very purpose of achieving what were then considered to be economies of scale. I pointed out in the fuel cell business the economy of scale is no longer a viable argument because the public can be served better regardless of the scale this way.

Now the fact that historically we may have leaned on the monopoly characteristics and therefore have been forced to use a regulatory

system as the only device to protect the public, the only reason we ever got to that was because we did not have a truly competitive type of operation at the outset.

These things will change as technology changes, and I think today we have a different world than we had when most of this was created. And I think we have to change our laws and our concepts and our public policies with the changing world.

I don't think, according to the work that has been done by the Target codes and regulatory committees up to this point that many State laws would need to be changed in order to make the fuel cell viable.

I think the laws are already flexible enough in spite of exclusive franchising to make this possible in most jurisdictions.

Senator HRUSKA. I am for it if it is going to be more economical, if it is going to serve the purpose better. I think that would be a notable thing. However, to balance it out, when a franchise is granted in any given municipality, they are supposed to have an exclusive, or they contemplate an exclusive situation, and they proceed to build a big generating plant. And they proceed to put their poles or their underground cables and they are going to serve everybody. They see they can come out. But if in that process after all that is done there will be carved out of their operating territory choice bits of property like large apartment houses, condominiums like you described, industrial complexes, and you set a fuel cell in there and you generate and transmit and sell to others in competition with the electric companies, it just seems to me that is going to have a pretty big impact upon the ability of that company to function pursuant to the original blueprint upon which their financing and their operation is based because it will take away from them a lot of the fruitfulness of their territory. And I don't know to what end, because then they would have to increase their rates in the less productive areas that are not adaptable to the fuel cell, and maybe those people might object a little bit.

What do you think, if their rates were raised on that account? Do you have in your public utility mind, or gas and electric utility mind, that when people get a raise in rates they complain?

Mr. WILLIS. Oh, I think they generally do, Senator. I hope that no one would mistake what I said about the fuel cell to imply that anyone I know thinks this is going to put the electric companies out of business.

Senator HRUSKA. You are going into their territories, though.

Mr. WILLIS. It will provide competition, and I think we will continue to grow and they will continue to use all the powerplants that they can build. New York City is having a pretty rough problem right now trying to serve the public with electricity. Conn Ed has to advertise in the newspapers asking people not to use electricity. We had brownouts and voltage reductions all through New England all last summer. Therefore, the power industry has got a pretty big job to do to keep up with what it can keep up with.

The fuel cell might relieve the burden a little bit, and I don't think it necessarily follows that electric utilities would end up with any higher rates because of competition from a fuel cell.

As a matter of fact, it is entirely possible that just the opposite could happen. If the fuel cell really gets off and running economically,

it could have the effect of placing ceilings on rates just because of competition.

Senator HRUSKA. Well, but those ceilings have to be acceptable to both parties. They have to be sufficiently big to allow the straight electric utility to continue to operate.

Mr. WILLIS. Yes, sir.

Senator HRUSKA. Now, if they can't do it, then their rates will be a little higher, and that rate will be visited upon those who don't use fuel cells or who cannot use them.

Mr. WILLIS. Or we might all become a little more efficient, which would be very helpful.

Senator HRUSKA. Well, I can't understand why you say that efficiency would impart any benefits, then. If there is a given, say, 100 square miles of territory and there is a generous placement of apartment buildings and condominiums and those are extracted from the straight electric utility and they are divorced from their customer list. Now just how are they going to increase their efficiency to overcome that loss of customers when they will have a plant capable of servicing them all. Then part of their customers is taken away and they have an unused capability?

Now, how can they increase their efficiency enough to overcome that loss of customers?

Mr. WILLIS. I think I would have to say, Mr. Chairman, that from my experience in the utility business, there are many, many areas where efficiency can be increased.

Senator HRUSKA. There should be anyway, regardless of the existence of the fuel cell, you see.

Mr. WILLIS. They should be——

Senator HRUSKA. But the business of the regulatory body—it is their business to see that they do it.

Mr. WILLIS. I know of no regulatory body in the world that can create efficiency. As a matter of fact, most of them do just the opposite.

Senator HRUSKA. Well, on the other hand, there is an undue expenditure for something that is not fruitful or related to the utility. We have known of instances where the regulatory body has denied further prosecution of such expenditures, haven't we? And we have had them deny certain activities of a company in figuring the basis for rates. In that way, there is efficiency. That is the object of regulatory bodies.

Mr. WILLIS. As a utility executive, Mr. Chairman, I can't agree that a disallowance of an expense by a regulatory commission creates efficiency. All it does is create an economic problem, and the courts and most commissions have ruled pretty consistently that regulating bodies are not allowed to interfere with the management prerogatives of utilities, and therefore they draw a very careful line even in the disallowance of expenses. But if efficiency is to come, it has to come from utility management. It can't be created by regulatory authorities.

Senator HRUSKA. So if we took an example of 100,000 customers that are being served by a great electric utility and then along comes the fuel cell that causes a loss of 25,000 customers, the loss will be felt. The straight electric utility has geared a plant for the servicing of 100,000 customers and now all of a sudden they have 75,000. But

they have the investment, they have the facilities and they have the capabilities, but they are unused to the extent of 25 percent.

Now, I repeat my question. How can efficiencies be introduced into the picture to overcome that kind of a thing. And if the fuel cell is that good, pretty soon it will be 50 percent and then 55 percent, and what is the straight electric company going to do?

Mr. WILLIS. Probably have some of its own fuel cells to start with. I guess your question, Mr. Chairman, is somewhat hypothetical and I don't think I can agree with the hypothesis that this is the way this will really work. I don't think there is any electric company that is going to lose customers wholesale to fuel cells. It will lose an occasional customer. Mostly it will be competition for new customers. It may be that some will go to fuel cells instead of all of them to electric companies. But I think in the final analysis the customers will go in the direction of whichever utility is able to best serve the public interest and serve that customer's needs.

Therefore, it will put all utilities generally on their mettle to do the best possible job they can for that customer, and it seems to me that is what the game is all about.

Senator HRUSKA. Well, perhaps so, but if that is true, then we shouldn't have monopolistic utilities.

Mr. WILLIS. I am not sure—we certainly shouldn't encourage monopoly.

Senator HRUSKA. We started that way with the telephone system, didn't we? In my little town where I lived we had the red number and the black number and there were two exchanges, two sets, two everything. That didn't last long. They went broke and the service was bad. It was bad inherently, but even worse than that. They went broke. Why? Isn't it because they found they couldn't operate two systems of that kind. One was given the job and then they said, you are going to have a supervisory body over you so that you won't run away with the pocketbook of everyone who uses a telephone. And in that instance, it was a classical one that competition just didn't work. Why should it work with an electrical company?

Mr. WILLIS. Because in the telephone industry, Mr. Chairman, you had practically no possibility of competition other than the telephone. You didn't have a telephone versus—there is no electric phone and a gas phone. You didn't have a choice. But with most of the things we are talking about with electric and gas companies, there is a choice—for heating, for cooking, for refrigeration, air conditioning, clothes drying, all of these things. There is a choice.

Senator HRUSKA. That is right, but what you want to do is to go into the electric business. That is what you want to do. That is the end product that makes the difference. Electricity could be made by hydroelectric, it could be made by nuclear plants, it could be made by diesel plants, it could be made by fuel cells. What you want to do is have the best of both worlds. I repeat that. Because you want to be in the straight gas business and you don't want any electric company to compete with you.

Mr. WILLIS. Oh, I certainly do.

Senator HRUSKA. But you want to go into the electricity business through the fuel cell.

Mr. Willis. I think you misunderstand my position, Mr. Chairman, if you don't think I want an electric company to compete with me. I want them to compete with me as aggressively as they know how.

Senator Hruska. With this bill?

Mr. Willis. With modifications. As a matter of fact, they would compete with me with the divestiture and it would be rough. My life wouldn't be nearly as simple as it is right today, nor would theirs. We would both lead a much more difficult life and the public would benefit when it was all over in my judgment.

Senator Hruska. Well, it is a little confusing. First of all, you say this is the answer to a lot of things. Commercial production of natural gas fuel cells can be of great benefit to solve the great part of our energy crisis, our ecological and other environmental problems on the proper utilization of our natural resources. And after telling us all of those fine meritorious things, you seem to say well, it won't have a bit of impact on the electric company. Maybe they can go in the fuel cell business too.

Now, either it is that good that it is going to take over or it is not that good and won't have much of an impact at all, and therefore it shouldn't probably have an exemption from the bill.

Mr. Willis. I am not sure, Mr. Chairman, whether you are proposing that the public should be denied the benefits of technology and innovation and so forth.

Senator Hruska. No.

Mr. Willis. And the fuel cell is a great technological innovation and certainly the public should not be denied access to it.

Senator Hruska. That is not what I am suggesting. You are in favor of this bill which has a thrust to this effect that the gas business should stay the gas business and the electric business should stay straight electric business and have competition between the two. But then you say there is a little exception. If we can devise a way of making electricity, you should let us compete as a combination company, gas and electricity. That is in effect what you are saying. I can't figure it out any other way.

Now, if you made that available to the electric companies alone, because it is the end product that they will be selling, then you have a straight electric company and you have a straight gas company. But the way you want this, I don't think you are going to have that result. Do you?

Mr. Willis. I think we are going to have the best competition possible, and I think it would be a serious mistake of public policy for a bill to be enacted which prohibited that kind of competition.

Senator Hruska. It wouldn't be prohibited. Perfect the device and then let the electric companies use it, because they are going to be the only ones under this bill who can sell electricity. And the straight gas companies are going to be the only ones that can sell gas, but when you say that will be the result with one exception, and that is when the gas company finds a better way to make electricity, then we are going to sneak in on them and take away some of their market.

Mr. Willis. I would suggest, Mr. Chairman, that someone from an electric company ought to take a pretty careful look at the definition of the gas company in the bill because it is entirely possible with

nuclear fission and things like this that there could be side benefits in the power production business that might make it possible for an electric company to provide something that is the counterpart of a present gas service. I think the key point here is that we should not enact legislation that denies the benefits of technology in such a way that it stimulates competition and if the electric industry has something that will compete better with anything my company has to sell, I would say, God bless them, and I hope they have it, and have the permission to use it, and we find out which of us can serve the public best.

Senator HRUSKA. Well, that is a point to be argued, of course, and let the record make it plain that this would be the last person to deny them the benefit of any technological advance, but here we are taking a going system and we are going to rearrange it and we are going to make straight utilities, gas and electric, respectively, and then we are going to have electricity generated by another means, in which gas will be the core of the thing, instead of nuclear fission, or whatever. It will be gas and we are going to say, well, in that case, we will just forget this law and we will function without the law. We will have the gas companies make electricity but we won't let the electric companies buy gas wells and go into the business also. At least, that is how conceivably this could be construed.

Your statement has been good. I am sure it will be beneficial.

Mr. O'Leary, have you any additional question?

Mr. O'LEARY. Mr. Chairman, your line of questioning has prompted one more on this side of the table, if I may.

Senator HRUSKA. Good.

Mr. O'LEARY. With respect to the fuel cell, Mr. Willis, do you envision that these electrical generation facilities would be owned by the gas utility or would they be offered for sale to the user?

Mr. WILLIS. They would probably be offered for sale to the user. However, a single family home with a load, let's say, of 10 kilowatts, might be talking about an investment of 1,000, just picking a figure out of thin air. I don't know whether it would be that or slightly more. I think a lot of people hesitate to make investments of that size. This means that the competition is a little rougher from the gas side. It may well be under those circumstances that gas utilities have to offer to lease the fuel cell, for instance, so there isn't a big capital outlay, which is what we do right now wtih many pieces of equipment. We lease air-conditioning equipment and water heaters and conversion burners, and all kinds of things so that customers can avoid the big capital outlay.

Senator HRUSKA. Well, would counsel yield?

Mr. O'LEARY. Certainly.

Senator HRUSKA. That cannot be true in the case of a condominium. A user doesn't buy it. The condominium management buys it and then they sell it to the condominium owners. So they create a new little exclusive franchise.

Mr. WILLIS. There are all kinds of combinations that could operate in this, and I think——

Senator HRUSKA. Where there would be four or five industrial plants nearby, they would get a little bit bigger plant and use it together and stop buying from the power company.

Mr. WILLIS. The beauty of the fuel cell is that the five industrial companies wouldn't have to get together to use the single fuel cell because there is no particular advantage to having one for five industrial customers. They can each enjoy just about all the same benefits by having their own, so there is no need for them to combine, and that again, I think gets right down to the root of this on-site point that I was trying to make, that this is essentially different than the way utility services are now rendered.

This is something that happens right at the site, not 5 miles away at a powerplant with transmission lines, and so forth, to get to the customer, and the more flexibility that there is, the more flexibility permitted as to who owns the fuel cell, whether it is the condominum owner or the owner of a residence, or the owner of an apartment house, or the utility whichever way serves the public best, should be permitted.

Senator HRUSKA. Thank you for yielding. Any further questions?

Mr. O'LEARY. To some extent that exists today, doesn't it? Aren't there shopping centers and so forth, where industrial users generate their own electricity?

Mr. WILLIS. Yes, sir.

Mr. O'LEARY. I have no further questions, Mr. Chairman.

Senator HRUSKA. And, of course, there are always stand-by facilities that enter the picture, like hospitals, and some shopping centers. If there be a failure of the big transmission system, they crank in their own emergency.

Mr. WILLIS. As a matter of fact, many of those, Senator, are gas-fired generating standby systems, you see, so we are competing a little bit right today in that respect.

Senator HRUSKA. Thank you very much.

We will now adjourn until 10 o'clock in the morning as of now. There seems to be a shortage of Senators to act as chairman, however, and competition with other subcommittees. The Constitutional Rights Committee is going to meet and it happens there is quite a membership in common between those two subcommittees. That meeting was called about 2 or 3 weeks ago and it has to do with issuance of the subpena, so I am afraid most of us are going to have to go at 10 o'clock. Let us put it this way, that tentatively the meeting hour of this will be 10 o'clock and perhaps 11 o'clock. An announcement will be made in due time. We will hear Mr. Solomon Freedman, Prof. William Collins, Mr. Gregg Potvin, and Pat Greathouse, in room 2228. The meeting is adjourned until that time.

(Whereupon the subcommittee recessed at 11:30 a.m., to reconvene at 10 a.m. on Wednesday, June 16, 1971.)

REBUTTAL STATEMENT OF EUGENE W. MEYER AUGUST 27, 1971, ON U.S. SENATE BILL 403

Earlier in these hearings before the U.S. Senate Antitrust and Monopoly Subcommittee I testified concerning the financing problems that would be created by the enactment of U.S. Senate Bill 403. I appreciate this opportunity to reply to observations on this subject made by two subsequent witnesses, Mr. Solomon Freedman of the Securities and Exchange Commission and Mr. Robert H. Willis of Connecticut Natural Gas Corporation.

Mr. Freedman suggests that the tremendous financial problems that would be created by forced divestiture could be avoided if the Bill were amended to "contain provisions, similar to that embodied in Section 11(d) and 11(e)

of the Public Utilities Holding Company Act. . . ." In effect, this would mean abitrarily splitting up a combination company's securities and handing security holders two pieces of paper instead of one. While this may be mechanically possible, in reality it would be extraordinarily unfair to investors because the combined value of the two new securities might in many instances be well below that of the single security they now hold.

The results would be substantially different from those resulting from Holding Company Act divestitures where the securities that were split up were usually those of the holding company, not those of the operating subsidiaries, many of which continued in existence virtually unchanged. In the forced divestiture of a combination company, on the other hand, the split-up of a single operating company would normally be involved. The split-up of operating companies, involving changes in management and the loss of economies of combined operations, would undoubtedly result in higher costs and lower earnings, at least initially, for the two severed operating companies. Because of the crucial importance of earnings to fixed charges coverage and per share earnings growth, the market value of the two pieces of paper held by the investor after such a forced split up could very well be substantially less than the one security he held previously.

There is also another crucial difference between the situation existing when the Holding Company Act was passed and the situation existing today with regard to combination companies. By eliminating or controlling corporate pyramiding, by correcting abuses which had in some instances included the issuance of "watered" securities, and by strengthening management at the operating levels, the Holding Company Act helped to restore investor confidence in utility securities in the aftermath of the Great Depression. By contrast, today, none of those abuses exists or can exist in the face of effective State and Federal regulation. Consequently, here is no lack of investor confidence in the corporate structures of utilities today. Instead, the existing uncertainties are those resulting from general market conditions, inadequate rates due to rapid inflation and changing governmental policies.

Presently, utility companies of all kinds are recording rapidly declining coverage ratios, erratic earnings and high financing costs. Investors are dubious about regulation's willingness to permit rates of return necessary to maintain the financial integrity of the industry. These uncertainties have driven market prices down and, therefore, financing costs up. If new legislation ordering the split-up of 73 combination utility companies were to be passed, the uncertainty surrounding the utility securities markets would be further increased, resulting in substantially higher financing costs for *all* utilities. Far from restoring investor confidence in utility securities as did the Holding Company Act, a forced split of combination company securities would have exactly opposite results. Still another uncertainty for utility security markets would be created by virtue of the years of time required to exhaust all legal remedies before diverstiture can be completed, witness the ongoing procedures in the cases of New England Electric System and El Paso Natural Gas.

Today, projected utility expenditures for new electric plant and gas exploration over the next five years are larger than ever before in history. Utility financing will account for well over 20% of new corporate financing during the next five years. The security markets which must provide this capital would be jeopardized by enactment of this proposed legislation, with or without the Holding Company Act provisions.

Mr. Robert H. Willis, in his prepared testimony, said that since an electric company could retain the cash paid by the newly formed gas properties, it could use these funds in lieu of new money from the market for future expansion. This, he continued, would mean lower rates to the electric customers to presumably offset higher rates to gas customers. But Mr. Willis' conclusion is wrong for several reasons.

Mr. Willis' basic assumption that the surviving electric company could retain the cash paid by the newly formed gas company and use it for future expansion is wrong. An investigation of the available indentures of a number (21) of the larger combination companies indicates that over half of the companies have provisions which restrict their use of these proceeds to some degree. All or part of the proceeds, under specified conditions, must be applied to the redemption of the company's outstanding bonds within specified periods of time. It is abundantly clear that many companies do not have the very rapid growth rate required to achieve new investment in time to avoid these restric-

tions, thereby voiding Mr. Willis' assumption for, at least, a large segment of the industry.

But even in those situations where the cash receipts from divestiture could, under the terms of the indentures, be retained by trustees for take-down by the Company against future property additions, these funds could usually be invested only in short-term Government securities. These investments would provide earnings lower than those generated by the utility properties in which the funds were previously invested. This decrease in earnings would lower the surviving company's coverage ratios, a problem which is already too serious in the utility industry.

And there is yet another flaw in Mr. Willis' generalization. There are many areas throughout the country where customers receive one service from a combination company and the other service from a straight company. I live in Morristown, New Jersey where my electricity is provided by Jersey Central Power and Light, a subsidiary of General Public Utilities, a straight electric company. On the other hand, my gas service is provided by Public Service Electric and Gas, which is a combination company. Mr. Willis did not deny that gas rates would go up under the provisions of S403 but alleges that this would be offset by lower electric rates. I doubt very seriously that Jersey Central would reduce my electric rates just because my gas rates were increased as the result of a Public Service Electric and Gas divestiture. Careful analysis will show that hundreds of thousands of customers would be similarly affected by S403.

For all of these reasons, it is impossible in the abstract to determine whether electric rates would be higher or lower as a result of S403. Once again, the evidence favors a consideration of each combination company based on its own particular situation rather than any new industry-wide legislation.

Mr. Willis, in his prepared testimony, indicates that I used a "straw man" based on a particular set of adverse money market conditions in arriving at my conclusions. May I point out that every care was taken to use only money market conditions and assumptions which pertain to today's business world. Mr. Willis, on the other hand, prognosticates that today's high senior money costs will decline and "reach a moderate level with which we all must live for the future." Furthermore, he states that S403 "would have no adverse effect on rate payers if spin-offs are accomplished under optimum money market conditions."

I submit that the "moderate level" for senior money costs is neither defined nor substantiated. "Optimum money market conditions" are likewise not defined or substantiated. The Senate should not be asked to rely on long-term money market prognostications in its deliberations concerning the propriety of restructuring an entire industry. As Mr. Willis stated in his testimony, "the cost of securities in the money markets varies from day to day, week to week, and year to year." But this ignores the undeniable fact that the long-term trend of interest rates has been *upward* since World War II.

PROHIBIT CERTAIN COMBINATIONS AND CONTROL BETWEEN ELECTRIC AND GAS UTILITIES

WEDNESDAY, JUNE 16, 1971

U.S. SENATE,
SUBCOMMITTEE ON ANTITRUST AND MONOPOLY
OF THE COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met, pursuant to recess, at 11 a.m., in room 2228, New Senate Office Building, Senator Roman L. Hruska, presiding.

Present: Senator Hruska.

Also present: Howard E. O'Leary, staff director and chief counsel; Charles E. Bangert, general counsel; Wilbur D. Sparks, assistant counsel; Walter S. Measday, economist; Peter N. Chumbris, chief counsel for the minority; Patricia Bario, editorial director; and Janice Williams, clerk.

Senator HRUSKA. The subcommittee will come to order.

In the absence of Chairman Hart, who is absent on official Senate business, the Senator from Nebraska has been asked to preside and act as chairman.

The hearings will resume on S. 403, a bill to prohibit certain combinations and control between electric and gas utilities.

Our first witness today is Mr. Solomon Freedman, Director of the Division of Corporate Regulation of the Securities and Exchange Commission.

STATEMENT OF SOLOMON FREEDMAN, DIRECTOR OF THE DIVISION OF CORPORATE REGULATION OF THE SECURITIES AND EXCHANGE COMMISSION, ACCOMPANIED BY AARON LEVY, ASSOCIATE DIRECTOR, DIVISION OF CORPORATE REGULATION, SECURITY AND EXCHANGE COMMISSION

Senator HRUSKA. Mr. Freedman, you have submitted a statement, have you not?

Mr. FREEDMAN. Yes, Senator.

Senator HRUSKA. All right. The statement will be placed in the record in its entirety and you may highlight it if you wish or you may read it, whichever you choose.

Mr. FREEDMAN. I think I would prefer to read it, Senator.

Senator HRUSKA. Very well.

Mr. FREEDMAN. I am accompanied here by Mr. Aaron Levy, Associate Director of the Division of Corporate Regulation of the Securities and Exchange Commission.

Senator HRUSKA. That is your office?

Mr. FREEDMAN. Yes.

Senator HRUSKA. Thank you.

Mr. FREEDMAN. As the chairman said, my name is Solomon Freedman and I am the Director of the Division of Corporate Regulation of the Securities and Exchange Commission. That Division has the responsibility, among other things, of advising the Commission con-

cerning its functions under the Public Utility Holding Company Act of 1935.

Incidentally, Senator, if anyone wishes to interrupt me at any time, please feel free to do so.

Any statements or views expressed here by me are solely mine and do not necessarily constitute the views of the Commission or any other member of its staff. I appear here today at the request of this Subcommittee on Antitrust and Monopoly.

I joined the staff of the Securities and Exchange Commission in July 1942 and was assigned to the then Division of Public Utilities (now the Division of Corporate Regulation). From 1942 to 1961 I spent my entire time working solely on Holding Company Act matters. Since 1961 I have assumed other duties as well but continue to have responsibility in the holding company area.

I understand that, in general terms, S. 403 provides that it shall be unlawful, on or after January 1, 1973, for any electric utility company to own or operate any gas utility facilities, and, conversely, any gas utility company to own or operate any electric utility facilities. There are other provisions prohibiting the control, directly or indirectly, of both gas and electric facilities. The stated purpose of the bill is "to promote interenergy competition between electricity and gas whenever possible . . . as well as to foster the independent management decisions of their respective operations."

It may be observed, initially, that gas and electricity are in competition with each other in many aspects. Thus, there is competition with respect to space heating, air conditioning, cooking, hot water heating, clothes drying, and refrigeration.

The combination of gas and electric facilities under common control or ownership has been considered by the Congress in the context of holding companies. In 1935 the Congress enacted the Public Utility Holding Company Act. One of the key provisions of that act is section 11(b)(1), which requires that a holding company confine its operations to a single integrated public utility system, that is, either an electric system or a retail gas system (for the definition of each, see sec. 2(a)(29)).

However, clause (A) of section 11(b)(1) provides that, with respect to those holding company systems that existed prior to 1935, the SEC may permit the retention of an additional system if the holding company can demonstrate that the additional system "cannot be operated as an independent system without the loss of substantial economies which can be secured by the retention of control by such holding company of such system." The SEC in a number of instances has considered the issue as to whether there has been a "loss of substantial economies" within the meaning of clause (A) with respect to the retention by a holding company of a gas system in addition to an electric system. In each instance the Commission has held that the holding company had not established that there would be such a loss. I have attached to this statement, with respect to each such proceeding, an analysis of the estimated loss of economies to the gas system as related to its operating revenues, operating revenue deductions—excluding Federal income taxes; gross income—before Federal income taxes; and net income—before Federal income taxes. This tabulation appears at volume 41, SEC Decisions, page 905.

(The tabulation referred to follows:)

	Engineers Public Service Co.				The North American Co.		Philadelphia Co.		General Public Utilities Corp.		Middle South Utilities, Inc.		NEES	
	Gas properties of Gulf States Utilities Co., 1940		Gas properties of Virginia Electric Power Co., 1940		Gas properties of the St. Louis County Gas Co., 1942		Gas group, 1946		Gas properties of Jersey Central Power & Light Co., June 30, 1949		Gas properties of Louisiana Power & Light Co., 1954		Gas properties of 8 subsidiaries combined, 1958	
	Amount	Percent of estimated loss of economies to	Amount	Percent of estimated loss of economies to	Amount	Percent of estimated loss of economies to	Amount	Percent of estimated loss of economies to	Amount	Percent of estimated loss of economies to	Amount	Percent of estimated loss of economies to	Amount	Percent of estimated loss of economies to
Operating revenues	$638, 711	6. 58	$1, 057, 000	3. 33	$2, 748, 770	5. 85	$16, 656, 560	3. 00	$4, 714, 958	4. 87	$5, 264, 186	5. 18	$22, 752, 270	4. 83
Operating revenue deductions (excluding Federal income taxes)	444, 006	9. 46	735, 294	4. 86	2, 009, 757	8. 01	13, 197, 846	3. 79	4, 235, 661	5. 42	4, 112, 285	6. 63	18, 207, 191	6. 03
Gross income (before deducting Federal income taxes)	201, 595	20. 85	317, 890	11. 25	742, 027	21. 68	3, 565, 357	14. 03	479, 477	47. 84	1, 151, 901	23. 68	4, 718, 864	23. 28
Net income (before deducting Federal income taxes)	166, 492	25. 25	168, 412	21. 23	666, 110	24. 34	NA	NA	202, 582	113. 24	NA	NA	3, 669, 931	29. 94
Estimated loss of economies claimed	42, 024		35, 750		160, 900		500, 328		229, 398		272, 816		1, 098, 600	

NA Not applicable.

Mr. Freedman. It may be noted that, while the estimated loss of economies were, in some instances, rather large in dollar amount, they were, as a percentage of the various income items, relatively small. Thus, in the New England Electric System situation, the loss of economies was $1,098,600—but it represented only 4.83 percent of operating revenues and 6.03 percent of operating revenue deductions.

It must be remembered that the bulk of the expenses of operating an electric utility or gas utility is entirely unrelated to any combined functions of the two. Thus, by far the principal operating expenses of an electric utility is the cost of fuel for the boilers to generate steam to turn the generators; and those of a retail gas utility is the cost of the natural gas to be resold to the retail customers. It is in only a relatively narrow category that a combined gas and electric company can effect savings in operating expenses: principally in combined meter reading and billing, and a combined accounting department. There are, in addition, some savings in other personnel, principally executive officers. But, as shown in the indicated cases, the claimed "loss of economies" has not been found, by the SEC, to be substantial.

There are other aspects that should be considered. A separation of the two functions would engender meaningful competition. This would avoid the problem that now exists in combination companies as to whether one or the other type of energy should be promoted for sale and, if both, how much of the promotional budget should be allocated to each type. In this connection, in a recent proceeding before the SEC the chairman of the board of a combination gas and electric company testified that the company had an obligation to its shareholders to promote the use of that fuel which would result in the largest net return.

The competition in areas where the ownership of gas and electric facilities is separate is sometimes keen. Thus, in the northern Virginia area the electric franchise is held by Virginia Electric Power Co. and the gas franchise is held by Washington Gas Light Co. As a promotional endeavor, Vepco gave housing development builders who agreed to use all electricity in the homes they built various concessions for installing the electric connections underground—such concessions were not given if such an all-electricity agreement was not made. Washington Gas Light complained about this tie-in arrangement and eventually filed an antitrust suit. This illustrates the fact that where an electric company and a separate gas company serve the same area they compete vigorously.

The separation of the two types of service also simplifies the rate-making process. When there is a rate proceeding regarding, say, the electric rates of a combination company, the rate regulatory authority has the problem of determining what portion of the joint expenses should be allocated to the electric business. When a single company is involved this allocation problem is eliminated—the rate regulatory process is, to this extent, simplified.

It has been previously noted before the committee that, should the combination companies be required to be separated, the outstanding indentures under which their first mortgage bonds were issued would require that the bonds be refunded. Should this occur, there is no question that the interest rate on the new bonds to be issued would, under present market conditions, be much higher than the weighted

average interest rate on the existing bonds. The same increased cost of money would result with respect to the refunding of any outstanding preferred stocks of the combination company.

Should the Congress determine that it is in the national public interest to require the separation of electric operations from gas operations—and I make no recommendation as to this—I would suggest a procedure whereby the necessity to refinance the debt and preference stock of a combination company could be avoided. I suggest that the bill contain provisions, similar to that embodied in sections 11(d) and 11(e) of the Holding Company Act, whereby a fair and equitable plan of reorganization would be promulgated which would effectuate the separation of the properties. Under such a plan, the bondholders would be given a principal amount of bonds of the new electric company and of the new gas company which would total the same outstanding principal amount of the combination company. The various interest rates on the various series and their maturity dates would remain the same. The lien on the properties securing the bonds also would be divided, with the electric facilities securing the bonds issued by the new electric company and the gas facilities securing the bonds issued by the new gas company. While the value of the electric properties subject to the lien of the bonds of the new electric company might be greater or less than the value of the gas properties subject to the lien of the bonds of the new gas company, the overall security for the two different bonds would be the same as pertained prior to the creation of the separate companies. Thus, the existing bondholders would receive the same aggregate rights in the two companies as they had in the one company.

The same principle would be applicable to the outstanding preferred stock. Each preferred shareholder would receive shares having an aggregate par or stated value in the two new companies as they had in the single combination company. Similarly, the holders of shares of the common stock of the combination company would receive the same number of shares of the two companies as they had in the combination company.

If it is determined by the Congress that the separation of the gas and electric functions is mandatory, I see no purpose in including any regulatory agency in the statutory scheme. There would be no function for that agency to perform. Rather, I would provide that the Federal district courts be given jurisdiction to determine whether any plan of reorganization, as filed or as amended or as may be modified by the district courts, is fair and equitable and appropriate to carry out the mandatory separation. If such findings are made, the district court could order the consummation of the plan. Such a plan could be voluntarily filed with the district court by the combination company. Should any company fail to file such a plan by the specific date fixed in the bill, the Attorney General should be empowered to file an application with the district court to appoint a receiver who would promulgate the plan of reorganization which would then be filed with the court for its approval and consummation. The possibility of review by the appropriate court of appeals should be included in the statutory scheme as well as by the Supreme Court upon petition of certiorari from the judgment of the court of appeals.

That concludes my statement, Mr. Chairman. I will be glad to answer any questions.

Senator HRUSKA. Mr. Counsel, have you any questions?

Mr. O'LEARY. Yes, Mr. Chairman.

Mr. Freedman, approximately how many divestitures of gas from electricity have been accomplished under the Public Utility Holding Act?

Mr. FREEDMAN. I cannot answer that question definitely. In these cases I think there are seven or eight that have been ordered divested. There may be others where there have been no formal proceeding on in the sense of requiring divestiture where the company voluntarily divested. You are talking about registered holding companies.

Mr. O'LEARY. Yes, sir.

I take it, you have had experience with financing plans which have been used pursuant to sections 11(d) and 11(e) of the Public Utility Holding Company Act?

Mr. FREEDMAN. Every plan under section 11(e), under the Holding Company Act, has to be submitted to the SEC and those plans are considered and it is a function of the Division of Corporate Regulation to help administer that statute and that would go through our division.

Mr. O'LEARY. In your experience have those plans worked well?

Mr. FREEDMAN. Well, as far as I know, I do not know of any gas company that was separated that ever went bankrupt. When you say worked well, that is a relative term and I hesitate to give a percentage of anything on that.

Mr. O'LEARY. Am I correct in saying, though, that if Congress should decide that it would be in the public interest to require the separation of electric operations from gas that you would suggest that similar provisions be put in this particular bill?

Mr. FREEDMAN. Yes; there has to be some mechanism to carry out the mandate of the Congress. My suggestion is that provisions similar to what now appear in sections 11(d) and 11(e) of the Holding Company Act be incorporated in S. 403.

Mr. O'LEARY. During the course of bringing divestiture cases under the Holding Company Act, did the SEC make analysis in each of those cases with respect to operating statistics on the companies involved going into the questions of efficiencies, rates of return, quality of performance?

Mr. FREEDMAN. They went into the question of efficiencies in a certain sense. Rates of return only indirectly. What was the third one?

Mr. O'LEARY. I am sorry, I did not hear you.

Mr. FREEDMAN. They went into the question of efficiency in some of the cases, although I am not sure what you mean by efficiency. With respect to the rate of return for the separated gas companies, in some instances they did go into that to determine what the rate of return would be on the separated gas property if the gas properties were divested. You had a third category?

Mr. O'LEARY. Quality of performance.

Mr. FREEDMAN. I am not quite sure I understand what that means.

Mr. O'LEARY. Well, I guess what I am asking—in short—is during the course of the cases brought under the Public Utility Hold-

ing Company Act, did the SEC find, for example, that straight companies in those areas performed better than combination companies?

Mr. FREEDMAN. Well, in the New England Electric System case, which is the last case directly under section 11(b)(1), the Commission made a comparison of some of the operating statistics of the gas companies in the New England Electric System as compared with a number of independent gas companies in the same area and found that the operating efficiencies for the independent gas companies on the whole were better than the operating statistics of the NEES gas companies.

In this connection, the so-called additional system of the NEES holding company system were all located in Massachusetts. There were eight of them. The Commission determined that all eight constituted one single integrated gas utility system. So, it considered that system on the combined basis of the eight companies.

Then, there were comparisons that are described in the opinion of the Commission which set forth various statistics comparing the operations of the companies in the New England Electric System as compared with the operations of the eight independent companies, also located in Massachusetts. All those figures are in the opinion.

Incidentally, the opinion is reported in 41 SEC beginning at page 888.

Mr. O'LEARY. Thank you.

Mr. FREEDMAN. That is a 1964 decision.

Mr. O'LEARY. Mr. Freedman, you would agree, would you not, that our experience under the Public Utility Holding Act has been good? By that, I mean the application of the act to those combination companies which fall within its jurisdiction has been beneficial to consumers and in the public interest?

Mr. FREEDMAN. Well, our function is some what different, as I understand it. We apply the standards of the act and the act says that where you have a combination company in the same registered holding company system—basically there can only be one principal system, either an electric system or gas system the additional system, normally the gas system, may be kept together with the electric system, only if the holding company showed, within the meaning of section 11(b)(1)(A) that there is a loss of substantial economies that can be secured only if there is control of both systems by such holding company. I hope I am saying it right. But anyway, the words of the statute would govern.

Mr. O'LEARY. My question is, Has the application of that act worked to the benefit of consumers?

Mr. FREEDMAN. We like to think so, because we are carrying out the congressional mandate and the Congress determined that it is in the national interest to have the separation unless the loss of substantial economies can be shown. And the companies that were separated so far as I know have been operating—I have not heard of any dire consequences to them.

Now, you would have to make a detailed study as to what the results have actually been as compared to what was prognosticated and that would be very difficult because you would be talking about different

time periods. Maybe a difference of 3 or 4 years between the two periods.

I have not made such an analysis, and so I do not like to answer that question exactly yes or no either way.

Mr. O'Leary. I think it a fair inference from your statement that competition between gas and electric companies is good.

Mr. Freedman. Yes.

Mr. O'Leary. And that there are no gas companies that have been divested under the Public Utility Holding Act which have gone bankrupt.

Mr. Freedman. That is true.

Mr. O'Leary. Why not extend the principle of that act to utilities which do not operate under the holding company structure?

Mr. Freedman. Well, I think that that is a judgment for the Congress to make.

Mr. O'Leary. I guess periodically those of us at the staff level of the Congress look for a little bit of guidance from people who have enforced analogous statutes. But in any event, Mr. Freedman, let me ask you another question.

In your statement it appears that you are suggesting that the loss of economies test in the Holding Company Act not be used in pursuing the objectives of S. 403. Are you saying that it would be more beneficial if the lengthy and sometimes torturous method of holding those SEC hearings not be required if all utilities were subjected to divestiture?

Mr. Freedman. What I am suggesting is that if the bill as it is now drawn mandatorily requires divestiture, I see no point in having any regulatory agency. If the Congress determines that there should be the same kind of standard as now embodied in clause A of section 11(b)(1), then I believe that there should be a regulatory authority to make the determination, and if such a determination were made, just as under the Holding Company Act, the necessity to enforce such a determination would then have to be submitted to a court for the court to direct and order the consummation.

Mr. O'Leary. Mr. Freedman, yesterday we heard testimony from Mr. Willis, president of Connecticut Natural Gas Corp. He indicated that Connecticut Light & Power Co., a member of the Northeast Utility System, is not making gas service available to its customers and he speculated that the reason for this is because the Connecticut Light & Power executives know that Northeast Utilities will ultimately have to divest itself of its gas properties.

Northeast Utilities was formed in 1966, and I wonder if you can shed some light on why it has taken so long to get this divestiture underway.

Mr. Freedman. That holding company was created, as you said, in 1966. The operating properties consisted of electric properties and also of gas properties. The Commission determined that the electric properties of the three companies there involved, namely, Connecticut Light & Power, Hartford—it is either Electric Co. or Gas and Electric Co. and a company in Massachusetts called Western Massachusetts Electric Co., those electric facilities constituted a single integrated electric utility system, and, therefore, under the standards

of section 10 of the act could be retained by the registered holding company system that was then being created, and it filed a registration statement as a registered holding company.

With respect to the gas properties, the Commission deferred a final determination on that. So, there has been no order of divestiture with respect to the gas properties.

The question of what to do with the gas properties, as I said, has been deferred. It is my personal judgment that this gas system, being created after the passage of the Holding Company Act of 1935, is not subject to the retention provisions of section 11(b)(1). Since 1966 there has been some water passed over the dam. In my opinion, I would think that the company could not establish the right to retain the gas properties together with the electric properties under the standards of the Holding Company Act. And we have been told that the Northeast Utilities System is going to divest the gas properties.

If they do it voluntarily without any further proceedings, that will certainly save the staff of the SEC and the SEC itself a large administrative burden. Of course, if they do come in with some kind of plan to sell the gas properties, that divestment would have to be approved by the SEC, probably by way of a section 11(e) plan.

Mr. O'LEARY. Well, put yourself in the position of a company which feels it ultimately will have to divest itself of its gas property. It is not unnatural to expect that they are not going to put much effort into what they believe will ultimately be a potential competitor. At least that is the allegation with respect to that particular siuation.

Mr. FREEDMAN. That may be so. On the other hand, if I were operating the company and I wanted to divest the gas property, I would think that I would want it to be operated as efficiently as I could so that when I do go to sell it to somebody, I would get a better price. I would not want to be selling them a rundown property. I would be wanting to sell them properties in good operating condition.

It is questionable which way the management of the Northeast Utilities System would look at this.

Mr. O'LEARY. I have no further questions, Mr. Chairman.

Senator HRUSKA. Mr. Freedman, you have in your tabulation seven cases that you have kindly listed for our information. How did those cases come before the SEC for action and adjudication?

Mr. FREEDMAN. My recollection is that on each one of these cases the Commission instituted a proceeding in accordance with the provisions of section 11(b)(1) of the Holding Company Act which provides that it is the duty of the Commission to require by order after notice and opportunity for hearing that each registered holding company and each subsidiary company thereof shall take such action as the Commission shall find necessary to limit the operation the holding company system of which such company is a part to a single integrated public utility system. Then, there are some other things and then there is a proviso clause, one of which is clause A, and that embodies the loss of substantial economies.

The Commission instituted the proceeding. The companies, of course, filed and produced evidence along two lines. One, to determine what would be the principal system, usually the electric system, and to prove that the electric properties met the definition of an integrated electric

utility system set forth in section 2(a)(29)(A) of the Holding Company Act. And they also introduced evidence to attempt to establish that if the gas properties were to be divested, that that would constitute a loss of substantial economies.

Senator HRUSKA. A loss of what? Of the economies?

Mr. FREEDMAN. "Loss of substantial economies" is the language. This has been construed in a number of court cases and by the U.S. Supreme Court.

Senator HRUSKA. How many cases in all of that kind has the SEC considered since 1935?

Mr. FREEDMAN. Well, directly like that I cannot think of any other ones besides those that are attached to my statement.

Senator HRUSKA. Have the others divested on a voluntary basis?

Mr. FREEDMAN. A great many of the companies, the holding companies, divested the operating company.

Senator HRUSKA. I am talking about holding companies.

Mr. FREEDMAN. The holding companies would divest the stock of the operating companies. Some of those—a great many of those operating companies had gas and electric facilities. Once those companies were divested from a registered holding company system, the provisions of the act were no longer applicable, and thus the companies could continue without any requirement of separation of gas and electric properties.

There are a number of companies in that category. I can think of one. Virginia Electric Power Co. was once a subsidiary company of what was then the Engineers Public Service Co. That was voluntarily divested, although there was this divestment order. That question for them became moot.

Senator HRUSKA. Well, is the Virginia Electric Co. what we know as a combination company?

Mr. FREEDMAN. Yes. Virginia Electric Co.—my recollection is it serves all electric in the northern part of Virginia. In other parts of Virginia it has gas properties.

Another company in the category where there was divestment by the holding company of the common stocks of an operating company was Public Service Electric & Gas, which operates in New Jersey.

Senator HRUSKA. Of course, where the companies are separate and each one has a corporate identity of its own, there is not much of a problem for divestiture, is there? It is only when you run into a combination where there is an integral holding of gas and electric facilities and operations that you run into real difficulties.

Mr. FREEDMAN. Well, the actual separation is much easier if that is the case. In our cases we had one in the so-called Philadelphia Co. case where there were two separate companies. The electric company was Duquesne Light Co. and the other was Equitable Gas Co. And there the argument was made that because of use of joint personnel in various categories, that there were substantial savings.

The Commission, as this case illustrates, found that those savings were not substantial. In that case the estimated loss of economies to operating revenues was only 3 percent and the estimated loss of economies to operating revenue deductions, excluding Federal income taxes, was only 3.79 percent. The Commission found that those did not constitute a loss of substantial economies.

Incidentally, that case was affirmed by the Court of Appeals for the District of Columbia Circuit.

Senator HRUSKA. What about the rest of the cases there in that tabulation? Were any of those combination companies aside from Virginia Electric Power Co.? You said that was a combination, was it not?

Mr. FREEDMAN. Yes.

Senator HRUSKA. What about the rest of them?

Mr. FREEDMAN. I think on this list, going from the earliest to the latest, I think the gas properties of Gulf States Utilities was a combination company. We already mentioned the gas properties of Virginia Electric Power. Those two companies, just to make it clear, were both subsidiaries of Engineers Public Service Co., and although they were in widely separately parts of the country this question came up. In the Northern American Co. proceeding the St. Louis County Gas Co. was a separate company. We already mentioned the Philadelphia company. The gas properties in the General Public Utilities system were in Jersey Central Power & Light Co. That was a combination company.

Senator HRUSKA. Which was the holding company in that instance?

Mr. FREEDMAN. General Public Utilities Corp. That is on the list.

Senator HRUSKA. They are separate companies in that instance?

Mr. FREEDMAN. No; that was one company operating both electric and gas. But I should add that the gas properties were not in the same service area as the electric properties.

In Middle South, Louisiana Power and Light Co. was a combination company, and in the New England Electric System, the gas properties were separate.

At one time there were a large number of combined companies, but the management in New England Electric System took steps to move various of the properties so that all the electric properties were in electric companies only and all the gas companies only. I think that they were looking forward to the fact that they probably would not be able to retain the gas properties and these were various steps to help facilitate any required divestiture which finally occurred after going up to the Supreme Court twice.

While it is not on this list, because the Commission did not find it necessary to institute an 11(b)(1) proceeding, there is a company in Rhode Island called Valley Gas Co., which is now an independent gas company. At one time the gas properties of that company were lodged with the electric properties of a company called Blackstone Valley Gas & Electric Co., Blackstone Valley Gas & Electric Co., was a subsidiary of Eastern Utilities Associates, a registered holding company, under proceedings instituted under section 11(e), there were two steps. The gas properties were separated from the electric properties and this new company, Valley Gas Co., was formed. Subsequently the common stock of the Valley Gas Co., was distributed to the common stockholders of Eastern Utilities Associates and, therefore, divested from the system.

Senator HRUSKA. Of course, the Holding Company Act is limited only to situations of holding companies, is it?

Mr. FREEDMAN. Yes; as defined in the Holding Company Act.

Senator HRUSKA. And it is not applicable to any situation where there is a combination company standing on its own feet and as a single entity.

Mr. FREEDMAN. That is right. The Congress made a judgment back in 1935 that the evils at that time seemed to be embodied in the activities of holding companies. At that time the holding companies had companies all over the United States and as a result of studies made between 1928 and 1935, the Congress determined that something should be done with respect to the operations of holding companies and, therefore, the Holding Company Act was enacted.

Senator HRUSKA. Now, in response to counsel's question, you said you have made no study after the divestiture was accomplished as to whether or not the consumer actually benefited from this divestiture. Obviously, unless I am mistaken, the law does not charge you with the duty of making such a study. It charged you, your SEC, only with the duty of seeing to it that the divestiture was accomplished.

Do you know of any other body or any other authority or any other person who has made a comparative study of the benefits or the impact on the consumers in cases where divestiture has been achieved pursuant to the Holding Company Act?

Mr. FREEDMAN. May I consult with Mr. Levy for a moment?

Mr. Levy reminds me, although this is not an exact answer to your question, Senator, that in two instances—one was Commonwealth Edison Co. which voluntarily separated its gas properties from its electric properties and announced publicly that it did not believe that it was a desirable thing for one company to operate both facilities, even though they were not subject to the act. And the other one was in the Philadelphia situation, which is on this list and in the that situation, after divestment, the president of the electric company announced that he thought it was a good idea that the gas properties had been separated from the electric properties and were not under common ownership.

There may be other studies, Senator, but I cannot think of them at the moment. As I said, it would be—I do not know how conclusive it would be from a very technical point of view because of the difference in the time.

Senator HRUSKA. And conditions which prevailed then and now.

Mr. FREEDMAN. Yes. You get into all arguments as to whether you are making a fair comparison—it could be done, I suppose, but allowance would have to be made for the difference in time and difference in various other things such as even the change in the cost of coal which would make the stage before and after subject to some doubt by some persons.

Mr. Levy reminds me that if you want to make such a study, you would have to make what I would call the converse of the loss of substantial economies study because then you would have to make a judgment as to what the result would have been, had the gas companies that were divested, had not actually been divested, and that, of course, would be very, very difficult, if not impossible, to prove to the satisfaction of anyone.

Senator HRUSKA. Thank you very much. If counsel has no further questions, thank you so much for your statement and your answers to the questions put to you.

Mr. FREEDMAN. Thank you very much.

Senator HRUSKA. Our next witness will be Pat Greathouse, vice president of the United Automobile, Aerospace & Agricultural Implement Workers of America.

Will you come forward, Mr. Greathouse? We understand an airplane is going to demand your presence sometime early in the afternoon, so we will call on you now.

Will you tell for the record, the name of your associate?

STATEMENT OF PAT GREATHOUSE, VICE PRESIDENT OF THE UNITED AUTOMOBILE, AEROSPACE & AGRICULTURAL IMPLEMENT WORKERS OF AMERICA, ACCOMPANIED BY DANIEL BEDELL, WASHINGTON REPRESENTATIVE, UNITED AUTOMOBILE, AEROSPACE & AGRICULTURAL IMPLEMENT WORKERS OF AMERICA

Mr. GREATHOUSE. Yes, Mr. Chairman.

My name is Pat Greathouse, vice president of the UAW. I am accompanied here today by Mr. Daniel Bedell, who is a Washington representative of our international union.

It is a pleasure, Mr. Chairman, to appear before you today to express the concern of the United Automobile Workers of America about the threatening trend toward monopoly control of America's energy industry.

The specific issue before this subcommittee is the matter of combination ownership and control at the retail level of two vital segments of the Nation's energy supply—electricity and natural gas. I am here to endorse and urge the enactment of S. 403, introduced by Senator Metcalf of Montana, a bill which would require the corporate separation of the gas and electric utility operations which are now owned and controlled by single companies.

However, the matter of monopoly ownership of competing modes of energy at the retail level must be seen as a part of an entire fabric of concentration of control that is woven throughout the energy industry.

We are discovering new forms of monopoly at virtually every level. Let us look at some of the aspects of monopoly:

There are presently 78 combination utilities, which provide both electricity and gas in the same retail market. The size and "market clout" of these companies is indicated by the fact that these 78 companies together account for 43 percent of the total sales of electric power by private companies in the United States.

Combination ownership at the retail level, however, is just the tip of a mammoth iceberg. At the producer level, because natural gas and oil are usually discovered in the same or similar geologic formations, the oil producers and the natural gas producers have largely been one and the same.

Because oil and natural gas account for 41.2 percent of the fuel used for generation of electric power, a large segment of this Nation's capacity for generating electric power has been largely dependent on a few major oil companies.

However, a larger share of fuel for electric power generation (55 percent) has been provided by coal, which in the past has been produced largely by independent coal companies. We note with some alarm the evidence developed by this subcommittee that the ownership of coal has steadily and rapidly been passing into the hands of the major oil companies, which have always controlled natural gas and oil. I need not provide elaborate detail on this; your subcommittee already has learned that nearly 40 percent of the noncaptive coal market in the United States in 1969 was supplied by nonindependent coal producers (those owned by oil companies and other large conglomerates).

Oil, coal, and natural gas have historically been the major fuels for electric power generation, but advocates of the development of nuclear generation tell us that by 1990, more than half of the Nation's electricity supply will be generated from nuclear fuel.

Increased reliance on nuclear power raises a new dimension to the threat of an energy monopoly, considering the fact that 43 percent of the raw nuclear fuel production in the Nation already is controlled by major oil companies.

Add to these alarming facts the quiet but effective efforts of the oil company-dominated energy industry to secure the rights to large quantities of water in the West, where the major share of the Nation's subbituminous coal is located, and we see yet another piece of the patchwork of monopoly.

I am told that most, if not all, of the public's water supply in the vast reservoirs of the Upper Missouri River Basin in Montana and Wyoming already has been signed away by the Department of the Interior to a handful of energy companies including Shell Oil, Sun Oil, Kerr-McGee, and subsidiaries of Standard Oil of New Jersey and Montana Power. If this development is repeated in other areas of the water-short West, we have another aspect of the increasing monopoly picture.

The same picture of growing concentration appears in the electric utility industry as well. Witnesses developed testimony on the appetite of many large investor-owned utilities for taking over small municipal and rural electric utilities which have provided effective competition for the large investor-owned systems over the years. You are aware, I am sure, of the statement attributed to the president of the largest electric utility holding company in the Nation that the optimum number of electric utilities in the Nation should be 12 to 15. Control of electric utilities in a few companies is yet another piece of the patchwork.

The prospect of a nation of more than 200 million individual, unorganized consumers depending for their vital energy supply on a tiny group of large corporations is chilling indeed.

The Congress of the United States now has the opportunity to strike a major blow on the side of American "free enterprise" competition by enactment of the legislation before you today.

The Congress already has determined national policy in the holding company segment of the utility industry by prohibiting combination gas and utility operations in utilities which are owned by holding companies. National policy is silent, however, in the case of utilities which are not owned by holding companies.

The principal argument in favor of permitting combination utilities, as advanced before this subcommittee earlier in these hearings, by the Chairman of the Federal Power Commission and others, is that the loss of economies of combination operation (joint trenches for gas and electric distribution, combination billing, combination meter readers and servicemen, et cetera) would result in increased costs and thus increased rates to consumers. I might add, Mr. Chairman, that there is nothing to prohibit individual gas an electric companies from using common trenches and other common services.

This argument fails, however, when the potential loss of economy is compared to the potentially greater savings to consumers which would result from the stimulus of competitive pricing and marketing practices which are possible only through separate, competing corporate structures seeking largely the same markets.

It requires only basic, beginning logic to undertand that an electric utility which is in direct competition with a separate gas utility will pursue a much more aggressive marketing and price campaign to sell electric space heating than the electric division of a company which provides both gas and electricity.

The consumer stands to derive a significant benefit, one which could be demonstrated in actual dollars, when he has two or more options for his home heating. If his choices are narrowed, his cost inevitably will be greater.

The United Automobile Workers was organized through a long and difficult struggle to achieve gains in wages for the millions of men and women who work hard hours. To a great extent our members, through collective bargaining, have achieved significant wage improvements.

But it makes for small results if the gains in wages which our members achieve at the bargaining table are lost in the marketplace, in part through higher and higher electricity, gas and oil bills charged to them by a tightly controlled monopoly of anonymous corporations over which they have no control and precious little influence.

It seems to us, Mr. Chairman, rather than extending the Federal instrusion which corporate America seems to fear so vocally, that the legislation now before this subcommittee would inject a healthy dose of competition into the market structure of the Nation's energy industry.

We hope that you not only report out and enact this legislation to require real retail competition between retail gas and electricity suppliers, but that you go further and apply your blowtorch to ther rest of the iceberg—the concentration of ownership of basic energy resources, the helter-skelter drive of the energy companies for control of the public's water, appetite of the investor-owned utilities for all of the electric pie, and perhaps basic to all of these, the matter of growing concentration of control of all American industry in increasingly anonymous corporations, the owners of whom are unknown perhaps even to J. Edgar Hoover.

But, as the journey of a thousand miles begins with a single step, it is critical that you take the first step by enacting this legislation.

Mr. Chairman, I thank you for the opportunity of being here.

Senator HRUSKA. Counsel O'Leary, have you any questions?

Mr. O'LEARY. Mr. Chairman, I do not know what Mr. Greathouse's schedule is exactly. If he would prefer, we could submit questions to

him in writing if he is in any—if he has a problem with respect to time.

Mr. GREATHOUSE. If the questions are very lengthy, I would prefer this. If they are short questions, I would answer them now.

Mr. O'LEARY. Well, just one question, Mr. Greathouse. Those witnesses who have opposed the bill have, among other grounds, indicated that they feel that State regulation is an adequate substitute for competition. Do you have any thoughts on this particular issue? Namely, has it been the experience of your members that regulation on the State level has been an adequae substitute for competition, keeping down rates?

Mr. GREATHOUSE. Well, there is no question in our minds that State regulation is inadequate and has been inadequate. We think this has been demonstrated, as a matter of fact, back in the State of Michigan where I live, some recent newspaper articles and surveys that have been made in some instances where the utility commission has approved even higher rate increases than the utilities have requested. We think certainly in these areas the States have not exercised the proper restraint on the utility companies. And aside from that, there is certainly the question that there is not a built-in requirement for technological change and advancement when you operate on a monopoly basis and where there is no need to develop new technology because all of the costs of the operation of the system can be built directly into the rate structure.

Mr. O'LEARY. Do you recall precisely what the rationale of the commission was in giving rate increases greater than those asked for?

Mr. GREATHOUSE. I do not know precisely at this point, but I can certainly furnish the committee with copies of the report.

Mr. O'LEARY. I have no further questions, Mr. Chairman.

Senator HRUSKA. I have no questions. Thank you very much, Mr. Greathouse.

Mr. GREATHOUSE. Thank you, sir.

Senator HRUSKA. Our next witness will be Prof. William H. Collins, School of Business, East Carolina University, Greenville, N.C.

Name: William H. Collins.

Address: Dept. of Economics, East Carolina University, Greenville, N.C. 27834.

Date of Birth: February 25, 1940.

Marital Status: Married.

Education: September 1965–March 1969—Southern Illinois University, Ph.D. in Economics September 1970; dissertation: "Combination Gas-Electric Utilities"; areas of specialization: Mathematical Economics, Economic Behavior and Regulation, Economic Theory, Comparative Economic Systems, Labor Economics; research tools: Mathematics, Computer Programing. September 1964–August 1965—University of Delaware, M.A. in Economics June 1970; thesis: "Theoretical Models of Utility Pricing"; September 1961–June 1964—University of Richmond, B.S. in Business Administration June 1964.

Professional Experience: September 1970—East Carolina University, assistant professor of economics; courses taught: Statistics, Labor Economics, Economic Principles. October 1968–June 1970—Federal Power Commission, Economist with the Office of Economics. Performed research for the forthcoming FPC publication, The National Power Survey, and conducted a research study of the performance of privately owned combination gas-electric utilities as compared to privately owned straight gas and straight electric utilities. This study served as the basis for my Ph. D. dissertation. September 1965–June 1968—Southern Illinois University, graduate assistant; courses taught: Microeconomic Theory, Political Economy, Statistics help sessions.

Honors and Awards: Alpha Society, Herman P. Thomas Economics Society, Omicron Delta Epsilon, Fellowship at University of Delaware, National Science Foundation Fellowship at Southern Illinois University.

Professional Organizations: American Economic Association, Southern Economic Association, American Statistical Association, American Association of University Professors.

STATEMENT OF PROF. WILLIAM H. COLLINS, SCHOOL OF BUSINESS, EAST CAROLINA UNIVERSITY, GREENVILLE, N.C.

Senator HRUSKA. Mr. Collins, your statement is a long one. It will be put in the record in its entirety. Because we do have an afternoon program in the Senate, and this session will have to necessarily be brief and short, would you undertake to highlight it so that we can gain a little time?

Mr. COLLINS. Yes, sir. I have shortened the statement.

Senator HRUSKA. Unless there is objection, therefore, the statement will appear in the record in its entirety.

Mr. COLLINS. In preface to my statement I would like to say that this testimony is taken from my Ph. D. dissertation which was submitted in July 1970 as well as from a memorandum which I sent to the Federal Power Commission on July 7, 1970.

As an increasing amount of thought has been going into the social desirability of combination gas-electric utilities, two schools of thought appear to be evolving. One school, which might be called the straight utility school, maintains that the public interest will be best served if separately managed gas and electric utilities actively compete for household, commercial, and industrial markets such as space heating, water heating, cooking, air conditioning, refrigeration, and clothes drying. This thesis is based on the conventional argument that greater competition leads industries which are forced into competition to lower prices, expand output (or expand rates of increase in output), improve service, attain greater management efficiency, economize on labor and capital equipment expenditures, engage in more intensive research and promotional activities, and provide greater freedom of consumer choice. Further, since elasticity of demand is likely to be smaller (in absolute terms) for gas and electricity combined than for either gas or electricity taken separately, the incentive to hold down costs and prices in order to attract new sales may be significantly stronger for straight utilities than for combinations.

A second and related argument for straight utilities which this school gives involves the decreasing cost nature of the utility industries with the possibility for economies of scale. As increased competition leads to an expansion of output, average or unit costs fall. This fall in unit cost allows for a decrease in prices greater than that which would be possible in a constant or increasing cost industry. Under combination utility conditions, management may concern itself with the welfare of both the gas and the electric operations and will be motivated to insure that each receives a fair return. For example, electric space heating prices may be maintained at a high level so as not to compete with gas space heating. The higher electric space heating prices will result in a reduction of electric output and higher average costs, which will tend to reinforce the upward bias in electric prices. A second and different motivational argument is that if the gas

operations contribute a very small percentage to revenues of the entire utility, then the gas operations will be neglected wherever gas and electric interests conflict.

Finally, the straight utility school argues that the expansion in output resulting from greater competition creates a multiplier effect on the entire economy by stimulating demand for electric and gas production aquipment as well as providing demand for appliances and other energy using equipment. Employment and income are increased in these areas and the rest of the economy through the multiplier (assuming less than full employment). In this case, a macro argument is being used to justify a micro policy.

The other school, which might be called the combination utility school, maintains that combinations can out perform straight utilities. They point to economies of joint operation such as a single meter reader for both gas and electric operations, a single appliance inspector, a single service department, single headquarters with common management and overlapping sales, accounting, purchasing, billing, collecting, and engineering departments, use of a single trench for underground distribution, sales promotion emphasis in the area where the marginal profit is greatest, and taking advantage of the differences in peak load times for the two services by using idle workers in one service during the off peak load time of that service in the peak load times of the other service. In addition, peak load problems can be reduced by promoting gas air conditioning to reduce electric peak load in summer and electric heat to reduce peak-load in winter.

This school also claims that combinations will provide consumers with unbiased information concerning the comparative advantages and disadvantages of using gas and electricity for different applications so that the consumer will have all the information necessary to make the best decision concerning the better form of energy to use. The customer also benefits from the convenience of dealing with one utility.

An additional benefit would be that any revenue instability occurring in gas and electric utility operations would tend to be less in a combination utility than in a straight utility if revenue fluctuations for gas and for electricity are not correlated. The diversification of the combination would cause the total revenue from both the gas and electric operations to be more stable than the revenue from either the electric operations or the gas operations taken separately and would, therefore, result in a greater stability in overall rate of return compared to straight utilities. The advantage of greater revenue stability could be passed on to the consumer in the form of lower prices because, for example, since unexpected revenue reductions are less likely, less emergency cash reserves would be required to meet normal operating expenses. Finally, the combination utility school claims that financial stability provided by diversification and the absence of competition benefits the stockholders and results in cost savings for the utility on capital market financing.

Clearly, two sets of forces, competitive forces and forces associated with joint economies of operation, can act and the existence and intensity of the individual forces are a function of whether or

not the utility is straight or combination. Under the straight utility conditions, but not under combination utility conditions, competitive forces between gas and electricity will exert a downward pressure on prices, a pressure for expansion of output, and pressure for improvement in the quality of service. Assuming that most utilities operate on the decreasing sections of their average cost curves, expanded output results in lower unit costs which allows a greater decrease in price than that which could occur in a constant or increasing cost industry. However, in the case of straight utilities, there are no economies of joint gas and electric operation acting to lower average cost and thereby allowing a fall in prices, as would be possible under a combination utility situation.

Three possibilities exist in this institutional framework. First, competitive forces may have a greater impact on lowering price, increasing output, and improving quality of service than joint operation economies.

Second, joint operation economies may have a greater impact on lowering average cost and thereby lowering price, increasing output, and improving quality of service than competitive forces.

Third, the possibility exists that the two forces offset one another, leaving a net impact of zero—or nearly so—from a shift from a combination utility to a straight utility situation. Each possibility would call for a different regulatory policy. If an institutional framework which is different from the existing one were found to be more compatible with the public interest, society would benefit from shifting to the new institutional framework if the gross social benefit resulting from the change is greater than the total cost to society of making the change.

Great difficulty is encountered in formulating a universal prima facie case supporting a policy favoring either combinations or straight utilities or supporting a policy of laissez faire. Examining empirical evidence of the performance of individual utilities appears to be a meaningful approach to the question. "Are combination utilities in the public interest?"

Because of the nature of the data two nonparametric tests, the Mann-Whitney U test, a group test, and the Wilcoxon Matched-Pairs Signed-Ranks test, a paired observation test, are employed in my study.

All 52 of the utilities initially defined as combinations and all 89 utilities initially defined as straight electric were included in the Mann-Whitney U test on the electric dependent variables.

The following discussion specifies the hypotheses concerning the behavior of the electric dependent variables, based on the claims made by the two schools of thoughts, and comments upon the experimental results presented in table 1. The results were derived by testing the reported data for 1967 for the utilities selected in accordance with the procedures described previously. Please refer to table 1. In table 1, the letter "C" means that combinations had higher values than straights. C means that combinations had significantly higher values than straights at a 5-percent level.

S means that straights had higher values than combinations. S means that straights had significantly higher values than combinations at a 5-percent level.

Further in this table under the column A, A is the percent probability of obtaining a Z as extreme as that observed under the column which you see there as labeled "Z" if no difference existed between straight and combinations.

The parentheses around A which you see occasionally indicate that the difference was not in the direction hypothesized and A was changed in order to indicate the probability of obtaining a value of Z as extreme as that probability of obtaining a value of Z as extreme as that calculated if no difference existed between the two groups.

Z is the number of standard deviations by which the sample statistic deviates from the sample mean. If there is no difference between the two groups, the statistic should equal the mean.

Average revenue (on a per kw.–hr. sales basis) for residential, commercial, and industrial sales and composite average revenue variables (1–6) could be expected to be higher for combinations than for straights as a result of the absence of competition between gas and electric operations or could be expected to be lower for combinations than for straights as a result of lower expenses following from economies of joint (gas-electric) operation. These variables were tested for both possibilities.

Referring to table 1, average revenue for residential electric sales was significantly higher for combinations under both tests. If no difference exists between straights and combinations for this variable, the probability of obtaining a value as extreme as the Z observed would be only 0.06 percent under the Mann-Whitney test and 0.8 percent under the Wilcoxon test. Since Z values having a probability of occurrence less than 5 percent are considered to be too extreme for acceptance of the hypothesis that no difference exists between straights and combinations for this variable, we conclude that combinations have significantly higher values than straights. In fact, combinations are significantly higher under the Mann-Whitney test for all variables 1–6. In addition, combinations are significantly higher for variables 1–4 and higher (but not significantly) for variables 5 and 6 under the Wilcoxon test. Therefore, the conclusion must be drawn that if combinations obtain economies of joint operations, these economies are not passed on to the electric consumer in the form of lower prices. Instead consumers served by combination utilities are generally paying more per unit than are consumers served by straight utilities.

Residential, commercial, and industrial kw.-hr. sales per residential, commercial, and industrial customer (variables 37–40) could be expected to be higher for combinations than for straights, for if combinations achieve economies of joint operations and pass these economies along to the consumer, consumers can be expected to purchase more at lower prices than at higher prices. On the other hand, each of these variables could be expected to be higher for straights than for combinations if competition between gas and electricity plays an important role in the utilities' decisionmaking process so that straights charge lower prices and/or engage in more aggressive promotional activities in order to encourage greater use of their product. Both possibilities were, therefore, tested for these variables.

Each of these use variables except for kw.-hr. sales per industrial electric customer was higher for the straight group (significantly so for variables 37 and 38) under the Mann-Whitney test. Combinations

tended to have somewhat (but not significantly) higher values for kw.-hr. sales per industrial electric customer under this test. Under the Wilcoxon test, all four use variables were higher for straights than for combinations, and the composite use variable (37) was significantly higher for straights.

These results coupled with the results of the tests on the average revenue variables indicate that electric customers served by combinations tend to pay higher prices and use less electricity than customers served by straight utilities. Such a situation would be predicted by a conventional downward sloping demand curve. Thus, the results of the tests on the use variables are consistent with the results of the tests on the average revenue variables.

NET RETURN VARIABLES

Operating revenue less operation and maintenance expenses per unit total electric sales (variable 7) gives the amount per unit which is available for depreciation, amortization, taxes, and profit. Tests were applied to determine whether this ratio is higher for combinations than for straights or vice versa.

This variable is significantly higher for combinations under both the Mann-Whitney and the Wilcoxon tests. Eliminating taxes from the numerator of variable 7 to obtain variable 8 made no difference in this result—combinations were still significantly higher than straights for variable 8. Whether or not economies of joint operation, acting to lower costs, is a factor in obtaining this finding is indicated by the results of tests on the variables described as follows.

OPERATION AND MAINTENANCE EXPENSE VARIABLES

Operation and maintenance expenses per unit total electric sales (variable 9) could be expected to be higher for combinations than for straights as a result of the lack of competitive pressure between gas and electric operations to force costs downward, or could be expected to be lower for combinations than for straights as a result of economies of joint operation. Operation and maintenance expenses less cost of fuel and purchased power per unit total electric sales (variable 10) is examined since, although the possibility exists that straights would be inclined to bargain more vigorously than combinations for better fuel and purchased power agreements, less discretion may be available to the utility in these areas compared to others. Moreover, variations found in costs of fuel and purchased power, more so than in other expenses, may be a function of factors other than whether or not a utility is straight or combination. Thus, the elimination of these factors could magnify any differences resulting from whether or not a utility is straight or combination.

Consideration of operation and maintenance expenses less power production expenses (power production expenses include cost of fuel and purchased power) less transmission expenses per kw.-hr. sales to ultimate consumers (variable 11) allows for control of variation in method of generation, load factor, heat rate, and other factors related to the efficiency of production, and the proportion of power purchased as well as the cost of fuel and purchased power each of which is not expected to vary significantly according to whether or not a utility

is straight or combination. Furthermore, the expenses included in this variable (distribution expenses, customer accounts expenses, sales expenses, and administrative and general expenses) could be the most sensitive to whether or not the utility is a combination because the utility would have reasonably wide discretion over these expenses and if economies of joint operation exist, they would most likely appear in these expense items. Consequently, these components (variables 12–35) of variable 11 are examined individually in the next section.

Compared to straights, combinations had higher values for all three operation and maintenance expense variables on both tests. However, in no case was the difference between straights and combinations significant at the 5 percent level.

Electric distribution expenses per unit kw.-hr. sales to ultimate consumers (variable 12) may be sensitive to whether or not a utility is a combination not only because of the possibility that combinations will be lax in holding down expenses but also because of the potential economies of joint operation for combinations resulting especially from two sources—the use of common supervision and engineering personnel and the use of a common trench for underground gas and electric distribution facilities. In addition economies of joint operation are possible from electric meter expenses (variable 15) and customer installation expenses (variable 16).

The results of both tests indicate that per unit distribution expenses and per unit supervision and engineering expenses for distribution were each significantly higher for combinations as compared to straights. Even on the tests for economies of joint operation for underground distribution line expenses per mile of underground distribution line (variable 14), per unit meter expenses, and per unit customer installation expenses, combinations were not found to be significantly different from straights, and in fact, in most cases combinations tended to have higher values than straights, the reverse of the expected outcome on a priori grounds.

Customer accounts expenses per kw.-hr. sales (variables 17–21) could be expected to be lower for combinations than for straights because of economies of joint operation resulting from common supervision, single meter reader, and integrated operation for customer records and collection. Instead of combinations having lower values than straights, however, combinations tended in general to have higher values for these variables. In fact, for per unit meter reading expenses (19), one of the variables for which significant economies of joint operation are claimed by the combination utility school, combinations were substantially higher than straights and were over four standard deviations from critical Z for both tests!

Sales expenses per unit kw.-hr. sales to ultimate consumers (variables 22–25) could be higher for straights as a result of the additional competitive incentives to engage in vigorous promotional activities. For each of these variables, except for per unit sales supervision expenses under the Wilcoxon test, straights had significantly higher values than combinations, confirming the above hypothesis. In fact, some of the most striking differences occurred in this category. For example, the calculated Z for total sales expenses per unit kw.-hr. sales to ultimate consumers is almost four standard deviations from the mean under the Mann-Whitney test. Thus, straight utilities appear to engage in substantially more sales activities than do combinations, indicating the

active presence of additional competitive pressures under straight utility conditions compared to combination utility conditions.

Administrative and general expenses per total kw.-hr. sales (variables 26 and 27) could be higher for combinations as a result of lack of competitive incentives to lower costs and/or a desire to utilize savings incurred by economies of joint operation on high administrative and general salaries, or these expenses could be lower for combinations as a result of the use of common managerial personnel and common office facilities, supplies, and equipment. However, no significant difference was found between straights and combinations for these variables.

Salaries and wages (variables 27–35) and supervision and engineering expenses (variables 13, 18, and 23) on a per unit sales basis could be higher for combinations as a result of the absence of gas-electric competitive incentives to hold down costs and/or the use of a stronger monopoly position in order to pay higher salaries and wages. On the other hand, these variables could be lower for combinations as a result of the use of common administrative, supervision, and engineering personnel for both gas and electric operations.

Per unit total salaries and wages (variable 28) and per unit production and transmission salaries and wages (variable 29) were each found to be higher for combinations under both tests and significantly higher for combinations on the Mann-Whitney test. Per unit distribution salaries and wages (variable 30) and per unit supervision and engineering expenses for distribution (variable 13) were each found to be significantly higher for combinations on both the Mann-Whitney test and the Wilcoxon test. Per unit sales supervision expenses (variable 23) and per unit sales salaries and wages (variable 32) were higher for straights under both tests, and both were significantly higher under the Mann-Whitney test.

Senator HRUSKA. Professor Collins, I have an appointment that I cannot very well defer. So, we will have to suspend at this point. We do have some questions. Can you return here at 2 o'clock?

Mr. COLLINS. Yes, sir.

Senator HRUSKA. Very well. We have another witness, Mr. Greenes. Mr. Greenes, are you here? Can you get back at 2 o'clock?

Mr. GREENES. Yes, sir.

Senator HRUSKA. As soon as Professor Collins finishes, then we will take you.

We will recess until 2 o'clock.

(Whereupon, at 12:25 p.m., the hearing was recessed, to reconvene at 2 p.m., this day.)

AFTERNOON SESSION

Senator HRUSKA. The subcommittee will resume its session. Will the witness come forward and resume where he left off.

STATEMENT OF PROF. WILLIAM H. COLLINS, SCHOOL OF BUSINESS, EAST CAROLINA UNIVERSITY, GREENVILLE, N.C.—Resumed

Mr. COLLINS. We were discussing salaries and wages. These are variables, 27 through 35.

Senator HRUSKA. What page is that?

Mr. COLLINS. The top of page 16.

Senator HRUSKA. Very well.

Mr. COLLINS. This last finding is consistent with the earlier finding that straights had significantly higher sales expenses than combinations. No significant difference was found between straights and combinations for the other per unit salary, wage, and supervision expense variables examined (variables 18, 27, 31, 33, 34, and 35). Apparently combinations do not obtain economies of joint operations in these variables (27–35 and 13, 18, 23).

EMPLOYMENT-OUTPUT RATIO

Total electric department employees per unit total kw.-hr. sales (the inverse of productivity) (variable 36) could be lower for combinations than for straights as a result of the use of common personnel for both gas and electric operations. Nevertheless, the tests indicate that combinations had higher values than straights. Thus, no economies of joint operation appear in the examination of this variable. This finding is consistent with the earlier finding that combinations tended to have higher per-unit salaries and wages and supervision and engineering expenses than did straights.

SUMMARY

Thus, on the whole, the claims of the straight utility school are supported, and the claims of the combination utility school are refuted by these tests on the electric operations of combinations. A bleak performance picture is indicated for combination utilities. Combinations appear to charge higher prices; their customers appear to use less electricity; and their general and individual expense items, including those for which economies of joint operations are claimed, tend to be higher, and, except for expenses associated with sales, none are significantly lower.

A general indication is that combinations tend to be in a stronger monopoly position than straights, that they receive greater revenues as a result of this stronger monopoly position, and that these additional revenues are divided between increased costs (including salaries and wages) and net return. Apparently greater monopoly power causes the combination utilities to increase net return within permitted limits and to be comparatively lax in holding down expenses.

A comparable test was performed for the gas variables; however, the quality of the gas data in general was probably not nearly as high as for the electric data, which are based on the uniform system of accounts for the Federal Power Commission. In general, for the 62 straight gas utilities and 52 combinations and 22 pairs examined, no significant difference was found between straights and combinations for the gas dependent variable examined.

Even though, in general, no significant difference was found between straights and combinations in the examination of the gas dependent variables, the results of the examination of the electric dependent variables are sufficient to indicate that the performance of combination utilities is significantly below that of straight electric utilities. Thus, combinations appear to be unnecessary concentrations of economic power.

I therefore support the principles set forth in S. 403. If S. 403 does not become law, a bill should be proposed which at minimum would

establish a unified Federal Government policy toward combinations and would prohibit the accomplishment under merger that which is prohibited under the Public Utility Holding Company Act for holding companies.

Senator HRUSKA. Thank you very much. Now, Professor, tell me in these variables that you have mentioned and these comparisons you have made, was there considered by you in your study the savings that are made by combination electric and gas companies by way of using valley gas and peak shaving equipment? We had testimony here last month on behalf of the South Carolina Electric & Gas Co., Allan C. Mustard, and during the course of his testimony, he referred to valley gas and he has testified in part that:

> The company has adequate valley gas to supply its forecasted increase in loads of domestic customers because of its high contract demand of its gas purchases of natural gas, but must install peak shaving equipment to firm up the gas during the winter months.

At another part of his testimony he said:

> "Had we been unable to use valley gas for such purpose—" and he describes the purpose:
>
> Then our original pipeline could not have been justified and the customers in Charleston and Columbia would have been deprived of natural gas service. From this beginning the pipeline mileage has quadrupled, customers have increased nearly five times, and firm peak day requirements have increased 20 times in 17 years.

When it came time to interrogate Mr. Mustard, I asked him if he would please explain what is meant by valley gas and peak shaving equipment. He said this,

"I am going to try to fix it so you can visualize it"—and that takes some doing, parenthetically. Quoting now from page 78 of the transcript, here is what he said:

> We must buy across the calendar constant amounts of gas per day. That is known as our contract demand. That is contracts across the calendar from January through December. In January and December we have peaks which exceed the contract demand. When these peaks exceed contract demands you have what is known as peak shaving and you pump that into the line.
>
> Now, you can pump in LNG, LPG in quantities. It is a component of the specific gravity of the gas. That limits how much LPG you can put in there. But LNG you can put as much as you can jump in there because of the LNG is nothing but natural gas.
>
> Now, during the months of June, July, May, August, along in there, instead of using up to that line that you have drawn across the calendar, you are going down to less than 20 to—20 percent of the distance between the base and this line. Therefore—it is hard for me to do this in words. I am an engineer, not a lawyer, but the valley that is created under the contract demand is then sold to interruptible customers who can be off the line within two hours' notice, and they like that because the gas is cheaper and it is clean, and all we do is give them two hours' of notice, they get off, use the standby fuel, and that is how valley gas is used.

Now, then, have you in your computation considered situations of this kind in connection with economies of joint combination companies?

Mr. COLLINS. As you noted in my testimony concerning the schools of thought, I stated that economies of joint operations were possible by taking advantages of peak load problems by changing personnel from gas operations to electric operations and back again, in accordance with differences in peak load requirements.

However, I see no reason why such an arrangement as you described could not be accomplished by an arm's length contract arrangement by separate utilities, instead of the combination.

Senator HRUSKA. Well, I don't know, maybe it could. Maybe it couldn't. There would have to be a major contractor, wouldn't there? There would have to be a contractor in the gas business. Then there would have to be the gas distribution business to accommodate an arm's length proposition. Then there would have to be a separate contract between the electric company that is using gas and the pipeline and distributor of the gas. And when there is an overflow, he would sell to the other company, but there would have to be another company. And when there is a shortage, he would have to buy.

Even if it were, however, a situation where arm's length contract could be made, here is a contract that is working and it is contributing great benefits and reliability and a possibility of growth.

Don't you think that is entitled to some consideration in a situation like this?

Mr. COLLINS. Yes, sir. Although a statement that a certain situation is working does not mean that another situation might work better.

Senator HRUSKA. And therefore that would lead me to this comment. If you are going to say none of them will be tolerated—and the bill that is before us says none of them will be tolerated—even where it is working and conferring the benefits—an increase in the use of gas and making it economical and all that. You say that is all condemned, and we start from there. So you scrap the good with the bad.

Couldn't there be some more selective approach to this thing, which would say, well, let's look at this in a commonsense way? If there is no abuse, and if there is a situation that is wholesome and beneficial, let us allow it to continue, and that is subject to determination very readily, rather than saying all of this must go because there are some situations that are not good.

Does that approach appeal to you at all?

Mr. COLLINS. Let me make a statement on that comment that you made. I favor the bill as it is. However, if you believe that some utilities are exceptions, the burden of proving exceptions should rest entirely upon the utilities claiming to be exception and not upon the regulatory authorities.

Retention should be permitted only if the utilities involved clearly demonstrate that the economies lost as a result of divestiture would be so severe as to result in the demise of the system being divested and this demise it considered by the regulatory authorities to be against the public interest.

Furthermore, every other means of continuing the operations of the systems should be exhausted.

Senator HRUSKA. Does the bill before us allow for exceptions?

Mr. COLLINS. No, it does not.

Senator HRUSKA. Do you think it should?

Mr. COLLINS. As I mentioned in my preface, I favor the bill as is.

Senator HRUSKA. You what?

Mr. COLLINS. I believe that the additional costs of administering a bill containing a provision for exceptions would outweigh the potential benefits which may be derived from any exceptional cases.

Senator HRUSKA. Now, where are you reading that? What page?

Mr. COLLINS. I am not reading from any page in the testimony.

Senator HRUSKA. Excuse me. Are you saying, then, that the bill should be modified from its present form and include in it sufficient language to allow for exceptions?

Mr. COLLINS. I made the statement that I favor the bill as is.

Senator HRUSKA. As is.

Mr. COLLINS. As is.

Senator HRUSKA. And yet you say that where there are redeeming qualities and some benefits to be derived, that should be decided on a case-by-case basis, in effect, do you not?

Mr. COLLINS. I made a statement that if you believe that some utilities are exceptions to this general indication which I have given you in my study, then the burden of proving exceptions should rest upon these utilities, not upon the regulatory authorities.

Senator HRUSKA. How can that happen if we pass this law? How can that happen? No exceptions are provided.

Mr. COLLINS. That is correct.

Senator HRUSKA. So you would preclude that, wouldn't you?

Mr. COLLINS. Yes, I would. On the statement that I believe that the additional costs of administering a bill containing a provision for exceptions would outweigh the potential benefits which may be derived from any exceptional cases. Cases have been arising under the Public Utility Holding Company Act on divestiture of combination utilities since 1935 and we are still continuing with these cases. This is an awfully long period of time for these cases to be in our courts.

Senator HRUSKA. Well, whose fault is that? The law has been there for 35 years—36 years, now. Whose fault is it?

Mr. COLLINS. I believe that it would be that provision in the law for exceptional cases, the provision of loss of substantial economies. I believe this law, the Public Utility Holding Company Act that I am referring to now, is a good one, but I do believe that this provision has entangled our courts for a good many years and could for many years in the future.

A similar provision in this bill could likewise tie up our judicial procedures. The per se doctrine would eliminate or at at least substantially reduce this type of cluttering of our judicial procedure.

Senator HRUSKA. This cluttering of the judicial procedure?

Mr. COLLINS. Yes, sir.

Senator HRUSKA. What is cluttered about it?

Mr. COLLINS. The processing of all these cases, if we put a provision for exception in the bill we have some 78 companies engaged in selling both gas and electricity, and it is likely that a good number of these will claim exception.

Senator HRUSKA. What is wrong with that?

Mr. COLLINS. They will claim that they are exceptional cases.

Senator HRUSKA. But they would have to prove——

Mr. COLLINS. The *New England Electric System* case has been in the courts for many, many years. It went from the Securities and Exchange Commission which took a good deal of its time to the Appellate Court, to the Supreme Court, back to the Appellate Court, back to the Supreme Court again, over an extended period of time.

Now, this is an awfully long time to tie up our judicial procedures, our judicial system.

Senator HRUSKA. The language is clear in the Holding Act. It is clear. It says these are prohibited acts.

The holding company shall not own, except on an unadulterated basis, only one of these energy systems. That is what it plainly says and then it says if, however, the Commission SEC would find that there would be, as I understand it, that there would be substantial loss——

Mr. COLLINS. That is correct.

Senator HRUSKA. By reason of depriving a combination situation, then they can grant the exception. However, the first part still says there unqualified, and it would take a claim and a proven claim of a combination company to stay in business.

Now, then, why is it that it would take 35 years, 36 years, to still be litigating in this? Whose fault is it, do you know? Are you a student of the Holding Company Act?

Mr. COLLINS. I have examined the Holding Company Act. I do not claim to be a lawyer. I claim to be an economist. I believe that the problem is in the definition of substantial, as used in the Public Utility Holding Company Act whether it is what the companies state are important economies, or whether it is what the Securities and Exchange Commission state are important economies or substantial economies, or whether this means a loss which would result in the demise of the system being divested. This creates, I believe a problem. It creates lengthy litigation in the courts. I believe that this can be avoided by a per se doctrine.

Senator HRUSKA. By what?

Mr. COLLINS. By a per se doctrine, as specified in S. 403.

Senator HRUSKA. Well, would that require an amendment to the bill?

Mr. COLLINS. No, the bill is a per se doctrine. S. 403 is a per se doctrine.

Senator HRUSKA. Well, just so that I understand your position and so that those who will read this record will get it clearly, you are for the bill as it is.

Mr. COLLINS. As it is.

Senator HRUSKA. Which would completely outlaw and prohibit combination companies, good, bad, or indifferent, insofar as their impact upon the consumer is concerned.

Mr. COLLINS. I do.

Senator HRUSKA. You grant that there are some situations where there is some benefit to be derived by a combination?

Mr. COLLINS. I grant that the possibility exists, not that they do exist. I grant the possibility for economies of joint operation exists, not that they actually do exist.

Senator HRUSKA. Have you studied the South Carolina situation?

Mr. COLLINS. Not in particular, but in general.

Senator HRUSKA. Would you want to still make as an unqualified statement that there are no situations or there is substantial benefit to be derived by the consumers of an area from a combination such as that which exists in South Carolina?

Mr. COLLINS. As I stated in my testimony, I believe the potential for these economies of joint operation exist. However, as indicated by the results of my statistical tests, they have not been found.

Senator HRUSKA. Well, let's get beyond statistics. You see, in a case that would involve a showing whether there are substantial losses by reason of any divorcement of two services as they exist in South Carolina, the trial court, in my opinion, would not resort to statistics. They would want to say, what are the benefits in this case in South Carolina?

Mr. COLLINS. Exactly.

Senator HRUSKA. They wouldn't look at your figures. Maybe there is 3 percent gas and 97 percent electricity in some company and the reverse in some other company, and they are all lumped together, and then you come up with a nice, neat table of statistics, which leads you to say that the variables, so and so, and so and so, this is true. They wouldn't get into that, you see. That would be quite irrelevant as I understand the procedures of court.

They would confine you to the *South Carolina* case, or the *North Dakota* case, or the *Montana* case, or whatever.

Mr. COLLINS. Yes, sir. But this turns back to the purpose of my testimony. I am not addressing a particular company. I am not addressing South Carolina Electric & Gas in particular, I am proposing a general piece of legislation. We are considering that general piece of legislation. The courts would then take it upon themselves to apply this general piece of legislation.

Senator HRUSKA. If they do, every one of these combination companies, good, bad, or indifferent, would go down the drain.

Mr. COLLINS. That is correct.

Senator HRUSKA. There are no exceptions.

Mr. COLLINS. That is correct. It would call for the divestiture of gas from electric operations for every one of the class A and B combination utilities.

Senator HRUSKA. Well, I am glad to get your position on it. I don't know that I can quite sympathize with it because while we are considering a general piece of legislation, so often in our business of legislating, we don't like to hurt situations where benefits flow from certain combinations or arrangements. We don't like to penalize the consumer. Maybe you in your desire to have general legislation and undeviating and unqualified, maybe it is the simple thing to do, but those of us who have some concern for the consumer would say, wait a minute. There are ways that we can qualify this so as to allow the worthy to survive and so as to eliminate those that are not worthy.

We believe that to be a rather humane doctrine. We like to do that. We have a concern for the consumer, and certainly in South Carolina, they are having a pretty good thing as far as we have been able so far to analyze it. And so there comes that difference of opinion.

Mr. COLLINS. I would like to point out that my concern is for the consumer also.

Senator HRUSKA. That what?

Mr. COLLINS. That my concern is for the consumer also.

Senator HRUSKA. I am sure that is right. I am sure that is right.

Mr. COLLINS. I would further like to point out that I have no ax to grind. When I initiated my study, I had no ax to grind against the combination form of utility organization. My procedure was to set forth the arguments stated by each school of thought, those favoring the combination form of utility organization and those opposing the combination form of utility organization.

I have no control over the outcome of these results, and I am reporting these results to you as I have found them. There is nothing I can do to change them. They came out the way they did.

Senator HRUSKA. And yet you——

Mr. COLLINS. I had no preliminary biases against the combination form of utility organization. I recognized that there were arguments both favoring and opposing it, and I set about to test the empirical relevance of these claims set forth by each school of thought on the matter.

Senator HRUSKA. Well, we can go on to another point, I am sure, but it might be worth noting at this point that the Holding Company Act of 1935 was not unqualified.

Mr. COLLINS. That is correct.

Senator HRUSKA. They left an escape there.

Mr. COLLINS. That is correct.

Senator HRUSKA. And in many situations, undoubtedly that has served a useful purpose.

Now, whether the temper of Congress and the temper of the times will have changed in the last 36 years we will find out sometime soon, but in this business of legislating, when we galvanize ourselves into a cast iron mold, we often live to rue the day that that act was signed into law.

Counsel O'Leary, have you any questions? I may have another one or two after awhile, but go ahead while I collect my notes.

Mr. O'LEARY. Thank you, Mr. Chairman.

Professor, do you know of any studies which have been conducted by National Economic Research Associates or by the Federal Power Commission staff or by anyone else which demonstrate the superiority of combination companies?

Mr. COLLINS. No, I know of none.

Mr. O'LEARY Let us assume—for the sake of argument—that you are wrong, that Mrs. Herzlinger is wrong, that Professors Landon and Wilson are wrong, and let us assume for the moment that combination companies are really more efficient than straight utilities. Would it be your judgment that some scholars somewhere have conducted studies which would have demonstrated this superiority?

Mr. COLLINS. I would expect so. Somewhere these economies should be detected.

Mr. O'LEARY. Now, we did hear testimony from Dr. Pace of National Economic Research Associates last month in which your study was criticized, as I recall, because of the failure to take into consideration location, the type of generation, and local taxes. Would you care to respond to that general criticism?

Mr. COLLINS. Yes, sir. Please refer to footnote No. 1 on page 6 of my testimony. One of the reasons for employing two tests in my study—a paired observation test as well as a group test—was to permit control over geographical location, degree of urbanization, and general population density, and other factors (like regional differences in wage rates, nearness to fuel sources, et cetera) which were difficult to quantify. Pairing alleviated the problem of relying entirely upon a few single figure estimates of urbanization and population density (miles of underground electric lines and miles of over-

head transmission lines per customer and miles of overhead distribution line per customer) since a straight electric utility's service area could be compared with a combination's service area on a community-by-community basis (by using utility distribution maps and/or lists of communities served with their corresponding populations or number of customers coupled with maps indicating community size). The straight electric utility could be paired with a combination if the regions or market areas were enough alike, and thus no single number had to be determined to characterize service areas. Furthermore, simply comparing regional classifications of utilities would not be helpful in pairing. For example, a straight utility located in Indiana could be paired with a combination in Illinois, even though Indiana and Illinois were located in different and arbitrarily selected regions.

I would like to add to this statement, a preliminary pictorial analysis of all private class A and B utilities engaged in selling both gas and electricity showed that for every one of the six national power survey regions in the contiguous United States, as well as for the contiguous U.S. total, combinations had in practically every case higher, and in no case lower, values than straights for average revenue from sales to ultimate consumers, average revenue from sales to all consumers, average electric operation and maintenance expenses, and revenue from all electric sales less operation and maintenance expenses per kw.-hr. sales.

Note that both combinations and straights appeared in every region. About 123 utilities were straight electrics, 77 were combinations, for a total of 200 utilities out of the 211 reported in the FPC statistics of privately owned electric utilities in the United States in 1967.

Now, let us refer to the matter of fuel costs. Would you please refer in my statement to the last sentence in footnote No. 1 on page 13; also to page 13 under Operation and Maintenance Expense Variables, line 6 to the end of the paragraph, and continue on page 14, paragraph number 1, lines 1 through 9.

Now, I will summarize.

In summary, fuel costs were controlled by examining the dependent variables, operating revenue less operation and maintenance expenses per unit total electric sales, operating revenue less operation and maintenance expenses less taxes per unit total electric sales, total operation and maintenance expenses less cost of fuel and purchased power, and total operation and maintenance expenses less power production expenses as well as examining a number of individual expense variables which do not contain costs of fuel and purchased power.

Since these variables do not contain cost of fuel, differences found in these figures cannot be attributed to differences in cost of fuel. Furthermore, since the net return variables, 7 and 8, were significantly higher for combinations than for straights, and the operation and maintenance expense variables (which include costs of fuel) were not, any differences found in operation and maintenance expenses would appear to be more than compensated for by differences in revenue.

And finally, the comments I made concerning location apply here. That is, footnote No. 1 on page 6 of my testimony, as well as the oral comments which I added.

Let's turn next to taxes. Refer in my testimony to page 13, footnotes 1 and 2 and page 14, footnote 1.

Control over differences in tax burdens was accomplished by subtracting taxes along with operation and maintenance expenses from revenues. Since the remaining net return figure does not contain taxes, differences found in this figure cannot be attributed to differences in tax burdens. Furthermore, since operation and maintenance expenses do not include taxes, differences found in these variables cannot be attributed to differences in tax burdens.

And finally, since the net return variable, that is variable 8, was significantly higher for combinations than for straights, and the operation and maintenance expense variables—which include cost of fuel—were not, any differences found in operation and maintenance expenses and taxes would appear to be more than compensated for by differences in revenues.

Let's turn next to the matter of wages. I would like to point out here that Mr. Pace examined only one region out of nine arbitrarily selected regions given in the Bureau of Labor Statistics Industry Wage Survey to conclude that combinations have higher wage costs as a result of locational differences.

Further, let's refer to my footnote No. 1 on page 15. Since salaries and wages are dependent variables; that is, variables which I am studying, which according to a specified hypothesis should vary according to whether or not a utility is straight or combination, I cannot attempt to modify or adjust them but can only accept whatever they turn out to be. Tampering with these variables could easily introduce experimenter bias into this study. The safest way to avoid bias is to accept the outcome as is.

Furthermore, the comments I made concerning location apply here. Footnote No. 1 on page 6 of my testimony as well as the oral comments, which I added.

Mr. O'Leary. Just a couple of more questions, Professor. You were engaged in working on this study during the time you were employed at the Federal Power Commission, were you not?

Mr. Collins. Yes, I was.

Mr. O'Leary. Who was your supervisor at that time?

Mr. Collins. Dr. Haskell P. Wald.

Mr. O'Leary. To what extent is your methodology with respect to this particular study or the conclusions of this particular study criticized by your supervisor or other members of the economic staff of the Federal Power Commission?

Mr. Collins. I would like to start by saying that I had a number of personnel within the Office of Economic in the Federal Power Commission review my statistical procedures prior to conducting the study as well as outside additional help from the Bureau of Labor Statistics regarding appropriate statistical procedure. I have here a statement to the Commission, the Commission being the Federal Power Commission, from the Chief of the Office of Economics, Dr. Haskell P. Wald, on the subject of my study, the study of combination gas-electric utilities.

Submitted herewith is a report summarizing a basic study of combination gas-electric utilities. The author, William H. Collins, was a member of our Division of Economic Studies until July 2, when he resigned to accept a teaching post

at East Carolina State University. Mr. Collins is submitting the full study, which runs to about 150 pages (not counting the computer print-outs), in partial fulfillment of the Ph.D. requirements at Southern Illinois University. The study is a product of his independent research over a period of one and one-half years.

In our opinion, Mr. Collins has succeeded beyond other investigators in analyzing the comparative performance of combination and straight utilities. He discovered some powerful analytic tools which are especially well adapted to this problem, although to our knowledge these tools have not been previously applied to economic data. They are highly sophisticated statistical tests developed by theoreticians who have studied the problems of analyzing "nonparametric" statistics. The tests had to be programmed for automatic data processing. (In this connection, we wish to acknowledge the excellent cooperation of Mr. Kear's data processing staff in Mr. Collins' project.)

Mr. Collins' results are remarkable because they are not obscured by statistical ambiguities. He concludes that the performance of combinations is significantly below that of straight electric utilities. It appears that his statistical tests firmly refute the claims of economies through the joint operations made possible by combining gas and electric operations in a single utility. Combinations appear to charge higher prices, their customers use less electricity on the average, and many of their expenses tend to be higher than those of straight utilities. His evidence implies that the active presence of direct competitive pressures when gas and electric services are provided by independent utilities operates strongly in the public interest.

Mr. Collins' full study, which includes a valuable discussion of the history of combination utilities, will be available for general distribution within the Commission in a month or two. It is now being reviewed by his Ph. D. examining committee. We believe it would be desirable to issue the full study as a staff report, with Mr. Collins identified as its author, so that the study can be considered and analyzed by the industry and the academic community. However, the study will need to be edited and a Preface prepared with the usual disclaimer of Commission responsibility for the conclusions and recommendations. Before undertaking this further work we invite a tentative expression of views from the Commission on whether it should go forward.

Furthermore, I have here a memorandum to Mr. Haskell P. Wald from Mr. Stanford Levin reviewing my study of combination gas-electric utilties.

This states as follows:

Overall I have no serious criticisms of this paper. It is clear, well thought out and presents conclusions which follow easily from the econometric studies. Assumptions are clearly stated and the limitations of the procedure and of the policy recommendations are discussed. The procedure of stating the theory and expected findings supporting each of the two opposing points of view and then testing and evaluating the data contributes greatly to demonstrating the import of the findings.

The theoretical sections are easily understandable and relevant, although I have the feeling that some of the more obvious points could be condensed and space could be allocated to a more detailed examination of the more interesting or advanced concepts mentioned. For instance, the topic on page 68 regarding competition for total sales between electricity and gas in the same firm might be expanded.

One questionable assumption, although not particularly important to the central issues, is the assumption (page 55) that the gas producing industry is subject to decreasing average costs. This is not justified, and certainly should not be used without some explanation. The econometric sections of the paper are good, interesting, and comprehensive, although it helps to read the appendices as one encounters references to them in the text. The results seem to be well supported and follow without difficulty from the data. The only significant danger in this area is that by certain pairing or elimination procedures the omission of observations before testing may have the effect, if it is not done carefully, of assuming the desired conclusion. It might be worthwhile to have some further discussion on this point.

The analysis of the conclusions is thorough for the most part. One understands the import of the findings and is prepared for the policy recommendations that follow. While the limitations of using generalized results for all utility

companies are pointed out, the results of the study do seem very important regarding policy toward combination gas and electric utilities. The study is certainly useful, and I feel that it would be desirable to elaborate further on the proposed policy, its difficulties, limitations, and advantages.

Senator HRUSKA. Just one other question, Professor, and that has to do with the time—the effectiveness of this act. The bill provides, "On or after January 1, 1973, it shall be unlawful," and then it goes on to say the fact of having combination companies.

Would you have any comments on the adequacy or other characteristic of the period that is designated there?

Mr. COLLINS. I have no complaint with the time set forth in the bill.

Senator HRUSKA. Do you think it is——

Mr. COLLINS. The time requiring divestiture should be set so as to minimize any costs associated with divestiture proceedings.

Senator HRUSKA. Is that long enough or is it too long or is it about right?

Mr. COLLINS. I have no complaint with the date stated in the bill.

Senator HRUSKA. I would take that to mean that you would like to let it stand as it is.

Mr. COLLINS. Yes; I favor the bill as stated.

Senator HRUSKA. Thank you very much for your testimony.

Mr. COLLINS. Thank you.

(Mr. Collins' prepared statement follows. Testimony resumes on p. 448.)

STATEMENT OF DR. WILLIAM H. COLLINS, ASSISTANT PROFESSOR OF ECONOMICS AT EAST CAROLINA UNIVERSITY, GREENVILLE, N.C.

THE SOCIAL DESIRABILITY OF COMBINATION GAS-ELECTRIC UTILITIES

I. Schools of though on combinations

As an increasing amount of thought has been going into the social desirability of combination gas-electric utilities, two schools of thought appear to be evolving. One school, which might be called the *straight utility school*, maintains that public interest will be best served if separately managed gas and electric utilities actively compete for household, commercial, and industrial markets such as space heating, water heating, cooking, air conditioning, refrigeration, and clothes drying. This thesis is based on the conventional argument that greater competition leads industries which are forced into competition to lower prices, expand output (or expand rates of increase in output), improve service, attain greater management efficiency, economize on labor and capital equipment expenditures, engage in more intensive research and promotional activities, and provide greater freedom of consumer choice. Further, since elasticity of demand is likely to be smaller (in absolute terms) for gas and electricity combined than for either gas or electricity taken separately, the incentive to hold down costs and prices in order to attract new sales may be significantly stronger for straight utilities than for combinations.

A second and related argument for straight utilities which this school gives involves the decreasing cost nature of the utility industries with the possibility for economies of scale. As increased competition leads to an expansion of output, average or unit costs fall. This fall in unit cost allows for a decrease in prices greater than that which would be possible in a constant or increasing cost industry. Under combination utility conditions, management may concern itself with the welfare of both the gas and the electric operations and will be motivated to insure that each receives a fair return. For example, electric space heating prices may be maintained at a high level so as not to compete with gas space heating. The higher electric space heating prices will result in a reduction of electric output and higher average costs, which will tend to reinforce the

upward bias in electric prices. A second and different motivational argument is that if the gas operations contribute a very small percentage to revenues of the entire utility, then the gas operations will be neglected wherever gas and electric interests conflict.

Finally, the straight utility school argues that the expansion in output resulting from greater competition creates a multiplier effect on the entire economy by stimulating demand for electric and gas production equipment as well as providing demand for appliances and other energy using equipment. Employment and income are increased in these areas and the rest of the economy through the multiplier (assuming less than full employment). In this case, a macro argument is being used to justify a micro policy.

The other school, which might be called the *combination utility school*, maintains that combinations can outperform straight utilities. They point to economies of joint operation such as a single meter reader for both gas and electric operations, single appliance inspector, a single service department, single headquarters with common management and overlapping sales, accounting, purchasing, billing, collecting, and engineering departments, use of a single trench for underground distribution, sales promotion emphasis in the area where the marginal profit is greatest, and taking advantage of the differences in peak load times for the two services by using idle workers in one service during the off peak load time of that service in the peak load times of the other service. In addition, peak load problems can be reduced by promoting gas air conditioning to reduce electric peak load in summer and electric heat to reduce gas peak load in winter.

This school also claims that combinations will provided consumers with unbiased information concerning the comparative advantages and disadvantages of using gas and electricity for different applications so that the consumer will have all the information necessary to make the best decision concerning the better form of energy to use. The customer also benefits from the convenience of dealing with one utility.

An additional benefit would be that any revenue instability occurring in gas and electric utility operations would tend to be less in a combination utility than in a straight utility if revenue fluctuations for gas and for electricity are not correlated. The diversification of the combination would cause the total revenue from both the gas and electric operations to be more stable than the revenue from either the electric operations or the gas operations taken separately and would therefore result in a greater stability in overal rate of return compared to straight utilities. The advantage of greater revenue stability could be passed on to the consumer in the form of lower prices because, for example, since unexpected revenue reductions are less likely, less emergency cash reserves would be required to meet normal operating expenses. Finally, the combination utility school claims that financial stability provided by diversification and the absence of competition benefits the stockholders and results in cost savings for the utility on capital market financing.

Clearly, two sets of forces, competitive forces and forces associated with joint economies of operation, can act and the existence and intensity of the individual forces are a function of whether or not the utility is straight or combination. Under straight utility conditions, but not under combination utility conditions, competitive forces between gas and electricity will exert a downward pressure on prices, a pressure for expansion of output, and pressure for improvement in the quality of service. Assuming that most utilities operate on the decreasing sections of their average cost curves, expanded output results in lower unit cost which allows a greater decrease in price than that which could occur in a constant or increasing cost industry. However, in the case of straight utilities, there are no economies of joint gas and electric operation acting to lower average cost and thereby allowing a fall in prices, as would be possible under a combination utility situation.

Three possibilities exist in this institutional framework. *First*, competitive forces may have a greater impact on lowering price, increasing output, and improving quality of service than joint operation economies. *Second*, joint operation economies may have a greater impact on lowering average cost and thereby lowering price, increasing output, and improving quality of service than competitive forces. *Third*, the possibility exists that the two forces offset one another, leaving a net impact of zero, or nearly so, from a shift from a combination utility

to a straight utility situation. Each possibility would call for a different regulatory policy. If an institutional framework which is different from the existing one were found to be more compatible with the public interest, society would benefit from shifting to the new institutional framework if the gross social benefit resulting from the change is greater than the total cost to society of making the change.

Great difficulty is encountered in formulating a universal prima facie case supporting a policy favoring either combinations or straight utilities or supporting a policy of *laissez faire*. Examining empirical evidence of the performance of individual utilities appears to be a meaningful approach to the question, "Are combination utilities in the public interest?"

II. Experimental procedure

A very brief outline of the procedure used to test the claims made by the schools of thought will now be presented. The first step in this experiment is to set forth definitions of the population under investigation—for straight electric utilities, straight gas utilities, and combination gas-electric utilities. In the preceding discussion a utility was implicitly defined as a combination if it engaged in selling both gas and electricity, and a utility was implicitly defined as straight electric (gas) if it engaged in selling no gas (electricity). These definitions, while satisfactory for a theoretical discussion, are not suitable for classifying utilities for empirical testing. For example, under these definitions a utility would be classified as a combination even though it may obtain less than 1% of its total gas plus electric revenue from its gas operations. Such a utility would not be likely to exhibit any detectable combination characteristics as set forth by the schools of thought and in fact is likely to behave as a straight electric utility. Thus a more restrictive set of definitions had to be established to facilitate empirical testing.

A skeleton presentation of the conditions which utilities must satisfy to be included in the study and to be defined for the purpose of the study as straight electric or combination is as follows.

First, the population includes only privately owned operating electric utilities in the contiguous U.S., with electric operating revenue of at least $1,000,000, serving residential customers, and deriving no more than 26% of its revenue from wholesale electric sales.

Second, to be defined and classified as a straight electric utility, the utility must not own or be owned by any company which sells or owns any company which sells gas in the same service area of the utility under consideration, must not have been combined or otherwise associated with gas operations in its recent past, must have gas utilities serving at least 60% of its service area, and if the utility has gas operations, it must have a ratio of gas operating revenue to gas plus electric operating revenue of less than 2%.

A comparable definition was established for straight gas utilities.

Third, if a utility sells both gas and electricity, the utility is classified as a combination if the ratio of gas operating revenue to gas plus electric operating revenue is greater than 10% but less than 90%, and the utility must serve at least 35% of its electric service area with gas and vice versa.

The second step in the experimental procedure involves minimizing to the utmost extent the effects of the independent variables on the dependent variables, so that the effect of only whether or not a utility is straight or combination can be studied. Which variables are independent and which are dependent in this study will be determined according to the following criteria. An independent variable is one which would not be expected (according to any recognized hypothesis) to vary according to whether or not a utility is straight or combination but which could affect the dependent variables under consideration. A dependent variable is one which according to a specified hypothesis should vary according to whether or not a utility is straight or combination. The arguments of the straight utility school and those of the combination utility school serve as a basis for the hypotheses concerning the behavior of all the variables and thus determine either explicitly or implicitly which variables are independent and which are dependent.

A few examples may be helpful to illustrate the value of independent variable control. If straight electric utilities happen to have a much larger percentage of generation from hydro than do the electric divisions of combination utilities, the tests involving expenses may be detecting differences resulting from this

factor rather than whether or not a utility is straight or combination. Or for example, if straight electric utilities happen to have in general much larger kwh sales than do the electric divisions of combination utilities, the tests may be detecting differences resulting from the comparatively larger size of the straight utilities rather than whether or not the utilities are straight or combination. Since there appears to be no hypothesis which infers a relationship between whether or not a utility is straight or combination and the percentage generation from hydro or the size of the utility, and since these variables could affect the dependent variables under consideration, these variables are considered to be independent and are therefore subjected to control. Time prohibits providing a complete list of all the independent variables examined.

The minimization of the effects of independent variables is accomplished primarily through the process of elimination and pairing. For the Mann-Whitney U test, which involves group comparisons, homogeneity with respect to the independent variables is accomplished by eliminating utilities with extreme values for particular independent variables until the null hypothesis, which states that no significant difference exists between the two groups, is accepted (at the 5% level) for each of the independent variables under examination. For the Wilcoxon Matched-Pairs Signed-Ranks test, which involves pairing of utilities, homogeneity with respect to the independent variables is accomplished by pairing a straight electric utility with a combination utility whose electric portion of its operations is acceptably like that of the straight utility with respect to the independent variables. Similarly, a straight gas utility is paired with a combination utility whose gas portion of its operations is acceptably like that of the straight utility with respect to the independent variables.[1]

The third step in the experimental procedure involves selecting and describing the appropriate tests to be employed. The Z test (a group test) and the Student-Fisher test (a paired observation test) were candidates for testing whether or not a significant difference exists between straights and combinations for the variable under consideration. Both of these tests are common in the literature. Both have the drawback of dependence on normal distributions in order to yield meaningful results. Preliminary examination indicated that many of the variables have substantially skewed distributions. Some idea concerning the normality of each distribution was obtained by examining certain characteristics of the distribution (mean, median, third and fourth moments with respect to the mean, and mean deviation). Since the normality of the distributions appears to be a substantial problem, two nonparametric tests, the Mann-Whitney U test (a group test) and the Wilcoxon Matched-Pairs Signed-Ranks test (a paired observation test) are employed, and the results of these tests are used for analysis in place of the two parametric tests.

Since natural pairs are unavailable and since pairing of utilities for the Wilcoxon test involves a reduction in sample size from the group test, the gain in control of independent variables by pairing could possibly be lost. Therefore, the results of the group test (the Mann-Whitney U test) may be more reliable than the results of the paired observation test (the Wilcoxon Matched-Pairs Signed-Ranks test).[2]

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[1] An attempt to achieve perfection in control of the independent variables would result in eliminating virtually every utility from the study as no one utility could possibly be exactly like another unless these utilities were superimposed upon one another.

[2] One of the reasons for employing two tests in my study—a paired observation test as well as a group test—was to permit control over geographical location, degree of urbanization, and general population density, and other factors (like regional differences in wage rates, nearness to fuel sources, etc.) which were difficult to quantify. Pairing alleviated the problem of relying entirely upon a few single figure estimates of urbanization and population density (miles of underground electric line and miles of overhead transmission line per customer and miles of overhead distribution line per customer) since a straight electric utility's service area could be compared with a combination's service area on a community-by-community basis (by using utility distribution maps and/or lists of communities served with their corresponding populations or number of customers coupled with maps indicating community size). The straight electric utility could be paired with a combination if the regions or market areas were enough alike, and thus no single number had to be determined to characterize service areas. Furthermore, simply comparing regional classifications of utilities would not be helpful in pairing. For example, a straight utility located in Indiana could be paired with a combination in Illinois even though Indiana and Illinois were located in different and arbitrarily selected regions.

III. Hypotheses and results of tests for electric dependent variables

The results of the Mann-Whitney U test indicated that all relevant electric independent variables were homogeneous for the two groups. Thus, all 52 of the utilities initially defined as combinations and all 89 utilities initially defined as straight electric were included in the Mann-Whitney U test on the electric dependent variables.[3] The pairing of utilities according to the procedure outlined previously for the Wilcoxon Matched-Pairs Signed-Ranks test resulted in 33 pairs.[4]

The following discussion specifies the hypotheses concerning the behavior of the electric dependent variables, based on the claims made by the two schools of thought, and comments upon the experimental results presented in Table 1. The results were derived by testing the reported data for 1967 for the utilities selected in accordance with the procedures described previously.

Both the Mann-Whitney U test and the Wilcoxon test are designed to estimate the probability that the observed differences in the values of the dependent variables for combination utilities, on the one hand, and straight utilities, on the other, are statistically significant differences rather than random differences. For the first test, the utilities from both samples were combined into a single sample and ranked in ascending order according to the observed values of the particular variable selected for testing. Counts were then made of the number of times the values for straight utilities were larger (or smaller) than the values for combination utilities. It is possible to calculate a probability distribution of an infinitely large number of such counts for the hypothetical case in which both samples are from the same population (i.e., for the case in which no significant difference exists between combinations and straights). Such a distribution can be used to estimate the probability that the results obtained by analyzing the actual rankings could have been observed if the two samples had been drawn from the same population. Column Z in the table is an index of the difference between the actual counts from the rankings for each observed variable and the mean value if the hypothesis of no significant difference were true. Column A indicates the statistical probability, expressed as a percentage that the number under Z, or a larger number, could have been obtained if the two samples did not differ in performance as measured by the variable being studied. Probability values below 5.0 percent were accepted as indicating an acceptable risk level for concluding that the two samples did *not* come from the same population and, therefore, that the observed difference between straights and combinations is statistically significant.

The Wilcoxon test follows a similar procedure except that the differences are determined for each matched pair of companies, one combination and one straight, and then ranked.

TABLE 1.—RESULTS OF STATISTICAL TESTING OF ELECTRIC DEPENDENT VARIABLES

KEY TO INFORMATION IN TABLE

C=combinations had higher values than straights.
C*=combinations had significantly higher values than straights at a 5% level.
S=straights had higher values than combinations.
S*=straights had significantly higher values than combinations at a 5% level.
A=percent probability of obtaining a Z as extreme as that observed if no difference existed between straights and combinations. Parentheses around A indicate that the difference was not in the direction hypothesized and A was changed in order to indicate the probability of obtaining a value of Z as extreme as that calculated if no difference existed between the two groups.
Z=the number of standard deviations by which the sample statistic deviates from the sample mean. (If there is no difference between the two groups, the statistic should equal the mean.)

Source: The results are based on data from the Federal Power Commission's publication, *Statistics of Privately Owned Electric Utilities in The United States, 1967.*

[3] In the case of 16 of the 40 variables tested, the tests are based on somewhat fewer than 52 combinations and 89 straight electrics. The elimination was necessary because of gaps in the available data.

[4] In the case of 7 of the 40 variables tested, the tests are based on somewhat fewer than 33 pairs, because of data deficiencies.

No. and variable	Mann-Whitney Result	Mann-Whitney A	Mann-Whitney Z	Wilcoxon Result	Wilcoxon A	Wilcoxon Z
1 Average revenue: Total kilowatt-hour sales	C*	0.30	2.97	C*	1.04	2.56
2 Average revenue: Kilowatt-hour sales to ultimate consumers	C*	0.16	3.17	C*	0.58	2.76
3 Average revenue: Residential, commercial, and industrial kilowatt-hour sales	C*	0.20	3.08	C*	0.44	2.85
4 Average revenue: Residential kilowatt-hour sales	C*	0.06	3.46	C*	0.80	2.65
5 Average revenue: Commercial kilowatt-hour sales	C*	1.88	2.35	C	11.88	1.56
6 Average revenue: Industrial kilowatt-hour sales	C*	1.41	2.45	C	10.10	1.64
7 Operating revenue less operating and maintenance expenses per unit total kilowatt-hour sales	C*	0.14	3.18	C*	0.20	3.08
8 Operating revenue less operating and maintenance expenses less taxes per unit total kilowatt-hour sales	C*	0.28	2.98	C*	0.46	2.83
9 Operating and maintenance expenses per unit total kilowatt hour sales	C	6.14	1.87	C	64.56	0.46
10 Operating and maintenance expenses less cost of fuel and purchased power per unit total kilowatt-hour sales	C	13.10	1.51	C	64.56	0.46
11 Operating and maintenance expenses less power production expenses less transmission expenses per kilowatt-hour sales to ultimate consumers	C	20.80	1.26	C	22.62	1.21
12 Distribution expenses per unit kilowatt-hour sales to ultimate consumers	C*	0.56	2.77	C*	0.20	3.10
13 Distribution supervision and engineering expenses per unit kilowatt-hour sales to ultimate consumers	C*	1.60	2.41	C*	3.16	2.15
14 Underground distribution line expenses per mile underground electric distribution line [1]	S	10.20	−1.27	C	(96.80)	0.40
15 Meter expenses per unit kilowatt-hour sales to ultimate consumers [1]	C	(9.30)	1.68	C	(7.02)	1.81
16 Customer installation expenses per unit kilowatt-hour sales to ultimate consumers [1]	C	(82.58)	0.22	S	46.81	−0.08
17 Customer accounts expenses per unit kilowatt-hour sales to ultimate consumers [1]	C	(14.98)	1.44	C	(14.42)	1.46
18 Customer accounts supervision expenses per unit kilowatt-hour sales to ultimate consumers	C	62.42	0.49	S	85.72	−0.18
19 Meter reading expenses per unit kilowatt-hour sales to ultimate consumers [1]	C	(2.26)	2.28	C	(2.14)	2.30
20 Meter plus meter reading expenses per unit kilowatt-hour sales to ultimate consumers [1]	C	(2.58)	2.10	C	(2.72)	2.21
21 Customer records & collection expenses per unit kilowatt-hour sales to ultimate consumers [1]	C	(33.70)	0.96	C	(36.82)	0.90
22 Total sales expenses per unit kilowatt-hour sales to ultimate consumers [1]	S*	0.00	−3.92	S*	0.52	−2.56
23 Sales supervision expenses per unit kilowatt-hour sales to ultimate consumers	S*	1.98	−2.33	S	9.70	−1.66
24 Demonstrating and selling expenses per unit kilowatt-hour sales to ultimate consumers [1]	S*	0.00	−4.12	S*	2.50	−1.96
25 Advertising expenses per unit kilowatt-hour sales to ultimate consumers [1]	S*	1.74	−2.11	S*	2.62	−1.94
26 Total administrative and general expenses per unit total kilowatt-hour sales	C	32.22	0.99	S	28.92	−1.06
27 Administrative and general salaries per unit total kilowatt-hour sales	C	44.72	0.76	S	7.84	−1.76
28 Total salaries and wages per unit total kilowatt-hour sales	C*	3.94	2.06	C	27.14	1.10
29 Production and transmission salaries and wages per unit total kilowatt-hour sales	C*	18.2	2.36	C	90.44	0.12
30 Distribution salaries and wages per unit kilowatt-hour sales to ultimate consumers	C*	1.28	2.49	C*	0.04	3.48
31 Customer accounts salaries and wages per unit kilowatt-hour sales to ultimate consumers	C	16.76	1.38	C	19.02	1.31
32 Sales salaries and wages per unit kilowatt-hour sales to ultimate consumers	S*	0.78	−2.66	S	73.38	−0.34
33 Administrative and general salaries and wages per unit total kilowatt-hour sales	S	71.88	−0.36	S	9.70	−1.66
34 Total supervision and engineering expenses per unit total kilowatt-hour sales	C	19.36	1.30	C	59.62	0.53
35 Distribution, customer accounts, and sales supervision and engineering expenses per unit kilowatt-hour sales to ultimate consumers	C	13.36	1.50	C	21.50	1.24
36 Total electric department employees per unit total kilowatt-hour sales [1]	C	(9.50)	1.67	C	(11.18)	1.59
37 Residential plus commercial plus industrial kilowatt-hour sales per residential plus commercial plus industrial electric customer	S*	0.52	−2.79	S*	1.74	−2.39
38 Residential kilowatt-hour sales per residential electric customer	S*	0.06	−3.42	S	15.56	−1.42
39 Commercial kilowatt-hour sales per commercial electric customer	S	27.14	−1.10	S	24.20	−1.17
40 Industrial kilowatt-hour sales per industrial electric customer	C	80.26	0.25	S	33.20	−0.97

[1] Tests were performed for only one behavioral hypothesis (i.e., values of the respective variables are lower for combinations than for straight electrics). In all other instances, tests were performed for alternative hypotheses (i.e., values of the respective variables are either higher or lower for combinations than for straights).

Average revenue and use variables

Average revenue (on a per kwh sales basis) for residential, commercial, and industrial sales and composite average revenue variables (1–6) could be expected to be higher for combinations than for straights as a result of the absence of competition between gas and electric operations or could be expected to be lower for combinations than for straight as a result of lower expenses following from economies of joint (gas-electric) operation. These variables were tested for both possibilities.

Referring to Table 1, average revenue for residential electric sales was significantly higher for combinations under both tests. If no difference exists between straights and combinations for this variable, the probability of obtaining a value as extreme as the Z observed would be only 0.06% under the Mann-Whitney test and 0.8% under the Wilcoxon test. Since Z values having a probability of occurrence less than 5% are considered to be too extreme for acceptance of the hypothesis that no difference exists between straights and combinations for this variable, we conclude that combinations have significantly higher values than straights. In fact, combinations are significantly higher under the Mann-Whitney test for all variables 1–6. In addition, combinations are significantly higher for variables 1–4 and higher (but not signficantly) for variables 5 and 6 under the Wilcoxon test. Therefore, the conclusion must be drawn that if combinations obtain economies of joint operations, these economies are not passed on to the electric consumer in the form of lower prices. Instead consumers served by combination utilities are generally paying more per unit than are consumers served by straight utilities.

Residential, commercial, and industrial kwh sales per residential, commercial, and industrial customer (variables 37–40) could be expected to be higher for combinations than for straights, for if combinations achieve economies of joint operations and pass these economies along to the consumer, consumers can be expected to purchase more at lower prices than at higher prices. On the other hand, each of these variables could be expected to be higher for straights than for combinations if competition between gas and electricity plays an important role in the utilities' decision making process so that straights charge lower prices and/or engage in more aggressive promotional activities in order to encourage greater use of their product. Both possibilities were therefore tested for these variables.

Each of these use variables except for kwh sales per industrial electric customer was higher for the straight group (significantly so for variables 37 and 38) under the Mann-Whitney test. Combinations tended to have somewhat (but not significantly) higher values for kwh sales per industrial electric customer under this test. Under the Wilcoxon test, all four use variables were higher for straights than for combinations, and the composite use variable (37) was significantly higher for straights.

These results coupled with the results of the tests on the average revenue variables indicate that electric customers served by combinations tend to pay higher prices and use less electricity than customers of straight utilities. Such a situation would be predicted by a conventional downward sloping demand curve. Thus, the results of the tests on the use variables are consistent with the results of the tests on the average revenue variables.

Net return variables

Operating revenue less operation and maintenance expenses per unit total electric sales (variable 7) gives the amount per unit which is available for depreciation, amortization, taxes and profit. Tests were applied to determine whether this ratio is higher for combinations than for straights or vice versa.

This variable is significantly higher for combinations under both the Mann-Whitney and the Wilcoxon tests. Eliminating taxes from the numerator of variable 7 to obtain variable 8 made no difference in this result—combinations were still significantly higher than straights for variable 8.[5] Whether or not economies of joint operation acting to lower costs, is a factor in obtaining this finding is indicated by the results of tests on the variables as follows.

[5] Here control over differences in tax burdens was accomplished by subtracting taxes along with operation and maintenance expenses. Since the remaining net figure does not contain taxes, differences found in this figure cannot be attributed to differences in tax burdens. Since operation and maintenance expenses include cost of fuel, differences found in both net return figures cannot be attributed to differences in cost of fuel.

Operation and maintenance expense variables [6]

Operation and maintenance expenses per unit total electric sales (variable 9) could be expected to be higher for combinations than for straights as a result of the lack of competitive pressure between gas and electric operations to force costs downward, or could be expected to be lower for combinations than for straights as a result of economies of joint operation. Operation and maintenance expenses less cost of fuel and purchased power per unit total electric sales (variable 10) is examined since, although the possibility exists that straights would be inclined to bargain more vigorously than combinations for better fuel and purchased power agreements, less discretion may be available to the utility in these areas compared to others. Moreover, variations found in costs of fuel and purchased power, more so than in other expenses, may be a function of factors other than whether or not a utility is straight or combination. Thus, the elimination of these factors could magnify any differences resulting from whether or not a ulitity is straight or combination.

Consideration of operation and maintenance expenses less power production expenses (power production expenses include cost of fuel and purchased power) less transmission expenses per kwh sales to ultimate consumers (variable 11) allows for control of variation in method of generation, load factor, heat rate, and other factors related to the efficiency of production, and the proportion of power purchased as well as the cost of fuel and purchased power each of which is not expected to vary significantly according to whether or not a utility is straight or combination. Furthermore, the expenses included in this variable (distribution expenses, customer accounts expenses, sales expenses, and administrative and general expenses) could be the most sensitive to whether or not the utility is a combination because the utility would have reasonably wide discretion over these expenses and if economies of joint operation exist, they would most likely appear in these expense items. Consequently, these components (variables 12–35) of variable 11 are examined individually in the next section.

Compared to straights, combinations had higher values for all three operation and maintenance expenses variables on both tests. However, in no case was the difference between straights and combinations significant at the 5% level.[7]

Individual expense variables

Electric distribution expenses per unit kwh sales to ultimate consumers (variable 12) may be sensitive to whether or not a utility is a combination not only because of the possibility that combinations will be lax in holding down expenses but also because of the potential economies of joint operation for combinations resulting especially from two sources—the use of common supervision and engineering personnel and the use of a common trench for underground gas and electric distribution facilities. In addition economies of joint operation are possible from electric meter expenses (variable 15) and customer installation expenses (variable 16).

The results of both tests indicate that per unit distribution expenses and per unit supervision and engineering expenses for distribution were each significantly higher for combinations as compared to straights. Even on the tests for economies of joint operation for underground distribution line expenses per mile of underground distribution line (variable 14), per unit meter expenses, and per unit customer installation expenses, combinations were not found to be significantly different from straights, and in fact in most cases combinations tended to have higher values than straights, the reverse of the expected outcome on *a priori* grounds.

Customer accounts expenses per kwh sales (variables 17–21) could be expected to be lower for combinations than for straights because of economies of joint operation resulting from common supervision, single meter reader, and integrated operation for customer records and collection. Instead of combinations having lower values than straights, however, combinations tended in general to have higher values for these variables. In fact for per unit meter reading expenses (19), one of the variables for which significant economies of joint operation are

[6] Since operation and maintenance expenses do not include taxes, differences found in these variables cannot be attributed to differences in tax burdens.

[7] Since the net return variable (8) was significantly higher for combinations than for straights and the operation and maintenance expense variables (which include cost of fuel) were not, any differences found in operation and maintenance expenses and taxes would appear to be more than compensated for by differences in revenues. I believe the comments I have made in the past few pages provide answers to the questions concerning my study raised in the testimony of Mr. Pace on May 13.

claimed by the combination utility school, combinations were substantially higher than straights and were over four standard deviations from critical Z for both tests?

Sales expenses per unit kwh sales to ultimate consumers (variables 22–25) could be higher for straights as a result of the additional competitive incentives to engage in vigorous promotion activities. For each of these variables, except for per unit sales supervision expenses under the Wilcoxon test, straights had significantly higher values than combinations, confirming the above hypothesis. In fact, some of the most striking differences occurred in this category. For example, the calculated Z for total sales expenses per unit kwh sales to ultimate consumers is almost four standard deviations from the mean under the Mann-Whitney test. Thus, straight utilities appear to engage in substantially more sales activities than do combinations, indicating the active presence of additional competitive pressures under straight utility conditions compared to combination utility conditions.

Administrative and general expenses per total kwh sales (variables 26 and 27) could be higher for combinations as a result of lack of competitive incentives to lower costs and/or a desire to utilize savings incurred by economies of joint operation on higher administrative and general salaries, or these expenses could be lower for combinations as a result of the use of common managerial personnel and common office facilities, supplies, and equipment. However, no significant difference was found between straights and combinations for these variables.

Salaries and wages (variables 27–35) and supervision and engineering expenses (variables 13, 18 and 23) on a per unit sales basis could be higher for combinations as a result of the absence of gas-electric competitive incentives to hold down costs and/or the use of a stronger monopoly position in order to pay higher salaries and wages. On the other hand, these variables could be lower for combinations as a result of the use of common administrative, supervision, and engineering personnel for both gas and electric operations.[8]

Per unit total salaries and wages (variable 28) and per unit production and transmission salaries and wages (variable 29) were each found to be higher for combinations under both tests and significantly higher for combinations on the Mann-Whitney test. Per unit distribution salaries and wages (variable 30) and per unit supervision and engineering expenses for distribution (variable 13) were each found to be significantly higher for combinations on both the Mann-Whitney test and the Wilcoxon test. Per unit sales supervision expenses (variable 23) and per unit sales salaries and wages (variable 32) were higher for straights under both tests, and both were significantly higher under the Mann-Whitney test. This last finding is consistent with the earlier finding that straights had sigificantly higher sales expenses than combinations. No significant difference was found between straights and combinations for the other per unit salary, wage, and supervision expense variables examined (variables 18, 27, 31, 33, 34, and 35). Apparently combinations do not obtain economies of joint operations in these variables (27–35 and 13, 18, 23).

Employment-output ratio

Total electric department employees per unit total kwh sales (the inverse of productivity) (variable 36) could be lower for combinations than for straights as a result of the use of common personnel for both gas and electric operations. Nevertheless, the tests indicate that combinations had higher values than straights. Thus, no economies of joint operation appear in the examination of this variable. This finding is consistent with the earlier finding that combinations tended to have higher per unit salaries and wages and supervision and engineering expenses than did straights.

Summary

Thus on the whole, the claims of the straight utility school are supported, and the claims of the combination utility school are refuted by these tests on the electric operations of combinations. A bleak performance picture is indicated for combination utilities. Combinations appear to charge higher prices; their customers appear to use less electricity; and their general and individual expense items, including those for which economies of joint operations are claimed, tend to be higher and, except for expenses associated with sales, none are significantly lower.

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[8] Since salaries and wages are dependent variables, I cannot attempt to modify or adjust them but can only accept whatever they turn out to be. Tampering with these variables could easily introduce experimenter bias into the study. The safest way to avoid bias is to accept the outcome as is.

A general indication is that combinations tend to be in a stronger monopoly position than straights, that they receive greater revenues as a result of this stronger monopoly position, and that these additional revenues are divided between increased costs (including salaries and wages) and net return. Apparently, greater monopoly power causes the combination utilities to increase net return within permitted limits and to be comparatively lax in holding down expenses.

A comparable test was performed for the gas variables; however, the quality of the gas data in general was probably not nearly as high as for the electric data, which are based on the Uniform System of Accounts for the Federal Power Commission. In general, for the 62 straight gas utilities and 52 combinations and 22 pairs examined, no significant difference was found between straights and combinations for the gas dependent variables examined.

IV. Conclusion and policy recommendations

A statistical study, no matter how carefully performed, cannot set forth an indisputable policy position. The results of a statistical analysis can at best be indicatory.

In the first place, the nature of statistical analysis involves the possibility of committing an error. This concept would possibly be best expressed in the following quotation:

A common problem for statistical inference is to determine, in terms of probability, whether observed differences between two samples signify that the populations sampled are themselves really different. Now whenever we collect two groups of scores by random methods we are likely to find that the scores differ to some extent. Differences occur simply because of the operations of chance. Then how can we determine in any given case whether the observed differences are merely due to chance or not? The procedures of statistical inference enable us to determine, in terms of probability, whether the observed difference is within the range which could easily occur by chance or whether it is so large that it signifies that the two samples are probably from two different populations.[9] Thus, a proof would lead to a statement that something is or is not, whereas a statistical inference leads to the statement that something probably is or probably is not.

In the second place, the dynamic nature of the industry and the changing state of the art make setting forth a policy position for all time extremely difficult. A position may be consistent with the public interest at one point in time and inconsistent with the public interest at another.

In the third place, even though statistical evidence may tend to support a hypothesis which states that a certain condition generally exists in an industry, that condition need not exist for a particular member of that industry. If, however, a condition is generally indicated in the industry, the burden of proving exception to that condition should rest upon the party claiming to be an exception.

Finally, as the tools of analysis become more developed and more sophisticated, more precise inferences can be drawn and more intelligent policy positions can be formulated.

The policy maker will have to make a judgment as to the most desirable course of action given all the evidence presented before him, including evidence not taken into account in the statistical tests. Even under less than ideal experimental conditions, the indications forthcoming from a statistical analysis can enable the policy maker to formulate a more intelligent decision than would be possible had the study not been performed.

These points should be kept in mind in considering the following policy suggestions.

Even though, in general, no significant difference was found between straights and combinations in the examination of the gas dependent variables, the results of the examination of the electric dependent variables are sufficient to indicate that the performance of combination utilities is significantly below that of straight electric utilities. Thus, the claims set forth by the straight utility school stressing the advantages of competition between gas and electricity appear to be supported by empirical evidence. The claims of economies of joint operation set forth by the combination utility school, however, were not supported by empirical testing. Thus, combinations appear to be unnecessary concentrations of economic power.

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[9] Sidney Siegel, *Nonparametric Statistics for the Behavioral Sciences* (1956), p. 2.

I, therefore, support the principles set forth in S. 403. If S. 403 does not become law, a bill should be proposed which, at minimum, would establish a unified federal government policy toward combinations and would prohibit the accomplishment under merger that which is prohibited under the Public Utility Holding Company Act for holding companies.

Senator HRUSKA. The final witness of the day will be Robert B. Greenes, chairman of the Fuel Oil Committee of the National Oil Jobbers Council.

Mr. Greenes, we apologize for the long time you had to wait but it is in the nature of things, as you undoubtedly know.

STATEMENT OF ROBERT B. GREENES, CHAIRMAN, FUEL OIL COMMITTEE, NATIONAL OIL JOBBERS COUNCIL, ACCOMPANIED BY GREGG R. POTVIN, EXECUTIVE VICE PRESIDENT, NATIONAL OIL JOBBERS COUNCIL, WASHINGTON, D.C.

Senator HRUSKA. Your statement will be placed in the record, in its entirety. You may read it, or you may highlight it, whichever you choose.

Mr. GREENES. Well, I think it is relatively short. I will just change the salutation from good morning, to good afternoon.

I would like to thank you, Mr. Chairman, and your distinguished colleagues for allowing me this opportunity to present this statement on behalf of the 12,000 members of the National Oil Jobbers Council.

Mr. Chairman, you might find it of interest that one of our outstanding associations is the Nebraska Oil Jobbers Association.

Last year the National Oil Jobbers Council had the privilege of appearing before your subcommittee to express its unyielding opposition to increasing economic concentration within the energy industry. At that time we discussed the growing trend toward broad spectrum energy companies and analyzed the possible impact of this upon consumers and, indeed, upon the broad public interest. Today, in line with our previously stated position, we would like to express the support of the National Oil Jobbers Council for Senate bill 403, which is the subject of this hearing.

Mr. Chairman, you and your colleagues are to be warmly commended for holding this hearing. It is but a part of your continuing and effective effort to alert Congress and the American Nation to the very difficult and complex problems involved in insuring an adequate energy supply for their present and future needs while at the same time avoiding those dangers inherent in any monopolization or economic concentration situation.

I should be most remiss if I did not pause briefly at this point to pay personal tribute to Senator Metcalf. He has for many years been the outstanding spokesman against those practices of public utilities which upon occasion are anticonsumer and anticompetitive. Both the Nation's consumers and its small businessmen owe him a distinct debt of gratitude.

At the outset, allow me to say, Mr. Chairman, that I may not have the competence to make judgments as to the specific provisions of Senator Metcalf's bill. As an example, the many ramifications affecting the proper choice of an effective date for the proposed legislation, the

choice of a threshold figure as to annual gross operating revenue and similar details are relatively technical questions that must be decided by those with more adequate expertise.

Thus, I shall confine myself to speaking generally in support of the general proposition that any single public utility be prohibited from distributing both natural gas and electrical energy. The National Oil Jobbers Council has closely studied the pertinent data concerning the monthly price for electrical energy in representative markets throughout the country. The range in cost is surprisingly high. As an example, a former witness, John W. Wilson, cited 10 representative cities where costs ran from $5 to $14.24 for 500 kilowatt-hours per month, a spread approaching 300 percent.

We also have found most convincing a study by William H. Collins, formerly an economist with the Federal Power Commission, which covered 89 straight electrical utilities and 52 combination companies.

It seems highly significant to us that Mr. Collins concluded that combination companies do charge significantly higher rates per kilowatt-hours. Not only to residential consumers but to industrial and commercial users as well. Strangely enough, these combinations were also permitted to earn substantially higher net operating returns per kilowatt-hour.

There is little question that more research needs to be done on the entire question of interutility mergers and their impact both upon the consumer and upon competition. Certainly, one of the helpful by-products of this hearing will hopefully be the encouragement of such research. It does seem fair to me to state, however, that from the evidence presently available that a maintenance of the status quo preventing any further mergers or assumption of dual distributive roles by utilities would be in the public interest.

One former witness, Dr. Irwin M. Stelzer, has stated that since gas and electric rates already are regulated so as to avoid monopoly profits, dissolution then could accomplish little since there are no excessive profits in any event. Dr. Stelzer is, of course, a most distinguished observer of and upon occasion, a commentator upon the utility and energy scene. Thus, it is with a distinct sense of disappointment that one learns that for reasons known only to himself, Dr. Stelzer has chosen to take a surprisingly narrow view in choosing the perspective for his analysis. Dr. Stelzer's arguments would be most persuasive for inveighing against a second electrical utility or a second telephone exchange within a given market. The validity of this argument stretches beyond fragility; it becomes nonexistent when extended to arguing that different energy modes should not engage in competition. If it is permissible for a utility to have both gas and electricity, then why not petroleum fuels as well? Nor need one be so restrictive. Why not grant a wall-to-wall monopoly—why not coal, nuclear energy, peat moss and, for good measure, throw in a corner on the firewood and kindling market as well?

Nor is this a matter of mere academic or theoretical concern. Today—in the State of New Jersey—this is exactly what is beginning to happen. Southern Jersey Industries, a holding company, exempt under the 1935 act has, as I understand, a wholly owned subsidiary, Southern Jersey Gas Co. Additionally, it is now engaged in acquiring fuel oil jobberships. One already has been acquired and negotiations

are apparently underway for the acquisition of a second jobbership. It has been reported to me that jobberships totaling 100 million gallons a year of distillate fuel oil is their eventual goal.

It is parenthetical interest that I learned today that the Holding Company Act prohibits this holding company which holds Southern Jersey Gas Co. from going into the electrical energy business, but does not preclude them from going into the fuel oil distribution business.

Mr. Chairman, rather than subjecting you and your colleagues to the inherent imprecision of a third party rendition, I would ask permission at this time to include at this point in my remarks, with 10 days, a brief statement by the Honorable Rehard Hughes, former Governor of the State of New Jersey, and presently counsel for the New Jersey Fuel Merchants Association, which will present to you a more detailed account of this situation in New Jersey.

It also must be noted that even though it has no direct relationship to the Metcalf bill, major oil companies, such as Mobile in New England and Sun Oil Co. in the Southeast are busily engaged in buying up jobberships. This is just another aspect of the concentration which is taking place so rapidly within the energy portion of our economy.

Oil jobbers and many other small businessmen, such as plumbers, wholesalers of heating and cooling supplies, et cetera, have for a number of years been severely damaged by the excessive and improper usage of "payola" or subsidies by electrical and natural gas utilities, particularly in terms of the granting of what appear to many observers to be in the nature of bribes to those contractors building new residences or residential apartments as an inducement to install electric or gas heating equipment, which in many instances ends up costing the captive purchaser of the home or the tenant of the apartment many dollars in excess costs over other competitive fuels if that choice were free in the first place.

It is our feeling that dual utilities have greater potential to inflict this type of anticompetitive injury than do their single utility counterparts. First of all, simply by virtue of being larger, a utility having a double rather than a single monopoly has a "deeper pocket" from which to subsidize. Additionally, there is obviously suppression of marketplace competition and the type of marketing strategy which normally flows from it when common management is making the decisions for two competing forms of energy.

It is also quite clear that the proper perspective for this problem is one that views dual utilities against the background of the growing concentration in the entire energy field as has been so amply documented by this subcommittee's former hearings.

It is in this context, Mr. Chairman, that we find outselves alarmed. Some of the arguments made on behalf of dual utilities include economies of scale and the elimination of duplication, which admittedly characterize dual utilities vis-a-vis the alternative of having two separate utilities. It is true that more bills must be mailed if there are separate gas and electric firms. It is doubtless true, too, that other economies of scale in terms of purchase, maintenance of equipment and similar matters are also available. It is more important, however, to bear in mind that we are discussing here the marketing of energy—the central strand of any industrialized society. Surely, the dangers inherent in allowing increasing concentration, in allowing dual owner-

ship and in eliminating competition are even more serious and damaging here than elsewhere in our economy.

It is our hope, Mr. Chairman, that you and your distinguished colleagues will see fit to support at least the broad proposals of S. 403 and beyond that, it is imperative that you continue unabated the work of your subcommittee. We commend you for your insistence that steps be taken to prevent further increases in the level of concentration within this vital energy web which if allowed to proliferate may be the end of the small independent jobber and his effort in the marketplace which insures the protection of the American consumers' right to the lowest possible cost for its energy requirements.

Thank you for this opportunity to present our view for this afternoon on this very important proposal. I shall be happly to attempt to answer any questions which you may have and which I may be able to answer.

Thank you, Mr. Chairman.

Senator HRUSKA. Mr. O'Leary?

Mr. O'LEARY. Mr. Greenes, I am not sure that I understand the insert that you provided us with respect to the South Jersey Gas Co. Why is it interested in acquiring fuel oil jobberships, and what is good or bad about it?

Mr. GREENES. The South Jersey Gas Co. is not the company that is acquiring the jobberships.

Mr. O'LEARY. I'm sorry.

Mr. GREENES. It is the South Jersey Industries, which is the holding company. The holding company is acquiring the jobberships apparently with a shortage of natural gas and the inability of South Jersey Gas Co. to grow and increase its revenues, South Jersey Industries has looked around for other profitable business in which to expand and invest its money, and it has chosen the fuel oil jobberships in South Jersey as the object of this investment, and already has acquired one and as of this moment, I think, already has acquired the second, and has an announced policy of acquiring up to 100 million gallons of distillate fuel oil at the retail level in South Jersey as an investment of the holding company.

Mr. O'LEARY. Is this something which has occurred with respect to other utilities in other areas of the country also or is this pretty much an isolated instance?

Mr. GREENES. I know of no other instance, and again, I say it is not the utility. It is the holding company. I know of no other holding company that is either in the electrical or gas fields by virtue of an investment in a utility company, but also markets another form of energy such as fuel oil.

Mr. O'LEARY. With respect to your statement there you spell out precisely how this "payola" that you referred to works? What does the utility provide the builder and what does the builder provide in return?

Mr. POTVIN. Mr. Chairman, if I may respond to counsel's question. First, for the record, my name is Gregg Potvin. I am general counsel for the National Oil Jobbers Council.

Mr. O'Leary, it was my privilege several years ago to act as counsel during some House hearings on this precise subject held by the gentleman from Michigan, Representative John D. Dingell.

At that time, we rather exhaustively studied the subject and I think I may say without fear of contradiction to you that the amount of subsidy given the builder, first, upon occasion, can be surprisingly large, ranging well into the hundreds of dollars per unit.

Secondly, we attempted as far as our resources permitted to make this comparison to find other dwellings of like kind, nature, size, cost, and so forth, on lands or at about the same price in the same community where a subsidy had not been received.

Then, the question you are really asking is was it passed on as a saving to the consumer. It was not, sir.

Mr. O'LEARY. The builder pockets the subsidy?

Mr. POTVIN. That was our finding flatly. Yes, sir.

Mr. O'LEARY. Thank you. I have no further questions, Mr. Chairman.

Senator HRUSKA. Thank you very much for appearing.

We will adjourn for the day and convene at 10:30 a.m. in this same room and we have four scheduled witnesses.

Let the record show request is made for 10 days for a supplementary statement to be submitted by Mr. Greenes in connection with the material contained—contained in his submission. That request is granted, and counsel will take note of it.

(Whereupon, the subcommittee recessed at 3:25 p.m., to reconvene at 10:30 a.m. on Thursday, June 17, 1971.)

PROHIBIT CERTAIN COMBINATIONS AND CONTROL BETWEEN ELECTRIC AND GAS UTILITIES

THURSDAY, JUNE 17, 1971

U.S. SENATE,
SUBCOMMITTEE ON ANTITRUST AND MONOPOLY
OF THE COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met, pursuant to recess, at 10:10 a.m., in room 2228, New Senate Office Building, Senator Philip A. Hart (chairman) presiding.

Present: Senator Hart.

Also present: Howard E. O'Leary, staff director and chief counsel; Charles E. Bangert, general counsel; Wilbur D. Sparks, assistant counsel; Walter S. Measday, economist; Peter N. Chumbris, chief counsel for the minority; Patricia Bario, editorial director; and Janice Williams, clerk.

Senator HART. The committee will be in order.

Our first witness this morning will be the Honorable Henry E. Howell, Jr., of the Virginia State Senate.

Senator Howell, your entire statement will be printed in the record, and as you go along, if there is summation or extension, feel free to do so.

STATEMENT OF HON. HENRY E. HOWELL, JR., MEMBER OF THE VIRGINIA STATE SENATE

Mr. HOWELL. Thank you, Senator Hart.

I am pleased to accept the invitation to appear before this subcommittee to testify on behalf of Senator Metcalf's Senate bill No. 403.

Open and free competition is the principal factor in the economic growth our country has enjoyed throughout its history.

Senator Metcalf's bill 403 would bring the benefits of competition to the users of gas and electricity by prohibiting a utility from monopolizing these two competing sources of energy—gas and electricity.

The City of Norfolk, the most heavily populated city in the State of Virginia, has suffered as a result of the fact Virginia Electric & Power Co. has a monopoly on the sale of gas and the sale of electricity.

Although it has been established that in many instances gas is a cheaper source of heating and cooling apartment units than electricity, this fact is neither advertised nor promoted by Virginia Electric & Power Co. Its current emphasis is on the sale of electricity.

I was particularly disturbed by the action of Virginia Electric & Power Co. in 1970, when it applied to the Virginia State Corporation Commission for authority to suspend the furnishing of gas to any new multifamily dwelling units. This request was granted by the State Corporation Commission and, therefore, no multifamily units designed for gas heating and cooling could be built in Norfolk, or in any other territory where Virginia Electric & Power Co. had a franchise to furnish gas. This suspension was in effect from September 16, 1970, until some time in the spring of 1971.

At the time of this arbitrary cutoff, the City of Norfolk was faced with a critical shortage of low income housing. In particular, the City of Norfolk is a central city which is prevented from expanding its boundary lines by reason of its being adjacent to the cities of Chesapeake and Virginia Beach. The land area of Norfolk having been fixed, its population expansion and its energetic efforts to rehabilitate old and decadent dwelling units, requires the replacement of these units by low income housing units within the confines of the city. Most of this type housing is insured under various Federal Housing Administration programs, which in recent years has refused to permit the use of electric heat in projects under its jurisdiction, because of the disproportionate high cost of heating and cooling with electricity as compared to gas.

Virginia Electric & Power Co. is a utility which enjoys a monopoly in the city of Norfolk and in other areas of Virginia with respect to the supplying of both electricity and the competing fuel, gas. Recently it has secured a sharp and inflationary increase in its electrical rates and is now applying for another rate increase, so it is only natural that it promote the use of electricity and downgrade its promotion of the use of gas in the heating and cooling of housing units.

If Virginia Electric & Power Co. were required to divest itself of its monopoly on the sale of gas, competition would take care of this problem.

During the period when Virginia Electric & Power Co. was cutting off the sale of gas to new multifamily units, utilities that sold only gas in Virginia were not imposing the limitations that VEP was imposing. Portsmouth Gas Co., which furnishes gas to the neighboring city of Portsmouth, sought no such restrictions as did VEP. Washington Gas Light Co., which furnishes gas to the populous area of northern Virginia, requested no limitation during this period when there was a natural gas shortage in this Nation that would affect residential construction either low cost or high cost.

We are attaching to our statement testimony given by Mr. Irwin M. Kroskin, a practicing architect of the city of Norfolk, before the Virginia State Corporation Commission in 1970.

(Mr. Kroskin's statement follows. Testimony resumes on p. 456.)

TESTIMONY OF IRWIN M. KROSKIN, A MEMBER OF THE ARCHITECTURAL FIRM OF BRUNDAGE, COHEN & KROSKIN, NORFOLK, VA.

In Re: Application of Virginia Electric & Power Company for Amendment to its Filed Terms and Conditions of Gas Service, Case 18867.

The firm of Brundage, Cohen & Kroskin, Architects, has been practicing in the Tidewater area, and elsewhere, for approximately 12 years. The principals of this firm hold architectural registration in 6 states. This firm has been responsible for the design of approximately 10,000 dwelling units, both single and multi-

family, in the past and currently has commissions for the design of more than 2,000 units.

In the February, 1970 issue of House & Home magazine it was estimated that approximately 30 million new housing units will be required in the United States during the next decade. Of particular interest to us is the fact that of these some ten to eleven million units will be needed for low-income families.

In the four cities of Tidewater, residential building permits were issued in 1969 for approximately five-thousand five-hundred (5500) dwelling units. This number indicates the critical nature of the housing shortage since it occurs in spite of a year when the construction industry in general, and housing in particular, has suffered a serious down turn. If we accept the number of low-income units in demand across the country as indicative, then in Tidewater approximately one-third of the total number of dwelling units built will be for low-income families. Since most low-income families housing will be rental housing. At this time most rental units for low-income families are being planned and built under various Federal Housing Administration insured programs.

It is these low-income family dwelling units which interest us from the standpoint of utility costs. Utility costs are passed directly on to the consumer, or tenant, and represent a significant portion of monthly rents. A considerable amount of the design and consultation time of our firm is spent in discussions of mechanical equipment systems to be used in various projects in an attempt to find the most economical method both from the standpoint of installation and operating costs.

Rate studies on many projects and continuing evidence and experience accumulated by many builder-developer clients have indicated that one fuel is less expensive than all others. When all things are considered, and there are many variable, natural gas provides the lowest operating cost of all the fuels currently available. For a typical 100 unit apartment project, such as might be designed for an FHA project, fuel consumption studies show a higher operating cost of at least $7,000.00/year for the use of electric heating and cooling as compared with gas.

Vepco, through extensive advertising campaigns, has attempted to provide evidence that the cost of electricity for heating and cooling is comparable to other fuels. By its own admission, this can only be accomplished when buildings are insulated to a considerably higher degree than with other fuels. The Gold Medallion program includes this requirement for greater insulation as one of the prerequisites necessary to qualify for "advertising allowances".

In recent years the offices of F.H.A. with which we have worked have refused to permit the use of electric heat in projects under their jurisdiction. Although the initial cost of electrical equipment is lower than for equipment using any other fuel, the operating costs are so high as to be prohibitive. This has resulted in virtually a 100% use of gas-fired equipment for heating apartments in F.H.A. insured projects.

The curtailment of gas service to new customers through the winters of 1970–1971 and 1971–1972 is presented by Vepco as a temporary measure. It is temporary only as concerns the gas supply itself. The effects are very long-lasting. Many developers who have planned on the use of gas heating systems have been investigating the possibility of installing a temporary source of fuel and then converting to natural gas when it becomes available again. This has proven to be economically unrealistic for several reasons. Unfortunately, this means that all buildings designed and built during this period of approximately 18 months will be deprived of the opportunity of using the most economical fuel. In the case of apartments and other dwelling units, the higher operating costs which result will be passed directly to the tenant for the life of the building. In the case of F.H.A. insured mortgages this life is calculated to be 40 years and in conventionally financed projects a minimum of 25 years.

In the Tidewater area alone, the number of dwelling units affected by Vepco's proposed policy during the next 18 months has been estimated at seven-thousand five-hundred (7500) units.

We are, therefore, requesting relief in the following ways:

1. That the State Corporation Commission provide a continuing source of natural gas for use in the areas affected by the Vepco franchise.

2. That the State of Virginia intervene through the Federal Government to insure the prevention of restrictive practices by the suppliers of natural gas.

Mr. HOWELL. Mr. Kroskin's testimony emphasizes the desperate need for new housing units in our Nation during the next decade. Approximately 11 million of the 30 million units that will be required will be needed by low-income families.

Mr. Kroskin's testimony further emphasizes that for a typical 100-unit apartment project, such as might be designed for a Federal Housing Administration project, fuel consumption studies show a higher operating costs of at least $7,000 per year for the use of electricity as compared with gas.

There can be absolutely no justification for the continuation of a situation that is at war with the demands of free enterprise, namely, authority for a utility to monopolize two competing sources of energy such as electricity and gas.

We intend to introduce a bill requiring divestiture in the 1972 session of the Virginia General Assembly, but the utility's domination of the fate of such legislation in the past creates a gloomy forecast for the successful passage of such legislation on the State level.

We trust that this committee will give favorable and prompt action on Senate bill 403.

Senator HART. Thank you, Senator Howell.

If there is no objection, we will forego questioning you at this time and will submit questions to you in writing. When your replies are received, they will be made a part of the record at this point.

Senator HOWELL. Thank you, Mr. Chairman.

(The information referred to follows:)

JULY 8, 1971.

Mr. JOHN M. MCGURN,
Vice Chairman of the Board,
Virginia Electric & Power Co.,
Richmond, Va.

DEAR MR. MCGURN: This is in response to your recent letter in which you point out what you consider to be several inaccuracies on the part of Senator Henry E. Howell, Jr., during the course of his testimony on S. 403. Your letter will be included in the record.

In fairness to Senator Howell, I am also furnishing him a copy of your letter for his comments.

With best wishes,

Sincerely,

PHILIP A. HART, *Chairman.*

VIRGINIA ELECTRIC & POWER CO.,
Richmond, Va., July 2, 1971.

HOWARD E. O'LEARY, Jr., Esq.,
Chief Counsel and Staff Director,
Subcommittee on Antitrust and Monopoly,
Washington, D.C.

DEAR MR. O'LEARY: Today we wrote to The Honorable Philip A. Hart, Chairman of the Subcommittee on Antitrust and Monopoly, pointing out the inaccurate statements made by Senator Henry E. Howell, Jr., of Norfolk, Virginia, when he appeared before your committee.

We would appreciate having our letter made a part of the record in these hearings.

Very truly yours,

JOHN M. MCGURN.

Enclosures.

VIRGINIA ELECTRIC & POWER CO.,
Richmond, Va., July 2, 1971.

HON. PHILIP A. HART,
Old Senate Office Building,
Washington, D.C.

DEAR SENATOR HART: On June 17, 1971, Virginia State Senator Henry E. Howell, Jr., appeared before your Subcommittee and testified on Senate Bill No. 403 introduced by Senator Lee Metcalf. Senator Howell's testimony consisted exclusively of statements concerning Virginia Electric and Power Company, and since these statements were incorrect we believe it necessary to make this response.

While Virginia Electric and Power Company furnishes electric service at retail and at wholesale for resale throughout about two-thirds of Virginia, the northeastern portion of North Carolina and a small area in West Virginia, its gas service territory is limited to a relatively small area in Tidewater Virginia, consisting of the Cities of Norfolk, Newport News, Hampton, Virginia Beach, Chesapeake, Williamsburg, and the Counties of James City and York. Revenue from gas sales are only about 6 percent of the Company's total revenues.

The bulk of Senator Howell's statement deals with the decision by Virginia Electric and Power Company to limit new gas service connections during a period of gas shortage to single-family residential units. Senator Howell refers to this as an "arbitrary cut-off" and indicates that it was directly related to the fact that Virginia Electric and Power Company furnishes both gas and electricity in the area. He further stated that utilities that sold only gas did no impose similar limitations.

These statements are untrue. Vepco's status as a combination utility in the area had nothing to do with the imposition of the limitations, but rather these limitations were based on the fact that, during a period when there was a shortage of natural gas through much of the nation, Vepco's supplier, Commonwealth Natural Gas Corporation, had informed Vepco of the possibility that no additional gas would be available from their supplier for the winter of 1971–72, and cince Vepco faced the uncertainty of obtaining additional gas it could not contract to sell additional gas.

Contrary to the statements of Senator Howell, similar limitations were imposed by other gas companies and gas distribution systems, both public and private, in different parts of the country. In Virginia such limitations were imposed by at least Roanoke Gas Company, Colonial Gas Company, Inc., and the City of Richmond municipal gas system, which is not subject to Commission regulation, although Roanoke Gas Company was the only other Vepco that made a formal filing with the State Corporation Commission.

Vepco's restrictions on new gas service were lifted immediately upon notification from Commonwealth Natural Gas Corporation that additional gas could be made available. Vepco's sole reason for imposing the restrictions was to meet its obligation to furnish adequate and reliable gas service to its then existing customers, which it could not do if it contracted to sell more gas than it had available to new customers. Senator Howell's allegation that the restrictions on new gas service were the result of Vepco's status as a combination utility in Tidewater, Virginia is totally and patently inaccurate.

Very truly yours,

JOHN M. MCGURN.

JULY 8, 1971.

HON. HENRY E. HOWELL, JR.
State Capitol, Richmond, Va.

DEAR SENATOR HOWELL: Enclosed for your information is a copy of a letter I received from Mr. John M. McGurn, Vice Chairman of the Board, Virginia Electric and Power Company. Mr. McGurn comments on what he believes are several inaccuracies in your statement, and I would appreciate your response to these suggestions so that the record may be complete.

With best wishes,

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Enclosure.

SENATE, COMMONWEALTH OF VIRGINIA,
August 4, 1971.

HON. PHILIP A. HART,
Senate Office Building,
Washington, D.C.

DEAR SENATOR HART: I have been extremely busy outside of Norfolk, as I am a candidate for Lieutenant Governor of the State of Virginia, and for that reason have not sooner replied to your letter of July 8, 1971.

When I learned that VEP Company was seeking permission to cease furnishing gas for multi-family housing, I called Portsmouth Gas Company, which is just across the river from Norfolk, and found it was imposing no such limitation.

The next most densely populated area in Virginia outside of Hampton Roads was Northern Virginia, so I called Washington Gas Light Company and found it was imposing no limitation similar to that of Virginia Electric and Power Company. The only limitation it was imposing was on large industrial users.

I did not have an opportunity to check every gas company in Virginia, but I would like for your staff to check, if they are interested, for I would like to know what other companies furnishing gas sought to offer "no gas" to multi-family dwelling units during the period Virginia Electric and Power Company received its authority.

I am confident that if we had not opposed VEP "cutting off the gas," it would not have been put under sanctions by the State Corporation Commission to make efforts to remove the limitation and report periodically to the State Corporation Commission.

I am not sending copies of this correspondence to every member of the Committee. I would appreciate your staff members doing so.

I am sending a copy to Mr. McGurn and requesting that he advise your Committee specifically why Portsmouth Gas Company, right across the river from Norfolk, continued furnishing gas to multi-family units and why Washington Gas Light Company continued to furnish gas to new multi-family units, while Virginia Electric and Power Company had the gas cut off.

It was a pleasure to have appeared before your Committee.

With kind regards, I am,

Sincerely,

HENRY E. HOWELL, Jr.

JULY 8, 1971.

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Vepco's restrictions on new gas service were lifted immediately upon notification from Commonwealth Natural Gas Corporation that additional gas could be made available. Vepco's sole reason for imposing the restrictions was to meet its obligation to furnish adequate and reliable gas service to its then existing customers, which it could not do if it contracted to sell more gas than it had available to new customers. Senator Howell's allegation that the restrictions on new gas service were the result of Vepco's status as a combination utility in Tidewater Virginia is totally and patently inaccurate.

Very truly yours,

JOHN M. MCGURN.

Senator HART. Our next witness is Mr. Joseph A. McElwain, vice president, Montana Power Co.

Mr. McElwain, your prepared statement will be printed in the record in full. You may proceed to read it or summarize it. Proceed in your own way.

STATEMENT OF JOSEPH A. McELWAIN, VICE PRESIDENT, MONTANA POWER CO., BUTTE, MONT.

Mr. MCELWAIN. Thank you, Mr. Chairman.

My name is Joseph A. McElwain. I am executive vice president of the Montana Power Co. and reside in Butte, Mont., headquarters for the company.

I appreciate the opportunity to appear before your committee in behalf of the Montana Power Co., and to make some comments with respect to this proposed legislation.

First, however, let me tell you a little bit about the company which I represent and the territory which we serve. The Montana Power Co. is an electric and gas utility operating in the western two-thirds of Montana. Our service area encompasses approximately 96,000 square miles, an area slightly larger than all of the New England States, plus half of the State of New York. This is the largest service area of any single operating gas or electric utility company in the United States. Based upon the 1970 census reports, approximately 530,000 people live in this service area or about 75½ percent of the total population of the State.

The company provides electric service in 184 communities and rural areas surrounding them and the Yellowstone National Park, and natural gas service in 95 communities, 89 of which communities are served at retail and six at wholesale. In addition, we provide two communities with water service.

The population density of our service area is approximately 5.5 persons per square mile. The company serves 1.9 electric customers per square mile. This compares with a population density on the system of Consolidated Edison Co. serving New York City of over 24,700 persons per square mile.

Our service area spans the vast rugged area of the Continental Divide of the Rocky Mountains where elevations reach over 10,000 feet and areas where snow accumulates 50 to 60 feet in the wintertime.

To serve our approximately 175,000 electric customers and 87,000 natural gas customers, the company owns and operates some 15,600 miles of electric transmission and distribution lines and the company and its subsidiaries own and operate some 1,657 miles of gas transmission lines and approximately 1,350 miles of gas distribution mains.

Our company has a total assured capability of its electric system of 950,000 kilowatts.

We produce portions of our gas supply in Montana and through subsidiaries in southeastern Alberta, Canada. We also purchase gas from other producers in Montana and Alberta. In 1970 our company and its subsidiaries produced approximately 37 percent of our gas requirements of 56 billion cubic feet and purchased the balance from sources in Canada and Montana. We are presently authorized to im-

port from Canada a total of approximately 49 billion cubic feet annually and currently have a request for authority to import an additional 7.3 billion cubic feet of gas annually commencing on or about November 1 of this year.

The company's total gas reserves as of the end of 1970 were 979 billion cubic feet. Of this reserve, 344 billion cubic feet are owned by the company and its Canadian subsidiary and 635 billion cubic feet are owned by others and dedicated to the company. We own several gas storage projects in the State of Montana to aid us in supplying our gas customer needs.

Basically, we are a producer, transmitter, and distributor of both electricity and natural gas.

In the communities of Montana, where we serve gas at retail, the number of customers range from 16,147 in our largest community to 19 in the smallest community. Of the 89 communities in which we serve gas at retail, we serve both gas and electricity in 72 of those communities.

We appear here today in opposition to S. 403. We believe the enactment of such legislation would be contrary to the best interests of the customers of Montana Power Co., both gas and electric, and that no public interest would be served by a required divestiture or separation of these properties.

Conversely, there are substantial and significant benefits afforded our customers by reason of our having available from the same supplier both gas and electricity for the following reasons:

(1) Because of the relative small size and sparse population of the communities in which we serve both gas and electricity, substantial savings are effected in the rendering of both services under one company operation rather than expensive duplication if separate operations were required by separate ownership of our gas and electric facilities.

These duplications are substantial and include not only operations, administration, communications, transportation, but also from financial capability of the Montana Power Co. as it is now constituted compared with two resulting companies by reason of operation of proposed S. 403.

We have analyzed the additional costs which would have to be borne by our gas customers. If the gas and electric properties of the Montana Power Co. were separate entities.

Additional personnel expense in operations alone would amount to some $650,000 annually.

Accounting and collection expense, marketing costs, general and administrative expense and other related expenditures would represent an additional expense to our customers under independent operations of approximately $2 million annually.

Duplication of physical plant which is now used jointly by our gas and electric departments would cost some $3,300,000 additionally to the independent gas company and would amount to an additional $700,000 per year in increased carrying charges to the independent gas company.

(2) Financing costs to the independent gas company, should it be separated from Montana Power Co., would be substantially increased because the new gas company would not enjoy the present excellent

financial rating of the Montana Power Co. During recent financing the Montana Power Co.'s long-term bonds were given a double A rating. The best that could be expected of an independent gas company operating in Montana would be a BAA rating and this is most doubtful. The double A rating means that the Montana Power Co. can borrow money to finance both its electric and gas properties at a much lower rate of interest than if the gas properties had to stand on their own for financing. Borrowing costs for the independent company would be from 2 to 2½ percent higher than we, as an integrated company, can finance under our present rating. This results in substantial savings to our customers.

Additionally, the funds needed to constitute the new company under present financing conditions could amount to as much as 4 to 4½ percent differential between the present embedded interest costs of the Montana Power Co. and the cost of financing such debt under current conditions. Montana Power Co.'s present embedded debt is 5.36 percent and any new debt borrowed to purchase the gas properties currently would cost between 9½ to 10 percent if it could be financed at all. This means that for every $1 million needed to acquire our present gas properties would place an additional burden on our gas customers of $40,000 annually. If, for instance, our gas properties were purchased for $100 million, an additional burden of $4 million annual interest would be added to present gas costs of our customers. Additionally, for each $1 million of new construction needed, the gas customers would be burdened with from $20,000 to $25,000 of additional annual interest requirements.

(3) It is in the public interest and in the interests of the customers that a strong, healthy, and sound utility serve their energy needs. This bill would only serve to weaken the capability of a new gas company to provide our present customers with high-quality, adequate service at reasonable rates without having a commensurate advantage to the remaining electric company customers. Instead of enjoying the savings of our integrated operations, the gas customers of the organization resulting from a divetiture would have a weaker and more costly service for the reasons I have indicated above.

(4) It is in the public interest that a company be in a position to make a reasonable profit and at the same time to be able to pass on to customers the savings resulting from good management. Certainly, it is in the interests of the governmental entities depending upon tax dollars coming, for a large part, from taxes based upon profit that every corporate business be in a position to make an adequate profit. After all, the Federal and State governments under our present income tax structure essentially are nonrisk, noninvestment partners in all corporate business ventures, including utilities, and when a profit is made, the Federal Government benefits therefrom to the extent of approximately 48 percent of that profit. It would seem completely incongruous for the Federal Government to assert that it is in the public interest to weaken a corporation's capability to pay income taxes and at the same time burden customers with higher costs to the extent of several millions of dollars. This would most certainly be the result of the passage of S. 403, so far as the customers of the Montana Power Co. are concerned.

(5) The retail, commercial, industrial, and wholesale sales of natural gas in the State of Montana by the Montana Power Co. are subject to service, rate, and security issues regulation by the Montana Public Service Commission, as are the residential, commercial, and industrial sales of electricity. Over 95 percent of the Montana Power Co.'s revenues are derived from rate jurisdiction of the Montana Public Service Commission. The remainder is subject to FPC jurisdiction. It is, therefore, obvious that the public interest is protected through regulation of our company by the Montana Public Service Commission to assure reasonable rates, high quality service, and a good financial capability to be able to continue the service requirements of the citizens of Montana into the future.

In those areas where the Montana Power Co. offers both gas and electric service, the customer is given his choice with an attempt on the part of the company to provide the service which will supply the customer's energy needs at the least cost to him.

Because of the wide diversity of temperatures in Montana, ranging from areas where the temperature is 110 in the summertime to sometimes 40 below in the wintertime, electric house space heating, for the most part, is simply not competitive with gas space heating. The same is true for domestic hot water heating. For example, under Montana Power Co.'s present rates a typical 1,400-foot-square house located in Butte, Mont., can be heated by natural gas for approximately $248 per year compared with an electric heat cost of $416. Likewise, the average hot water usage for a five-member family can be furnished by natural gas heat for $57 per year compared with $87 per year for electric water heating. This point can be well illustrated by two fairly recent examples. Gas has been extended by the Montana Power Co. to the city of Kalispell, which is served with electricity by Pacific Power & Light Co., and to the city of Dillon, which is served by the Montana Power Co. In both cases the results were the same. Practically all space heating and hot water heating load was changed to gas, but most other loads such as cooking, refrigeration and other domestic and commercial appliances remained electric. The identity of the electric supplier in the area made no difference. Our desire and policy is to furnish the best possible energy needs for our customers at the least cost when recommending the type of energy to be used.

We believe that substantial savings to our customers having this choice is of material benefit to them and represents, as we have before indicated, substantial savings by reason of avoidance of much duplication if service is offered by two independent companies. One item alone in our company, that of postage required for customer billing, would be increased $60,000 annually under present postal rates, were such billing done by independent companies.

We, therefore, submit that no justification has been made for the enactment of S. 403, but, rather, the opposite is true. Much harm can be done to the capability of separate companies to provide the service and substantial increased costs would be visited upon Montana consumers by the enactment of S. 403. We sincerely urge that this legislation be rejected.

Senator HART. Thank, you, Mr. McElwain.

Mr. McElwain, it is our understanding that your company is engaged also in coal mining and production of natural gas and crude

oil. Could you tell us—for the record, and if not, provide for the record—the extent of your operation in these several fields?

Mr. McElwain. Yes, Senator. I would like to supplement the record in some areas because I do not have it right at my fingertips, but from the standpoint of coal, about 15 years ago we acquired from the Northern Pacific Railroad some coal lands at Colstrip, Mont., involving some 850-million tons of coal. We acquired this principally for future coal supply for the needs of our company, plus the possibility of selling coal to others.

Production began at that mine in 1968 when we commenced supplying coal to our Corette steamplant in Billings, Mont., which takes about 500,000 tons of coal annually. Additionally, we are presently producing at that mine somewhere between 4- and 5-million tons of coal annually.

This production comes about by reason of contracts which we have with Northern States Power Co. and Commonwealth Edison Co. for furnishing coal to markets in the Midwest.

The reason for these contracts basically is because our coal has a very low sulfur content and as a result, these companies are extremely interested in Montana coal for the purpose of meeting the air quality standards in their various areas.

Our oil and gas production—I believe I would like to submit for the record, those figures, if I may. Part of our gas production, I think I stated in my testimony, comes about—about 37 percent of our requirements last year came from our own production, and I have in my prepared testimony the amount of reserves owned by us in the sum of some 344 billion cubic feet.

Senator Hart. We will receive the detail.

Mr. McElwain. We will be happy to furnish it.

(The information referred to follows:)

The Montana Power Co.,
Butte, Mont., June 18, 1971.

Mr. Howard E. O'Leary, Jr.,
Staff Counsel, Committee on the Judiciary, Subcommittee on Antitrust and Monopoly, Old Senate Office Building, Washington, D.C.

Dear Mr. O'Leary: Pursuant to your request at the hearings of June 17th on Senate Bill 403, please be advised that the oil production of Montana Power Company and its subsidiaries last year was 1,350 barrels a day.

The gas production of Montana Power Company and its subsidiaries was set forth in my testimony.

I believe this is the information you wanted for the record.

Yours very truly,

J. A. McElwain.

Senator Hart. I think the only other question I had was one that may permit you to develop your basic theme, and yet nonetheless suggest that you could be in agreement with the point I am going to make and not be inconsistent with your theme.

Beginning in the middle thirties, this country has been forcing companies which operate within a holding company structure to divest themselves of their gas operations. Do you think that our experience under that policy, which is reflected in the Public Utilities Holding Company Act, has been bad?

Mr. McElwain. Senator, I do not think that there has been a major divestiture of gas properties under the Public Utility Holding Com-

pany Act. Certainly, the activities under the act in breaking up holding companies per se in a good many instances, I think, has worked to the good.

Montana Power Co. at one time was a member of a holding company and came out from under the holding company in about 1948, I believe. Certainly, my reading of history indicates to me that there were abuses in the early thirties that required Federal legislative action in the manner of the Public Utility Holding Company Act of 1935. But I do not think the primary emphasis was on divestiture of gas properties from electric properties. I think the main thrust was at the pyramiding effect of the type of holding companies that had been put together in this country at that time, and the financial structure of these organizations plus the fact that in many instances the operational acivities and the actually running of it were so far divorced from where the operating company was that you did not have good management, and I think to that extent that the Public Utilities Holding Company Act was helpful to the energy industry of the United States.

Senator HART. My memory is as yours, that the primary reason for the 1935 Holding Company Act was the abuse that seemed to be based primarily on the whole series described. But if in fact, as I understand it, Montana Power was a combination company, was operating within a holding company structure, you would be required to divest yourselves of your gas operation, is that right?

Mr. MCELWAIN. Well, I think that is a factual question that would have to be answered based upon the circumstances of our particular case. There might be circumstances under the Holding Company Act that would require such divestiture, but it would not necessarily follow.

As a matter of fact, when we were spun off, there was—we were still operating as a combination company, and there was no requirement for divestiture in that spinoff process.

Senator HART. Mr. O'Leary.

Mr. O'LEARY. Mr. McElwain, how long has your company, through subsidiaries, been producing natural gas in Alberta?

Mr. MCELWAIN. I believe since about 1950 in Alberta, Canada. We have been actually producing gas since we went into the gas business, I believe, around 1930 or 1931, and essentially until 1950 the production came from Montana gasfields, principally the Cutbank field in north-central Montana.

Mr. O'LEARY. Is the bulk of your production now in Canada? Your natural gas production?

Mr. MCELWAIN. Oh, no. We have substantial production in Montana. I would say there is more that comes from Canada than comes from Montana, but we have substantial production of gas in Montana at the present time. We did not have enough to take care of the needs of our customers and, hence, had to look to another source, Canada, in order to take care of the demands, and we actively at the present time, as I indicated in my statement, are looking for an additional 20 million cubic feet a day for the benefit of our customers from Canada.

We also are engaged in a controversy before the Federal Power Commission in an attempt to preserve some gas that is produced in Montana, which has been purchased to be taken up into Canada and

sent into Midwest markets. We are actively opposing that on the theory that that gas can best be used for Montana and Montana people.

Mr. O'Leary. With respect to cost, is the gas that is produced in Montana cheaper than that which you bring in from Canada?

Mr. McElwain. I think that is a hard question to answer for several reasons. The gas we bring in from Canada, particularly that which we purchase from Alberta and Southern, is gas that is purchased at a so-called take-or-pay type of contract. You have got to take it at a certain load factor. Our production in Montana and in Canada can be used in any manner we want to take it, so that we have evolved an opportunity of load factoring with the gas we own and taking a constant supply of gas from our purchasers, and to that extent it works in lieu of storage and works very well for us.

Now, I do not have at my fingertips the production costs overall of our produced gas versus our purchased gas, but basically, I think the gas which we purchase in Canada runs at the border at about 22 to 23 cents. This is from the Alberta and Southern. The gas which we get from Powkaki Lake area is a little cheaper.

Mr. O'Leary. Could you furnish that information for the record?

Mr. McElwain. I would be happy to, if I am sure I understand what you desire, Mr. O'Leary. Where you have several production areas, the cost is going to vary depending upon what areas and what fields you are talking about. So that if I understand what you are requesting, I would be happy to furnish it. I am not sure that I do at the moment with respect to your own production, because the costs vary and depending upon the particular field that you are taking it from. And for the most part, it could be rather meaningless depending upon the amount of gathering system that is needed to get the gas to a transmission line facility. So that it is going to vary with each field. Is this what you are looking for?

Mr. O'Leary. I think the best thing to do probably is for us to sit down and put together something in writing and send it to you.

Mr. McElwain. I would be happy to furnish anything in that field that we can.

Mr. O'Leary. Prior to 1950 when you went to Canada with respect to producing natural gas, approximately what portion of your requirements, gas requirements, was produced in Montana?

Mr. McElwain. I think prior to 1950 all of our gas requirements of the Montana Power Co. were produced in Montana.

Mr. O'Leary. Then, needing more gas, you went to Canada with respect to added production.

Mr. McElwain. Right.

Mr. O'Leary. In 1967, a Canadian company by the name of Hy-Crest Oil came into Montana and also began drilling for gas, is that correct?

Mr. McElwain. They did. They have developed basically the Tiger Ridge field, which is the gas—the subject of the controversy before the Federal Power Commission that I have just enumerated to you, and we are opposing the taking of that gas out of the State of Montana into Canada and thence to Midwest markets.

Mr. O'Leary. As I understand it, Hy-Crest sold its interest to Northern Natural Gas, and it is now the company that wants to take the gas up into Canada and then to the Midwest.

Mr. McElwain. That is correct.

Mr. O'Leary. Prior to 1967, had your company been advised that there were other fields, including the Tiger Ridge field, in Montana, which were capable of development?

Mr. McElwain. Mr. O'Leary, we have spent substantial sums of money annually throughout Montana, both the company directly and through its subsidiaries, in attempting to develop our own supply of gas in Montana. We have gasfields at the present time that are in what might be delineated as the Tiger Ridge area, and we are actively drilling and exploring for gas all the time. We just did not happen to hit the Eagle Sands of the Tiger Ridge before Hy-Crest. That is about all I can say.

Mr. O'Leary. Mr. McElwain, in your statement you indicate that electric house space heating is not competitive with gas space heating, and that the same is true for domestic hot water heating. Then you indicate that most other loads such as cooking, refrigeration, and other domestic and commercial appliances are electric; and that you desire, and the policy of your company is to furnish the best possible energy needs for your customers at the least cost when recommending the type of energy to be used.

Tuesday we received testimony with respect to a fuel cell and the hope on the part of some natural gas producers that it may well go into commercial production by 1975. Do you envision a situation where your company will go around to its electric customers with respect to cooking, refrigeration, and the domestic needs and say, let us pull out our wires, you are better off with a fuel cell? Do you really see Montana Power Co. or any other company doing that in order to provide lower cost service?

Mr. McElwain. No; I do not. Basically, I think the fuel cell being developed commercially that is competitive with the present electric system in Montana is completely too optimistic when somebody says it is going to be competitive in 1975. They may be able in some areas to commercially produce it, but I just cannot see, because of the—there is a lot I do not know about the fuel cell and its components, but you are converting a direct heat of gas into electricity that I am sure is not going to have 100 percent efficiency.

Now, what the efficiency of that cell is going to be I do not know. And I do not know what the cost of it is going to be. But I do see the fuel cell replacing electricity in the State of Montana in my lifetime.

Mr. O'Leary. Well, you have got 31 or 32 companies that have put $50 million into this effort, and the witness that testified on Tuesday, Mr. Willis, is pretty optimistic.

Mr. McElwain. I recognize that, and I may be wrong, but if I were going to put my money—and we are considering this—into an experiment, I think I would recommend MHD as something that has a greater possibility of upgrading the use of our energy resources than the fuel cell, for this reason. I think we in this country are facing some real serious shortages in some of the energy areas and to me, gas as you know, is one of those areas where it is in the minds of some peo-

ple becoming critical, and I think gas can be put to a better use as long as it is in a short supply than being developed into a fuel cell.

Mr. O'LEARY. Let us assume for the moment that the fuel cell does become a reality. You cannot see combination gas and electric companies going around and pulling out their wires, can you?

Mr. MCELWAIN. Not unless it would be to the benefit of the customer to do it, and I have some doubt that it would be to the benefit of the customer unless and until it was done on a total basis, because to pull it out in one place, you are just adding the burden on the remaining customers that do not have it to pay those facilities which are involved in the electric service that is there at the present time. And it would not make much sense to me.

Mr. CHAMBRIS. Are you through?

Mr. O'LEARY. With that particular area.

Mr. CHAMBRIS. Mr. Chairman, may I interject just for one moment to have placed in the record at the completion of this colloquy that Mr. O'Leary is having with Mr. McElwain a very recent article in the Wall Street Journal dated May 19, 1971, dealing with the fuel cell because it reviews several companies, and I say about seven or eight altogether, who have looked into the area of fuel cells and each gives a different projection as to its success. I think it might give a little bit more of a background so that the colloquy that we just had might be placed in a better perspective if we put this in.

Senator HART. Without objection.

(The article referred to follows. Testimony resumes on p. 471.)

[The Wall Street Journal, May 19, 1971]

'LITTLE BLACK BOX'—FUEL CELL, LONG SEEN AS ELECTRICITY SOURCE, MOVES AHEAD IN TESTS—COSTS REMAIN UNECONOMICAL BUT ARE STEADILY FALLING; COMMERCIAL SERVICE BY '75?—GAS VERSUS ELECTRIC UTILITIES

(By Roger W. Benedict, Staff Reporter of The Wall Street Journal)

FARMINGTON, CONN.—A "little black box" that many major corporations have relegated to the back shelves of their research laboratories is undergoing a renaissance that could have broad economic and ecological significance.

The gadget is nothing mysterious. It's the long-heralded, but still unperfected, "fuel cell," a silent, essentially pollution-free device with no moving parts that produces electricity through a chemical reaction of hydrogen and oxygen. The hydrogen can come from many common fuels—such as natural gas—and the oxygen from the air.

The first field test of a new lower-cost version of the device is under way in a plush display home in this Hartford suburb, and 59 other units will be tested over the next year and a half in such diverse locations as a Los Angeles drugstore, a Chicago hamburger stand and a Brooklyn apartment. By the end of next year, its backers, the Pratt & Whitney division of United Aircraft Corp. and 32 gas and electric utilities, will decide whether they will proceed to commercial fuel-cell service by 1975.

A MAJOR BENEFIT?

If the venture succeeds, its advocates say, it could prove of major benefit in closing the nation's growing energy gap and in tackling some of the most pressing environmental problems. In the process, they believe, the fuel cell could change thew hole concept of the electric-utility business by introducing substantial competition into a field now largely the preserve of regulated monopolies.

But the fuel cell's ability to compete with conventional power remains to be proved, and many observers are skeptical. And in each state, lawmakers, regulators and courts will have to decide who can offer fuel-cell service and on what basis.

Invented 132 years ago, the fuel cell still has few practical uses, although it supplies electricity on Apollo moon flights. It also has found limited commercial

use at oil pipeline pumping stations and in operating switches on European railroads. Thus far, fuel cells have proved too costly to make and operate to challenge conventional power sources in most applications.

Fuel cells would probably become "of real interest" when the cost of producing electricity drops to about $150 per kilowatt, says W. Donham Crawford, president of the Edison Electric Institute. The institute is a trade group of investor-owned electric utilties, which potentially could face stiff opposition from fuel cells powered by natural gas. Mr. Crawford says he understands the cost has been cut sharply to about $400 per kilowatt from $1,200 a few years ago, when fuel-cell electricity cost nearly 10 times as much as that bought from a local power company. At present, power-generating costs vary widely throughout the industry but generally range from $100 to $200 per kilowatt at plants using gas, coal or oil.

William H. Podolny, who heads the fuel-cell program at Pratt & Whitney, declines to estimate the specific cost per kilowatt achieved to date. But he does say, "We have made substantial progress in reducing the cost."

Robert Suttle, president of the group formed by the project's backers and also managing director of the Southern Gas Association, says "We don't want to give anyone the impression he can go down to his corner gas-company office and sign up for fuel-cell service in the next few days. We are at about the midpoint of an estimated nine-year development program. We still have a long way to go to get a competitive cost."

EXPERIMENTAL DEVICE UNVEILED

Yesterday Pratt & Whitney and gas-industry officials unveiled an experimental 12.5-kilotwatt gas-powered device occupying less space than a modern furnace. Already the device is quitely generating power in the basement of a futuristic $109,000 condominium here that Connecticut Natural Gas is using to demonstrate the fuel cell to the public. At a new conference, they also disclosed a production line model only one-fourth the size and weight of the test unit, or no bigger than a TV set.

The gas utilities hope to have such units coming off the Pratt & Whitney production line in time to offer fuel-cell service by 1975. This, they say, would provide industrial, commercial and residential customers with an option of buying their electric power from a gas utility or an electric utility.

"Even in my wildest dreams, I can't see gas fuel cells eliminating the electric utility," says Robert H. Willis, president of Connecticut Natural Gas. "But we believe fuel cells will get a lot of the electricity market. They will certainly bring about growing competition between gas and electric utilities, and that competition could even become strong enough to eliminate the need for utility regulation."

Mr. Willis estimates that the fuel cell could initially gain as much as an additional $100 million to $200 million of new revenue annually for gas utilities and that within seven to 10 years after its first commercial introduction, it could be producing as much as $1 billion of new business.

Up to now the nation's electric systems have become increasingly centralized, using ever-larger power plants tied together by increasingly wider integrated networks of power lines. Such moves have achieved the "economies of scale" that have reduced power costs by more than one-third since World War II. But this approach is being confronted with growing problems of air and water pollution, rising controversies over plant sites and power-line rights-of-way, increasing construction costs and delays, and the danger of massive "cascading blackouts" over vast sections of the country.

Some electric-industry executives see the fuel cell as a possible answer to such problems, permitting them to add decentralized fuel cells at neighborhood substations as local power needs rise. These cells would reduce the need to build new central stations and long-distance power lines. To test this concept five of the Pratt & Whitney fuel cells will be used at electric substations by two members of the supporting group Public Service Electric & Gas Co. and Northeast Utilities.

"A lot of our friends in the electric industry think we're crazy for helping the gas industry develop the fuel cell," says Raymond A. Heuse, general manager of research and development at Public Service, New Jersey's largest electric utility. "But we think the gas industry is doing us a favor."

Northeast Utilities, New England's biggest power company, is already urging Pratt & Whitney to develop larger fuel cells for use in integrated power systems

and would like such units to be able to run on either gas or liquid fuels interchangeably, reports Sidney H. Law, the utility's director of research and system studies. He says that tying fuel cells into existing electric systems would maintain the advantages of "diversity of load" (many customers sharing the same power source) and emergency backup power. And he adds that electric utilities would need fewer kilowatts of fuel-cell-power to do the same job than would gas utilities putting units into individual homes, where each must meet that family's peak power needs.

But Peter J. McTague, a utility consultant with Gilbert Associates Inc. of Reading, Pa., believes most electric utilities have been slow to recognize both the threat and the potential of fuel cells. He talks of "the approaching apocalypse" that could prove to be a "period of turmoil, conflict and agony for the utility industry." And he says, "Gas utilities are a little unrealistic if they expect to maintain their own monopoly position (supplying gas to electric utility fuel cells as well as their own) while destroying the monopoly position of the electric utilities."

Many observers are already predicting there will also be nonutility suppliers of fuel-cell service to the public. Considered to be prime candidates are fuel-oil dealers and their oil-company suppliers, which already compete against gas and electric utilities in the home-heating field.

One major oil company, Atlantic Richfield Co., through a joint venture with Bolt, Beranek & Newman Inc., a Cambridge, Mass., research firm, has developed a fuel cell that can run on gasoline, kerosine or propane (bottled gas) as well as natural gas. The two companies are seeking to license the cell for manufacture.

LIGHT AT THE TUNNEL'S END

"We're all a little disappointed at how slowly the fuel cell has been developing," says Frank Long, product director in the commercial-development department of Atlantic Richfield's Arco Chemical, "but now there seems to be some light at the end of the tunnel." He says he expects success of the gas-utility fuel cells to attract attention to the Bolt-Beranek fuel cell, which he considers to be a more advanced device.

Late in 1970 Standard Oil Co. (New Jersey) agreed with a unit of France's Compagnie Generale d'Electricite on a $10 million, five-year fuel-cell development program. And both British Petroleum Co. and the Royal Dutch-Shell Group have turned out experimental fuel cells.

Pioneer Systems Inc. of Manchester, Conn., has been selling fuel cells commercially for more than a year, powered by hydrazine, a chemical used in rocket fuel. David N. Abrams, president, says, "They're not a completely satisfactory substitute for conventional power at this point, but they are entirely satisfactory for specialized power uses." He adds that he is "not bullish on the possibility of every home having a fuel cell" but sees growing industry uses for them.

The success of the Pratt & Whitney devices could revive the interest of some of the many companies that have sidetracked their fuel-cell programs. Much of this work was done under federal contracts, and the companies decided there wasn't sufficient commercial potential to pursue the research with their own funds when the contracts expired. Much of it, too, dealt with the fuel cell as a possible replacement for the internal-combustion engine in vehicles, and scientists generally believe this possibility is a long way off.

THE SMITHSONIAN GETS A TRACTOR

Allis Chalmers Manufacturing Co., which developed the first fuel-cell vehicle in 1959, says the vehicle, a farm tractor, is in the Smithsonian Institution and the company's fuel-cell research is in mothballs. Others no longer actively pursuing fuel cells include Monsanto Co., which developed a fuel-cell truck; Union Carbide Co., which had a fuel-cell motorcycle; Texas Instruments Inc., which made fuel cells to run radar and communications equipment, and General Electric Co., which was active in the space fuel-cell program.

With so many others dropping by the wayside, however, Pratt & Whitney has stuck doggedly to its belief that the cost problems of the fuel cell can be solved. Mr. Podolny, who heads the fuel-cell program, persuaded the National Aeronautics and Space Administration to adopt fuel cells for the Apollo program and is given much of the credit for getting the fuel cell out of the laboratory and into practical application. With nearly 1,000 fuel-cell researchers, Pratt & Whitney's

total effort in the field is estimated by competitive researchers as exceeding that of all other companies combined.

The Team to Advance Research for Gas Energy Transformation (TARGET) was formed in 1967 by 27 gas utilities—five more utilities have since joined—to work with Pratt & Whitney in a concerted push for a commercial fuel cell powered by natural gas. Over the past two years, the concerns have poured $20 million into the program and have committed another $30 million through the end of next year. This is one of the largest research ventures ever undertaken entirely with private capital. But the companies are quick to give credit to the space program for providing substantial fallout benefit to their current research effort.

"We don't know at this point whether we have a viable, marketable fuel cell," says E. L. O'Rourke, manager of market planning for Pacific Lightning Corp.'s Southern California Gas Co. and head of TARGET's marketing committee. "But we hope we'll have the answers by the end of next year, and if it proves to be a commercial product, we've got an exciting concept. There's nothing to preclude anyone from selling fuel cells, but we believe the gas utility will have an advantage in this.

PUSHING THE TECHNOLOGICAL LEAD

The gas companies are counting on both their technological lead over cells using other fuels and on the fact that gas can be transported at about one-fifth the cost of electricity and sells for less than most competitive fuels.

Elwin S. Larson, vice president of Brooklyn Union Gas Co., even notes, "We're not unhappy about the probability that electric utilities will be using fuel cells—because they'll most likely run on gas they buy from us."

With the nation facing a growing shortage of natural gas, how do the gas utilities justify entry into a potentially broad new market?

"Fuel cells can make a substantial contribution to conserving energy resources by saving 30% or more of the fuel that would be needed to generate the same power in central stations," says John W. Partridge, president of Columbia Gas System Inc., the nation's largest gas utility. "And we're working very hard on the gas-supply problems, and we believe they'll be solved by the time there is significant market penetration by fuel cells." By such time, he says, he expects gas supply to be increased by an Alaskan pipeline, coal gasification (that is, making pipeline-quality gas from coal), imports of liquefied natural gas and stimulation of conventional drilling by higher gas prices.

N. P. Chestnutt, vice president and operations manager of Southern Union Gas Co. of Dallas, says that over the long term he expects gas utilities to lose much of their present industrial gas load, which produces a low-profit return. "We hope to replace this with a higher-return fuel-cell service," he adds.

RESEARCH BY WESTINGHOUSE

The potentially greater efficiency of fuel cells has caused Westinghouse Electric Corp., a major builder of conventional power plants, to research the possibility of building large-scale fuel-cell plants running on gasified coal.

"We hope to be able to build a fuel-cell power plant for no more than the cost of a conventional plant, but with a 50% to 60% greater efficiency," reports Daniel Berg, director of energy systems. "We can do it on paper," says Jack Brown, manager of energy storage. Westinghouse is pursuing the project with its own funds but is seeking federal money from the Office of Coal Research to build a 100-kilowatt experimental plant.

"But we want to emphasize that fuel cells are just one arrow in our quiver," says Mr. Berg. "We're working on a lot of other ways to reduce the cost of power, and in the long run some of these may prove to be more important than the fuel cell."

But Edison Electric's Mr. Crawford has undergone a substantial change of opinion on fuel cells over the last year. "It might well be that these units could play a significant role in electric-utility operations of the future," he says now. Only a year ago, he said, "We just don't believe the little black box will become a viable option for central-station power."

Mr. O'LEARY. My only point there, Mr. McElwain, is I cannot see where a combination company is going to have an incentive to promote that kind of technological advance which is going to lead its present electric service to be noncompetitive.

Mr. McElwain. Well, I do not believe I have any comments on that statement. I do know that when your dollars are involved in research or limited to some extent, that you are going to put those dollars where you think you have the most opportunity of success. I think in this particular area there is controversy going on between those people in the electric industry today, those people who want to put all of their dollars into the development of nuclear, in one form or another, versus those who think upgrading of efficiencies of use of fossil fuels likewise requires research and is in the realm of possibility.

We have two senators and a representative who were actively pushing for as much money as they can get for the MHD process, and I agree with them. We would like to see that process developed.

Mr. O'Leary. Mr. McElwain, you mentioned that the Montana State Commission regulates security issues. The chairman of this subcommittee has in the past co-sponsored, with the author of S. 403, Senator Metcalf, legislation to provide for Federal regulation of electric utility security issues. They have pointed out that few of the State commissions have even one securities analyst. Do you know, sir, if the Montana Commission has a securities analyst?

Mr. McElwain. Well, by definition I do not know what you would term a securities analyst. To me this is somebody that normally brokerage houses have that analyze the value of securities, but if you are talking about somebody that has the knowledge of Montana Power Co. and its financing capabilities as well as the methods of financing, I would say that they have very capable personnel for performing that function.

Mr. O'Leary. According to your company's reports to the Federal Power Commission and the SEC, as of 4 years ago Montana Power had put aside 750,000 shares of stock—about 10 percent of the total—for stock options by insiders, and the board chairman made more than a third of a million dollars on one stock option transaction. Does your company still have stock option plans?

Mr. McElwain. It does.

Mr. O'Leary. How many shares have been put aside altogether for stock options by insiders?

Mr. McElwain. I believe the information you request is in the notes to our financial statement in our latest annual report, and I would deliver a copy of our annual report to you for obtaining that information.

Senator Hart. From that report the record will, I take it, answer the question.

Mr. McElwain. Yes; I believe it will. If it does not, I will supplement it in any way Mr. O'Leary would like to have it supplemented.

Mr. O'Leary. Do you have to get the approval of the State commission for such stock option plans?

Mr. McElwain. We do; and at the time that we originally issued stock options, we got the approval of the Federal Power Commission.

Mr. O'Leary. You have to go both to the State commission and to the Federal Power Commission?

Mr. McElwain. I doubt that we do now.

Mr. O'Leary. For my own benefit, does that mean now you do not have to go to the Federal——

Mr. McElwain. All I am saying is, now, we do not have to; but at the time the stock option plan was originally put into effect and at least one time when there was an increase, I believe, in the amount of stock to be optioned, they were approved by the Federal Power Commission.

Mr. O'Leary. Could you describe what the change in circumstances is now?

Mr. McElwain. Yes. The Montana State Legislature passed legislation putting the jurisdiction of securities in the Montana Public Service Commission. It was something it did not have prior to, I believe, the late 1950's, and as a result of that, under the Federal Power Act they acquired jurisdiction where we are a domestic corportation within the State of Montana.

Mr. O'Leary. Could you give us the company's rationale for this stock option plan, briefly?

Mr. McElwain. Yes. I think that it is the same as the rationale for any stock options. I think we have one of the broadest stock option plans in the United States with respect to who gets stock options. I do not have right at my fingertips the percentage of our personnel who get stock options but it is very high, and I think the purpose of it is to have a dedicated interest in the company, and its welfare; and the company is going to compensate the people for doing a good job and good management through the use of stock options.

Mr. O'Leary. Mr. McElwain, there has been testimony before other subcommittees about the extraordinary number of legislators in some States who are also retained by utilities. How many members of the Montana Legislature, if any, are in that category?

Mr. McElwain. Well, Mr. O'Leary, I might state that—I will look it up in just a minute, but I am a member, former member of the Monatna State Legislature. I served three sessions in the House of Representatives and one session in the Montana State Senate, and if there is any implication that power companies can buy off legislators by putting them on their payroll, I just do not believe there is any substance to it.

I happen to know and am well acquainted with the legislators with whom I served and I think they are just as honorable people as there are in this U.S. Senate and in the House of Representatives. And I for one, kind of resent the idea that a legislator can be bought off. I do not think they can and I do not think it has happened.

But to answer your question, I believe one law firm in Billings made up of maybe 20 people who—one of which has served in the legislature in the past, and—let me just take a quick look.

The Great Falls firm which represents our company has one member who in the past has served in the legislature. Neither one of the people are in the legislature at the present time and these are firms that have 10, 12, 14 members in them, and incidentally, they are still and have for many, many years represented the company long before any of these people were involved in any political activity.

I believe those are the only two firms that we have at the present time who have had members in the legislature and in both instances the people who were members of that firm, I think anybody will agree were outstanding legislative representatives for the good of the State of Montana.

Mr. O'LEARY. Mr. McElwain, I do not mean to infer that any legislators, be they on the State or Federal level, are less than honorable. Nontheless, one of the concerns of this subcommittee is with the social and political effects that may or may not exist because of economic concentration. But as I understand your testimony, there are no legislators that are presently retained by the Montana Power Co.

Mr. MCELWAIN. There are none—I am sure this is true at the present time, yes.

Mr. O'LEARY. All right.

Senator HART. Let me comment, too, because I find myself running both ways on this thing.

I think Mr. O'Leary question was completely appropriate.

Mr. MCELWAIN. I do not—I agree that there is a lot of speculation in this field and I just wanted to get myself on record as to how I feel about it.

Senator HART. And I am glad you did. Given the kind of society we have, and the establishments that we have created for its functioning, the degree of public confidence in those establishments or institutions is critical. I suppose ideally we should all live and have our being as a result of the air we breathe—create the money with which we retain ourselves—and there would not be any relationship to somebody else. That would not make us any wiser. But it would eliminate from the mind of the public the knowing uncertainty that I think inevitably attaches when they see—and I will speak of myself—when they see me receiving campaign contributions from people who have very direct economic interest in legislative proceedings.

I would be much more comfortable if I could get it from breathing the air. And they would be more comfortable, parenthetically. This is why I endorse the concept of prohibiting private money in political campaigns and having it funded out of the general revenue. That is subject to all sorts of charges that we are saddling the taxpayers. But since we cannot get our assessments from the air, we do get it from other sources and there are degrees of apprehension that attach.

If everybody in the legislature got all his means from his wide-eyed wealthy mother, that would be less disturbing than if he got it from the Montana Power Co. I just interject this to explain the reasonableness of the question, the validity for the apprehension, and the unsatisfactory answers that we always wind up with when we get into this subject.

Mr. MCELWAIN. I agree with you, Senator, to some extent, that can create a problem, depending upon one's own personal ethics involved. I just do not believe that you can be a good legislator and live in a vacuum or have your finances in a fishbowl to the extent where you do not have the experiences of business or of anything else and completely divorce yourself from the everyday things that happen to life and still know how to legislate intelligently.

This is not our process and I hope that it would not be a process that we would end up with what might be termed a professional legislator, somebody who did nothing in his entire life except legislate or run for—try to run for public office. I think that the wide experience that we get in the legislative process from broad areas of all spectrum of this country have been good in the overall analysis in legislating.

Mr. CHUMBRIS. I would only say that this question has been raised on several occasions and we do not have to look to the States. All we have to look to is to downtown, because we have very prominent lawyers who have moved from law firms to Government, back to law firms and back to Government. Legislators have done the same thing. They have left the Senate or the House and are members of law firms and sometimes they come back, get reelected and come back into the Congress. So, it is something that we have to live with in our system and it is difficult to get an answer unless we just have a law that says once you are a legislator, or you are a head of an agency, you just cannot get into a type of practice for the rest of your life in an area in which you have been an expert.

Mr. MCELWAIN. Well, I for one, think our process works real well and to me the lobbying process is one that in the overall has been—is beneficial in the process of developing legislation. From an informational standpoint, I think that these people have the expertise that a legislator cannot acquire in any other manner to get the overall perspective of what a piece of legislation may involve.

I have no real quarrel with our system. It has its weaknesses, of course, but basically, our legislative process is the best that has been devised yet, I think.

Senator HART. Mr. Chumbris?

Mr. CHUMBRIS. I have no questions, Mr. Chairman.

Senator HART. Thank you very much.

Mr. MCELWAIN. Thank you, Senator.

Senator HART. Having inconvenienced our witnesses so often today, I will now consciously fail to vote over there on an amendment to the draft. I hope the record will reflect to the critics at least, that I was working some place today. I will remain because we will now hear from a very distinguished former member of the Federal Power Commission, who has been kind enough to give counsel to this committee on other occasions.

We welcome back Charles Ross of Vermont.

STATEMENT OF CHARLES R. ROSS, FORMER MEMBER OF FEDERAL POWER COMMISSION, SHELBURNE, VT.

Mr. Ross. I have got to say hello to the reporter because the last time I saw her we were up in the State of Michigan—Port Huron and Detroit—on pollution problems involving the International Joint Commission.

Thank you, Senator Hart. I do not know how you want to proceed.

Senator HART. We will print the prepared testimony in full in the record and as you go along, if there is summation or extension, feel free to do it. If you would like to comment on any earlier testimony——

Mr. Ross. Let me just very roughly summarize the main points in my testimony.

Fundamentally, I am extremely pleased to be able to be here to testify on this bill. Over 10 years ago I would never have thought that such a bill would even have seen the light of day, to say nothing of actually having hearings.

I say this because in the State of Vermont when I first assumed chairmanship of the Vermont Public Service Board, we had two

combination gas companies, electric companies, and in view of what I term, and most of the consumers term, unsatisfactory service by the gas portion of both companies, the Public Service Board felt it necessary to propose legislation somewhat comparable to what is being proposed here today.

We were unable to get the bill passed but subsequently the companies did divest themselves of the gas properties and in reading over some of the testimony in the hearings so far to date, I think there is a lesson to be learned from this experience.

We did not have natural gas in Vermont at the time. One of the companies, Green Mountain Power, was asked to investigate the possibility of bringing in natural gas. They said they went and talked to Stone and Webster and they were advised by Stone and Webster it would be uneconomical to do so.

As it turned out, after divestment to a system called Vermont Gas Systems, Inc., which was a State gas company, this corporation went out and brought in natural gas and is now a very effective competitor in certain areas with the electric light company.

My general experience was that when they were acting as a combination company, the gas portion of the business was the stepchild. They were hesitant to extend their mains. They only did what they were bound and determined to do. Their rate of return was not as good and as a result, the service deteriorated, and in essence, I think they were actually glad to get rid of it.

So, based on that experience alone, I think this bill should receive very serious consideration.

And subsequently, when I was on the Federal Power Commission, almost without exception every straight natural gas company that had formerly been associated with an electric company at some time in its history almost unanimously said that the consumers benefited, the Nation benefited, by the divorce. And as I mentioned in my statement, this is particularly true of a very large combine. Now we have two separate corporations, Commonwealth Edison Co. of Chicago and Northern Illinois. Both executives of those corporations have told me time and time again this was in the public interest. I know officials of the New England Electric System, gas company officials within that system, who were very, very pleased when the SEC ordered them to divest themselves of the gas properties. They felt for the first time in their life they would be able to go out and do a real job of merchandising natural gas. And I am not so sure but what had there been more straight gas companies in New England, maybe New England would not have been the last to receive natural gas service.

I also can recall talking to an executive—vice president at the time—of Kings County. Kings County was an electric combination utility that served Brooklyn. He was an electrical engineer, and he explained to me many, many times the difficulty you have if you are trained in one as an electrical engineer to even begin to appreciate what gas can do, and he said there was a tremendous hurdle in trying to get the executives of that corporation to think about bringing in natural gas to Brooklyn. They had been brought up electric, and they were sold on electric.

So, generally, my experience not only on the State level but on at the Federal level, leads me to believe that a bill of this nature—maybe

it would need certain modifications—but a bill essentially seeking to do what the act has done under the SEC Holding Company Act, would definitely be in the public interest.

Now, I could go on further but time is short, Senator, and if you have some questions, I will be perfectly free to respond.

Senator HART. The two Illinois executive officers had been in the combined company prior to the split?

Mr. ROSS. I beg your pardon? No. I will name names. One was Marvin Chandler. I think he is the chairman of the board of Northern Illinois; and the other is Tom Ayers, president of the Commonwealth Edison. Those are the two individuals I was talking to. I do not know what their positions were, if they were with the companies at the time of the breakup.

Senator HART. You have endorsed the principle embodied in the bill we are considering, Senator Metcalf's S. 403. Among the basic criticisms of the bill are four. I would like to raise four with you and get your reaction to them.

Divestiture of gas from electricity would increase the capital cost of the divested gas company. The new company would have to finance at today's high level of many costs.

Second—perhaps I should go through——

Mr. ROSS. Do you want me to speak——

Senator HART. Let me give the four I would like your reaction to, and you can comment, then, as to the combined force of the arguments.

They cite the existing cost savings reflected in the combined operation. Billing, the headquarters service facilities, the one meter reader, and so on. Splitting the gas and electric departments would add substantially to the operating costs such as those.

The third one is that the local regulation competitive activities of utilities is a potent substitute for the competition that will be called for by this bill, and because such local regulation in fact exists now, there is no basis to assume that passage of this bill would produce any significant results as far as the promotion of competition is concerned.

And the final point, and others here might want to raise others, that is made against the bill is that we are now in a period of shortage of all forms of energy, perhaps especially natural gas, so we are kidding ourselves to think that the benefits would follow from separation. Indeed, some combination companies have testified that having natural gas available gives them added flexibility. Pacific Gas & Electric indicated that sometimes they use natural gas as the primary fuel with which to generate electricity on standby when added generated capacity is needed.

Now, those are four of the criticisms made of the bill. What is your reaction?

Mr. ROSS. Let me take the first one which would be the hardest thing. As I see it, this would be the most difficult aspect of the problem in the divorcement. I do not think it is insuperable. There obviously will be problems in trying to restructure it, but I can remember hearing the same arguments when I was in business school at the University of Michigan, when they were discussing the breakup of the holding company systems.

I think it can be done. I think much of the argument that I have seen—and I have not read all the transcript, I have read some of it—

seems to be poor-mouthing natural gas industry. It may be that the electric consumers are subsidizing the gas consumers. I do not know. If the natural gas business is in as bad shape as some of the witnesses have testified, maybe the electric consumers have been carrying the burden for the gas consumers, and maybe it would be better to split the two apart and let competition and let efficient management determine what are the true costs for each.

I am concerned now in reading some of the testimony that there may be some subsidization between the two segments. I actually do not think the gas business is as bad as they seem to project. I will get to that when I am discussing No. 4.

There could well be additional costs. It may well be that these additional costs are warranted. But I think with the imagination that is present in Wall Street and in the financial communities, it can be done.

As far as cost savings, from joint billing, common management, or joint use of facilities, I just do not buy it. I was impressed by the study by Mr. Collins of the FPC. I just think we have seen the growth of too many large corporations. You can start to run into diseconomies of efficiency the larger and larger the organization becomes.

I think the savings that you might get in certain areas will be offset by the benefits you get by having separate management. I do not believe in the savings from common management. This is one of the difficulties in the conglomerate field—that you do not have management responsible for one area who can rise to the top.

As far as local regulation being a substitute, I have testified on this subject many, many times before. It seems to me that when we say local regulation is a substitute for competition, we are asking ourselves can the local regulator serve as a stimulant as competition does in lowering prices? Will regulation act as a substitute for competition in expanding output or at least the rate of output? Will local regulation as a substitute for competition improve service or just maintain status quo? Will local regulation improve the efficiency of management?

In most cases I have been involved in, you are met time and time again with the phrase "You cannot interfere, Commissioner Ross. This is a prerogative of management. You cannot judge our efficiency."

Will local regulation as a substitute for competition act as a spur for increased research and development? I do not see the local regulators beating the bushes for spurring the regulated industry into new avenues of reserve and development.

Basically, and above everything else, will local regulation act as a substitute for competition in trying to give the consumer additional choices? Have you seen any State regulator proceed to inquire or investigate this very issue? Whether or not you agree, I think it is a legitimate issue.

I am surprised that more State commissions have not seen fit to conduct investigations to see whether it would be in the consumer's interest to give the builder of a new home an option, because in that case there is apt to be real competition between gas and electric.

I understand that the National Association of Regulatory Commissions have opposed this. I do know, on the other hand, that the State of Vermont, Chairman Gibson, has taken a different position. Ver-

ment is in support generally of the concept of this bill, as I understand it. I have been for maximizing the number of utilities under regulation because the larger they are, the more difficult they become to regulate.

I have been a proponent for yardstick regulation, trying to measure one utility as against another. I think that regulation needs all the help it can get and if you can encourage competition, if you can get competition working with regulation, this makes your task a lot easier and I think that while you will not get full competition between gas and electric, there are certain areas where it would be very helpful, for example, as I spoke on new homes.

Another advantage—that has been suggested for preserving the status quo is that the gas company cannot even furnish the gas? It is somewhat like my experience in Vermont. Why separate it because they were using manufactured water gas. There was no real incentive, no real spur to bring in natural gas. They had something going for them with electric, so why bring in natural gas and complicate life? The attitude seems to be, if you have got a gas shortage why not just live with it and concentrate on electric?

If you had separate gas companies maybe they would be out pushing harder for R. & D. and gasification of coal. I know when I was on the FPC, some of the combination companies got a little sensitive about the charge that the fuel cell was being financed primarily by straight gas companies, and some of them were put in a kind of difficult position, shall we back the fuel cell, and I think some of them were kind of blackmailed into putting in some money. I do not know what the exact figures are today, but it was a difficult choice for them and I say if you had separate straight gas companies it would be more of an emphasis to push for the fuel cell and other means as a substitute. Gasification of shale, et cetera.

As far as the advantages of gas as a source of fuel for an electric company, I say in my statement that I am beginning to wonder about the large use for boiler fuel. It was obvious that in a number of cases, the combination company is primarily interested in this very use. But that was not to help the gas consumers. I say that the gas consumers of this Nation in a combination company are generally the forgotten people. And I feel that legislation of the general description as S. 403 would be very, very helpful to the gas consumers. They would not be neglected.

I have had a number of people tell me that their human tendency is to maximize profits in that aspect of the business which provides the greatest return to the stockholders. It is just human nature to do that, and I say that this will continue to be done. And furthermore, as I point out in my statement, there is a tremendous difference in the two types of industries. One is vertically integrated. It produces, it transmits, and it distributes electric energy. It has a very large rate base.

On the other hand, the gas segment of the combination company buys fuel, for the most part. It is an expense. It is not particularly lucrative from a rate base standpoint. In terms of capital investment since it only distributes gas, it does not transmit it, it does not produce it, for the most part, it is nowhere near as comparable to the electric portion of the combination company, and all I am saying is briefly

that the economic facts of life at the moment seem to be directed toward promoting the electrical side of the business.

Senator HART. I think the record is better for what you have just said.

Mr. O'Leary?

Mr. O'LEARY. Mr. Ross, I would like to get your reaction as a former State regulator to the effectiveness of State regulation generally as opposed to competition, but also to one particular problem that came up earlier in the hearings, and that is from the regulator's standpoint, what does he do with joint costs?

I think on the first day of hearings the witness from South Carolina Electric & Gas testified with respect to the savings that were achieved to the company by virtue of various joint operations and we said, "Well, can you break down those savings for us," and in effect, he said that he could not do it.

If he cannot do it, what does the regulator do?

Mr. Ross. He guesses. It is a difficult job. You try to make some valid business judgments on the basis of the amount used, et cetera. It is a good part of judgment. It is an area where controversy is encouraged. It is an area where you are never quite sure whether you have been fair to the gas customers or been fair to the electric customers.

To me it is a needless problem. It is a problem that could be avoided and the consumers benefit at the same time.

I think State regulation generally has failed, and I was as guilty as anyone else, partly because I did not know any better, partly because I did not have enough money, did not have enough staff, but I do not think State regulation has really inquired in any detail into a comprehensive cost of service study involving combination utilities to determine once and—not once and for all but to determine in an open public hearing what costs are to be attributed to what segment of the business and whether the rates are designed properly so as not to load the dice for one portion of the company's business as against another.

That question depends in part on reallocations that are made. I know that there was testimony in the hearings that said that portions that are commonly allocated are relatively small. They may not bulk large in terms of cost of gas purchased but they are still important problems.

It is on the basis of some of those facts that people are alleging that there are great economies in the combination companies and in order to make those statements, they have got to make some allocations.

Mr. O'LEARY. At other times you have made reference to the ongoing prices for both natural gas and electricity. Do you believe that the chief executive officer of a combination company can devote adequate amounts of time both to solving electric equipment liability problems and to obtaining an adequate supply of natural gas?

Mr. Ross. I would much rather have one expert in each field. I say this, and I say this in all due respect, in all seriousness, though I cannot consciously say I have thought through the answer, but it is a difficult job to regulate the natural gas industry and regulate the electric power industry together and there are those who suggested you might want to separate the two.

You find yourself in a peculiar position regulating both industries at the same time. We issued a national power survey which was a

study of the electric power industry in 1964 and it was very legitimately criticized because we forgot all about the natural gas industry. You start worrying about the natural gas industry and you begin to have some split loyalties. Which one are you going to worry the most about? And then you say, well, we are going to worry equally. Well, you know, you have only got so much time. You can only be an expert in so many fields.

Mr. O'Leary. You made reference to Professor Collins' study. When you were a member of the Federal Power Commission was it Commission policy to issue as staff reports studies such as his?

Mr. Ross. Did we?

Mr. O'Leary. Yes, sir.

Mr. Ross. We did our best to keep informed on what the staff was doing and I do not recall ever having this issue raised particularly while I was on the Commission. I think the study is definitely a contribution to the dialog on this problem and I was quite impressed with it, frankly. I am not a statistician and I am not an economist, however.

Mr. O'Leary. Are you aware during the course of your experience of any studies anywhere which demonstrate economic superiority of combination companies?

Mr. Ross. Not that I know of. As my statement indicates, this issue did arise when the Commonwealth Edison case came up, and I think without any doubt, one of the principal matters that we were most concerned about was the divorcement of the gas from the electric properties. The only objection by Commonwealth Edison Co. at the time was, for gosh sake, do not put us under a deadline that we have got to sell by such and such a date, because if we do, it is going to be a forced sale and we may not be able to get what the properties are reasonably worth. And so in order to make sure that this would not happen, we gave them some leeway in terms of time.

Mr. O'Leary. During his testimony, Chairman Nassikas seemed to favor an approach similar to section 11 of the Public Utilities Holding Company Act, by making divestiture dependent upon a public interest finding and a further finding of no loss of substantial economies. What is your reaction to that approach?

Mr. Ross. Well, it may well be that you might not want to have a flat prohibition against all combination companies, but if you do not do that, I think it would be very, very advantageous to spell out in some detail those criteria that Congress are particularly concerned with, and my experience in testifying on the SEC Act, is that I found it very helpful, for example, to have Congress tell the SEC that the SEC should be concerned about the importance of localized management. They should be concerned about the political and economic concentration that may result.

Now, it is specific policy statements established by legislature that would be very helpful. For example, there are three aspects that should receive very prominent attention. It is partly for those three reasons that I am in favor of this bill, because I think that a combination company, a company as big as P.G. & E., in one sense the largest utility in the Nation, can dominate the economy of a region. It can dominate it politically and economically. Not only one State but a whole region.

I cannot help but volunteer the statement in light of the testimony that just preceded me, it is fairly common knowledge within the regulated industry that within regulators, rather, that the regulated industry is not adverse to creating a monopoly on talent. They will hire every lawyer to do their title searches thus creating conflicts of interest. They put most of the economists on retainer. And as a result, a public interest intervenor may have considerable difficulty retaining talent to allow it to present an adequate case.

These are examples of economic concentration, economic power. Let us put it like that. It happens.

Now, there is nothing evil in the sense that they are buying votes. It is just you are preventing your opponents from being represented.

Mr. O'Leary. I have no further questions.

Senator Hart. Mr. Chumbris?

Mr. Chumbris. Mr. Chairman, I have no questions.

Senator Hart. As always, it is helpful to have your comments, Mr. Ross.

Mr. Ross. Thank you, Senator.

(Mr. Ross' full statement follows. Testimony resumes on p. 486.)

Statement of Charles R. Ross, Former Member of the Federal Power Commission, Adjunct Professor at University of Vermont, Member International Joint Commission, Hinesburg, Vt.

Thank you, Senator Hart, for giving me the opportunity to present my views on S. 403 which seeks in essence to prohibit the ownership or operation by an electrical utility company of natural or manufactured gas facilities and vice versa. S. 403 would require divestiture of either the gas or electrical operations of some 78 "combination companies." I endorse these objectives wholeheartedly.

Members of the regulatory and antitrust bars, regulatory economists, students of regulation, as well as enlightened regulators themselves, now generally recognize that regulation has not been and cannot be a fully effective substitute for competition. Regulation alone simply cannot simulate the competitive market mechanisms necessary to provide innovative, efficient and the lowest cost service to the consumer. More than ever before competition is now being used as a complement to regulation to help secure these benefits for the consuming public.

As long ago as 1959 and 1960 when I was serving as Chairman of the Vermont Public Service Board, I was confronted with the combination company problem. Central Vermont Public Service Corporation and Green Mountain Power Corporation, the two largest utilities in the state. Both were engaged in furnishing electric and gas service to their customers. In neither case were the companies able to supply natural gas since there were no connections to interstate pipeline systems, and natural gas had not and still has not been discovered there. In the case of Green Mountain Power, the customers were supplied with low-pressure manufactured gas. Central Vermont supplied its customers with propane gas.

I had not been on the Public Service Board very long before it became apparent that it might be very advantageous for Vermont consumers if natural gas could be introduced in the state. The service then being rendered was both costly and inefficient. In most cases, the return on the gas properties was marginal, and customers were continually complaining. I endeavored to interest the companies into seeking outside sources but was told that it just wouldn't work out. In desperation, I sought to introduce legislation which would accomplish the objectives of S. 403. In the Biennial Report of the Public Service Commission for 1958–60, the Commission stated its support of the proposed legislation:

> It is the Commission's judgment that a utility who is operating both a gas and electric utility because of the competing types of businesses may have a tendency to neglect one aspect of its business to the detriment of the public. The results under federal laws in requiring such a divorce have been excellent. The mere existence of this type of statute on the books may have a tendency to improve service to the neglected customer. With the possibility of natural gas and a greater interest being shown by some gas

utilities, the State could well be benefited by more aggressive promotion by the gas utilities.

As it turned out, we were unable to secure the enactment of this legislation. However, the mere threat of the legislation and the favorable public reaction did accomplish our objective which was to provide better and cheaper service to the captured gas customers. In short, both companies divested themselves of their gas properties.

Green Mountain sold out to Vermont Gas Systems, Inc. An interconnection with Trans Canada Pipelines Limited was secured, together with an ample supply of Canadian natural gas for the northwestern portion of Vermont.

Time has shown that this result has been very beneficial to the consumers. For example, the gas consumers no longer have to play second fiddle to the electric customers. In the past, extensions of the gas system were very hard to come by since the company was reluctant to commit capital for gas facilities when it was receiving such a poor return. Furthermore, there seemed to be no future in the business: it was high-priced, so the company would not aggressively promote the sale of gas. The gas consumer was on the tail end of the totem pole. Higher level management were all trained in the electrical utility side, and there was no prospect to advancement for anyone starting in the gas field. There simply was no incentive to push gas.

Following divestment, however, Vermont Gas Systems went all out. It sought new business and began to expand its system. Gas heating became a byword in Chittenden County. In fact, it would not go too far to say that owners of new homes had a real choice. The electrical utilities, both private and public, set up and took notice. Furthermore, as air pollution problems became more apparent, the Burlington Light Department was able to contract with Vermont Gas for a supply of interruptible gas to alleviate the situation.

After I went to Washington as a member of the Federal Power Commission, I was extremely interested in watching the performance of combination companies and discussed the problem with executives of companies that had been divested. Almost without exception, every official of a separate gas company which had formerly been a part of an electric system was highly in favor of the divorce. Time after time these officials remarked that the gas consumers were greatly benefited. Service was improved, and rates were stabilized. It is entirely possible that there would have been greater efforts to bring natural gas at a much earlier time to the large urban Midwestern and Eastern urban markets had there been more separate gas companies.

In particular, I recall talking to officials of Northern Illinois and Commonwealth Edison regarding the results of their separation. Both groups were very enthusiastic. As a matter of fact, I believe the experience in the Commonwealth Edison and Central Illinois merger case indicates the desirability of separating gas and electric properties. Commonwealth could not provide any evidence to show the need for the retention of the gas properties and, in fact, has now divested such properties to the benefit of all concerned.

The New England Electric System is another example where divestiture has been ordered although I am sorry to report that complete divestment has yet to occur. Both as a commissioner in New England and as a Federal Power Commissioner, I was acquainted with the unhappiness of those officials within the system as to their role. There was bitterness about the emphasis on the electrical side of the business and an unconcealed delight in the final SEC order.

In recent months I have had the opportunity to testify as an expert witness in two increased rate cases involving combination companies, Baltimore Gas and Electric and Tucson Gas and Electric. It is very apparent in reviewing the evidence that there are problems in the allocation of costs. How much simpler if there were two separate companies? Even the British who have nationalized their gas and electrical companies have established two entirely separate and distinct organizations.

One is struck in the two cases mentioned by the dominance of the electric utility segment of the system. This is not too surprising since this portion is more capital intensive and this provides more opportunities for not only maximizing rate base but also maximizing profits in a monopolistic situation when competition is no leveler.

I have had the thought occasionally that the principal reason many electric utilities want to stay in the gas business is to provide a separate supply of gas for their electrical generation stations at wholesale. Their principal concern is not gas consumers, but electric consumers. No matter how many consumers a

combination company would serve, it just is impossible for the gas segment to be as capital intensive as the electrical since the electrical sector is vertically integrated from production to transmission to distribution. The gas sector, on the other hand, encompasses principally a distribution function since it purchases its fuel from interstate transmission companies. Thus, as the two cases illustrate, the rate base of the electrical portion will also dwarf the gas facilities. Is it any wonder that the gas section within a combination company feels like a stepchild?

The historical record confirms my experiences as to combination companies. As early as 1935, it was recommended that all combination companies be prohibited. As late as 1970, the performance of combination companies was found to be significantly below that of straight utility companies, the claimed inherent economies of combination companies from joint operation of both the gas and electric businesses was found wanting and combination company rates were found to be higher than straight utility companies. Studies made and cases decided during the intervening years reached the same conclusions in every instance of which I am aware.

The Summary Statement of Recommendations in the Final Report of the Federal Trade Commission's 7 year (1928–1935) investigation of electric and gas utility companies contained seven recommendations. Recommendation number 5, entitled "Divorcement of Gas and Electric Utilities," stated that "gas and electricity are increasingly competitive" and concluded that "with proper limtiations as to time and place, divorcement of the two be made compulsory." *Utility Corporations—Final Report of the Federal Trade Commission to the Senate of the United States*, Document 92 Part 84-A, 70th Cong. 1st Sess. 617 (1936).

To my knowledge, however, no action was taken with regard to this recommendation except, of course, for the previous enactment of the Public Utility Holding Company Act of 1935.

In the course of administering the Act, the Securities and Exchange Commission has continually pointed out the many deleterious effects of combination companies. For example, in *The North American Company*, 18 S. E. C. 611 (1945), the SEC stated:

> We are asked to permit electric and gas utility companies serving the same territory to be held together. The businesses, in many aspects of their operations, are competitors. It is the inevitable tendency of the joint control to favor that business in which it is most interested and which is most profitable. We have noted some of the unfortunate results of that tendency. . . . We have noted one instance in which the lack of competition has brought on the substantial decadence of the gas properties. . . . The Montana commission has made the following comments in a case of joint ownership passed on by it:
>
> "It is almost superfluous to say that the evident inertia of the gas service, its deteriorated plant and relatively failing patronage result immediately from the fact that it has no competition. Its natural competition, the electric utility, being owned by the same company, favored by the management and enjoying certain popular advantages, has snuffed out the spark of incentive to increased business and improved service. The company is indifferent to better gas service because its failure in this department results in gain to the electric department, whereas an independent gas entrepreneur would strive to occupy the electric field." *Helena Light and Railroad Company*, PUR 1920 D. 668.

C. O. Ruggles, in "Rate-Making and Marketing Problems" (an essay in "Business and Modern Society," Harvard Univ. Pr., pp. 385–411) presents the following comparative figures of gas and combination companies in 17 Major New England cities:

> . . . If the year 1931 be taken as 100, the consumption of gas by domestic customers of combination companies equalled, in 1936, 82.2; while the comparable figures for the straight gas companies were 100 and 87.8. Revenue from this same market (domestic) showed for the combination gas companies 100 (1931) and 83.2 (1936); for the straight gas companies 100 (1931) and 85.8 (1936). The rates charged by the combination gas companies, on the basis of 1931=100, for 1936 were 101.3; for the straight gas companies the comparable figures were 100 (1931) and 97.7 (1936). See R. E. Gimma, "Appraising Domestic Competition," *New England Gas News*, March 1937, pp. 83–92.

His discussion does not contain sufficient data to permit an estimate of the reliability of the figures. But it corroborates (as we shall note) the general conclusion reached by our staff in its independent studies.

The SEC staff study referred to concluded that:

"(a) Gas companies tend to sell more gas and derive more revenue per customer at smaller prices per therm.

"(b) Companies serving electricity alone tend to sell more current and derive more revenue per customer, at lower prices per kwo.-hr.

"(c) While customer accounting and collection, and administrative and general expenses per customer tend to be higher for gas companies than for combination companies, distribution expenses per customer tend to be lower.

"(d) Gas companies tend to derive vastly higher revenues from merchandising and jobbing.

"(e) Gas companies tend to sell more gas for residential purposes, derive more revenue per customer and per therm sold whether house heating load is included or excluded. But when house heating load is excluded they tend to do even better than when it is included.

"(f) Gas company rates for residential service tend to be lower for all brackets except that of 250 therms, which includes cooking, water heating, refrigeration and house heating; and, in that bracket, tend to be only slightly higher."

The SEC stated that "as far as it goes, the study corroborates practical experience and earlier and less comprehensive studies. . . . And in its context, viewed as a test of the claim that substantial economies would be *lost* upon the separation of gas and electric utility businesses (rather than as proof of the contrary) the study is of major significance." SEC ordered divestiture, concluding: "To expect vital competition between the two types of services when controlled by the same interests is, in our opinion, highly unrealistic."

In 1950, SEC reiterated its findings as follows:

> In our administration of Section 11(b)(1), and in our consideration of countervailing factors, we have repeatedly adverted to the inevitable tendency of joint control over gas and electric utility businesses to stifle the natural competitive features of these enterprises by the favoring of that business in which the controlling company is most interested and which is most profitable. Thus, it has been our policy to view claimed losses in economies only in the light of the substantial benefits which would accrue from healthy and aggressive competition between gas and electric services. *The North American Company*, 32 S. E. C. 169, 179–80.

The 1960's still found inferior performance and higher rates in combination companies. In 1964, the SEC stated:

> We cannot accede to the view that such a separation of the gas from electric operations has been effected as to secure the kind of single-minded management for each that would obtain upon actual divestment. Although the NEES Gas Division handles sales and promotional activities and various other matters for the gas subsidiaries separately from the electric companies, final authority on all important matters rests in the top NEES management. The basic competitive position that exists between gas and electric utility services within the same locality is affected by such vital management decisions as to the amount of funds to be raised for or allocated to the expansion or promotion of each type of service. It is asserted by respondents and the Massachusetts DPU that NEES has made all such decisions with full regard for the needs of the gas companies, has vigorously promoted the gas business, and has not suppressed that business in favor of the NEES electric business. The Division points to the fact that of twelve independent Massachusetts gas companies used by respondents for comparison with NEES, seven which the Division considered comparable had substantially higher mcf sales and revenues per customer than the NEES gas companies and their customers pay less per mcf of gas consumed than the NEES gas customers.
>
> It must be recognized that *prima facie* this disparity in favor of the independent companies, if it is at all meaningful, tends to indicate that the independent gas operations have been more effective than those of NEES gas management. Although the Massachusetts DPU argues that much of this disparity is caused by the differences in population characteristics of the NEES franchise areas and those of the independent companies because the latter had a more rapidly growing suburban residential population, no specific demonstration of the existence or extent of such a causal relation was presented. In any event, it is clear that the determinations

respecting the basic interests of the gas companies are made by NEES officials who occupy a dual position in which they must weigh the needs and objectives both of those companies and of the electric companies which represent the principal and most profitable business of the NEES system. On the basis of the facts presented in this case we cannot conclude that a management solely interested in and devoted to the gas operations would not be able to advance them more effectively. (footnotes omitted) *New England Electric System*, S. E. C. Holding Company Act Release No. 15035 (1964), pages 13–14.

The Supreme Court twice affirmed SEC, terming separate ownership—and divestiture where necessary—as the "very heart" of the Act. *SEC* v. *New England Electric System*, 384 U.S. 176 (1966) and 390 U.S. 207 (1968).

Finally, in 1970, SEC found the benefits of separate ownership to be so overwhelming that it extended such requirements to exempt holding company systems. *Illinois Power Company*, Holding Company Act Release No. 16574 (1970). The SEC staff brief once again showed the adverse effects of combination companies upon the consumer:

> While common control over both electric and gas operations in itself indicates an almost overwhelming negation of competition, the lack of competition at the present time is conclusively demonstrated by the testimony of the principal witness for Illinois. This witness was asked,
>
> "Mr. Van Wyck, in an area where Illinois Power sells both gas and electric energy would you consider that the company owes it to its stockholders to promote the use of that class of energy which would result in the largest net return to the company?"
>
> The reply of the witness was, "We would."
>
> The interest of investors thus appears to be paramount and the service which provides the most profit is now and in the future would be favored. (footnote omitted) Page 23.

The adverse effects of combination companies are such that in 1966 the Federal Power Commission conditioned approval of a merger under the Federal Power Act upon divestiture of the company's gas properties. Significantly, FPC placed the burden of proving that "joint operation of gas and electric properties will be beneficial to its customers" upon the company, and no such showing could be made. *Commonwealth Edison Company*, FPC Opinion No. 597, Docket E–7275 (1966).

Thereafter, in 1970, Professor Collins prepared a most pervasive study of combination companies. This study strongly demonstrates the inherent adverse consumer impact of combination companies. I am somewhat surprised at Chairman Nassikas' downgrading of that study, especially in view of the support given the study by FPC's Chief Economist. Unfortunately, Dr. Wald's recommendation that the full study be issued as a staff report was not accepted by the Commission.

Considering the substantially inferior performance and high rates of combination companies which have been so consistently demonstrated throughout the years, I cannot accept the often stated but never demonstrated argument that combination companies produce benefits to the consumer through joint operation of their gas and electric properties. In SEC cases the claimed savings from such joint operation ranged from $35,000 to $1.1 million. In each case SEC found these amounts not substantial when viewed in the context of consumer benefits flowing from competition and when contrasted with the performance and rates of straight electric and straight gas utility companies in the area.

The historical record clearly demonstrates that the competitive stimulus results in far greater benefits to the consumer than the claimed economies from joint operation by combination companies.

S. 403 has been long overdue. Based upon the historical evidence and my personal experience in the State of Vermont and at the Federal Power Commission, I simply cannot agree with nor comprehend the position taken by Chairman Nassikas. In this era of inflation, energy shortages and rate increases, the consumer needs and deserves the benefits that S. 403 would provide.

Thank you.

Senator HART. If there is no objection, let us print in the record, since it bears on a question I raised with Commissioner Ross, a letter dated June 2, 1971, from the vice president of Commonwealth Edison of Chicago, Hubert H. Nexon.

(The letter referred to follows. Testimony resumes on p. 488.)

COMMONWEALTH EDISON CO.,
Chicago, Ill., June 2, 1971.

HON. PHILIP A. HART,
Chairman, Antitrust and Monopoly Subcommittee,
Senate Committee on the Judiciary,
Washington, D.C.

DEAR SENATOR HART: Commonwealth Edison Company welcomes this opportunity to state its views with respect to the desirability of having gas and electric utility operations under separate control and to comment on S. 403 pending before the Antitrust and Monopoly Subcommittee. Commonwealth's corporate history makes clear its belief that in its territory such separation is desirable and in the public interest.

Commonwealth Edison Company is an investor-owned electric utility which provides electric service in and around one of the country's great population centers. It serves the City of Chicago and almost all of the northern quarter of the State of Illinois, as well as some smaller areas in the central and southern parts of the state.

Prior to 1954, Commonwealth and predecessor companies also provided gas service except in the City of Chicago. In 1954 and 1955, the Company created Northern Illinois Gas Company to take over all of its gas operations, distributed the shares of Northern Illinois Gas Company to its own stockholders, gave that company completely independent management and severed all ties with it. Northern Illinois Gas Company is now a vigorous competitor of Commonwealth in the energy market in Illinois. Each of the companies has made great progress since that time, although our own operations are being adversely affected by Inflation. Commonwealth now serves over 2½ million customers, had 1970 gross revenues of about $887 million and supplies more than twice as much electricity as it did in 1955, while Northern Illinois Gas serves over 1 million customers, had 1970 gross revenues in excess of $345 million and has more than quadrupled its gas deliveries since 1955. Commonwealth's net utility plant at December 31, 1970 was $3.2 billion; Northern Illinois Gas' net utility plant at the same date was $614 million. Each, therefore, is a large company by almost any standard.

Between 1955 and 1966, Commonwealth had no gas operations. In 1966, Central Illinois Electric and Gas Co., a relatively small combination company, was merged into Commonwealth Edison Company. The merger required the approval, among others, of the Federal Power Commission. Its order of approval required Commonwealth to show, within three years, why it should not be required to divest itself of Central's gas properties. In 1965, the last full calendar year of Central's separate operation, these properties accounted for about 42% of its revenues. After the merger, however, they provided only 3% of the revenues of Commonwealth. In 1968, Commonwealth transferred the gas properties to a newly-created subsidiary, Mid-Illinois Gas Company. In 1970, it distributed the stock of Mid-Illinois to its shareholders in anticipation of the merger of the latter company into Northern Illinois Gas Company, and that merger was consummated at the end of 1970, leaving Commonwealth once again engaged solely in electric operations.

The Company's original decision to divest itself of the property now operated by Northern Illinois Gas Company, and its subsequent divestment of the Central gas properties, sprang from the belief that the separation of the gas and electric businesses would lead to better management of both businesses, competition between them, and resulting advantages to our stockholders and to the general public.

Certainly, the separation has produced competition in our service territory. For example, Commonwealth has fought vigorously for a share of the heating market in new buildings, once almost the exclusive province of the gas companies. In 1970, which was far from a banner construction year, the number of electrically-heated dwelling units in service and under construction increased by 7,600, a significant share of the new housing market. Also, we pioneered in the development and application of heat-with-light systems to provide all-electric service in commercial buildings, and our service territory now has over 22 million square feet of commercial space in service or under construction in which the heat-with-light principle is applied. Had we been selling both gas and electricity, it is unlikely that we would have made the vigorous sales and technological efforts which produced these results. We believe that our competitive activities have served the public interest.

We know of no way of providing any similar quantitative demonstration of the management advantages flowing from the separation of gas and electric

operations. Nevertheless, we believe that competition itself tends to sharpen the decision-making process. And conducting either the gas or the electric utility business is sufficiently complex to require undivided management attention in view of the scale of utility operations in our territory, the pressures of inflation, gas shortages and environmental pressures challenging management in each type of business.

The foregoing makes clear that we are sympathetic with the general objectives of S. 403, at least as applied to the situation Commonwealth has faced. Our decision was, we believe, a good one for a company serving the Chicago metropolitan area with its size, population density, industrial development, fuel supply arrangements and other characteristics. But we cannot say unequivocally that separation is the right answer in all cases. Differing circumstances may well call for a different answer. S. 403 makes no provision for dealing with such differing circumstances.

Moreover, as technology changes, the provisions of S. 403 might prevent rather than promote competition. For example, our Company is now considering whether to install experimental facilities for the gasification of coal in order to reduce the adverse effects of burning coal with the 3½ to 4% sulfur content typical of Illinois coal. Were the project to succeed, it might improve our competitive position by reducing the cost of pollution control facilities. Under the bill in its present form, our action would be prohibited since as an electric utility we would be forbidden to own and operate facilities used in the production of manufactured gas. Similarly, the gas distribution companies have been working on the development of fuel cells, fueled with natural gas, which would displace central station electricity supply in favor of a gas fueled, gas distribution company owned fuel cell for each individual consumer. However, a gas utility could not own or operate a fuel cell given the present provisions of S. 403. These examples illustrate the risks of imposing absolute rules on energy suppliers who are dealing with a fluid and changing technology.

For the two reasons just expressed, while we believe that the separation of gas and electricity in the Chicago area was a desirable and useful action, we cannot urge the adoption of S. 403.

Very truly yours,

HUBERT H. NEXON,
Vice President.

Senator HART. And now, we will receive the testimony from the president of Atlanta Gas Light Co., of Atlanta, Ga., Mr. W. L. Lee.

Mr. Lee, I apologize for such a slow performance here this morning.

Mr. LEE. That is quite all right. I understand your problem.

STATEMENT OF W. L. LEE, PRESIDENT, ATLANTA GAS LIGHT CO., ACCOMPANIED BY ALBERT G. NORMAN, JR., OF THE LAW FIRM OF HANSELL, POST, BRANDON & DORSEY, ATLANTA, GA.

Mr. LEE. Senator Hart, members of the staff, my name is W. L. Lee. I am president of the Atlanta Gas Light Co., Atlanta, Ga., and have served in that capacity since 1961. At the witness table with me today is Mr. Albert G. Norman, Jr., of the law firm of Hansell, Post, Brandon, & Dorsey, Atlanta, Ga., who is general counsel for the company.

We greatly appreciate the opportunity extended by Senator Hart's letter to appear before this committee to comment on S. 403.

I am in full accord with the stated objectives of S. 403, but for reasons set forth later, have serious reservations as to whether the bill in its present form would achieve these objectives.

Since I intend to make both technical and legal comments concerning the proposed bill, I would like to state that I am a registered professional engineer in the State of Georgia and also a member of the State Bar of Georgia, and for many years a member of the antitrust section of the American Bar Association. Since 1933, I have been em-

ployed by Atlanta Gas Light Co., in various engineering, operating, and executive capacities.

There are no investor-owned combination gas and electric companies in Georgia at the present time, although the Atlanta Gas Light Co., and Gas Light Co. of Columbus were formerly controlled by the State's largest electric company. The Georgia Power Co., a wholly owned subsidiary of the multibillion dollar holding company, the Southern Co., operating in Georgia, Alabama, Mississippi, and Florida. Since we represent the end result sought by S. 403, a gas distributor resulting from a separation of a combination company, our experiences and problems may be of interest to the committee.

Both gas companies commenced operation over a century ago and came under the control of electric companies around the turn of the century and later became separate gas companies.

Atlanta Gas Light Co., was sold to a holding company, Central Public Service Co., in 1929 and in 1948 became an independent corporation. The Gas Light Co. of Columbus was sold to a group of local investors by Georgia Power Co. in 1948.

After separation from the electric company, both gas companies who were distributing natural gas began to vigorously compete with their former parent. In the two decades that followed due principally to the increased demand for goods and services that followed World War II, a low cost and plentiful gas supply and increasing prosperity of the people, the gas companies were able to obtain 80–90 percent of the space heating and water heating and a majority of the cooking loads.

About 10 years ago, the electric companies in Georgia initiated practices designed to force customers to become total electric and exclude gas. During 1968, I testified before a subcommittee of the Committee on Small Business of the House of Representatives. This committee was popularly known as the Dingell committee. In my testimony, I tried to make clear the nature of the monopoly position of the electric utilities and the enormous leverage that they can exercise through promotional schemes. I would like to describe the situation briefly again.

In this day, electricity is a virtual necessity in every household, commercial establishment and industry. Everyone must have electricity for illumination, small motors, air conditioning equipment, communication devices and certain additional uses which cannot as a practical matter be supplied by other fuels. These loads are often referred to as "captive loads." (Indeed, many gas appliances require electricity for their operation. Overcharges for the electricity required by gas appliances can effectively exclude them from the market.)

As a result of governmental privilege, electric utilities generally have an almost absolute monopoly in electric power in the territories they serve. The most reprehensible of the promotional practices engaged in by electric utilities are those which depend directly or indirectly upon the manipulation by the electric companies of their captive load monopoly to exclude competing sources of energy. The basic scheme of these practices is to impose larger costs for captive loads unless the customer excludes competing fuels for noncaptive uses such as space heating and water heating.

As a further example, an electric utility may have a plan under which it furnishes underground wiring facilities to a customer's prem-

ises free, or at minimum cost, if the customer uses electricity for all of his energy uses. These practices are designed to, and have the effect of, excluding gas, or, for that matter, oil or coal or any other fuel. In my judgment, as well as that of many other observers, the antitrust laws are the only effective mechanism to control these practices.

A body of case law appears to be developing which will almost entirely eliminate resort to the Federal antitrust laws as a means of controlling anticompetitive abuses by State-regulated utilities. If established, these decisions would completely thwart the objectives sought by S. 403. Two circuit courts of appeals have recently held that regulation by State public service commissions immunized certain promotional practices of electric utilities from the operation of the antitrust laws. The first case, *Washington Gas Light Company* v. *Virginia Electric and Power Company*[1] (Vepco), was decided by the fourth circuit. The second case, *Gas Light Company of Columbus (Georgia)* v. *Georgia Power Company*, was a decision by the fifth circuit.

These decisions are based upon the case of *Parker* v. *Brown* decided by the U.S. Supreme Court in 1943.[2] The *Parker* case involved an attack under the antitrust laws upon a complex raisin marketing program in California which had been instituted pursuant to a State statute. The Court held that the marketing program derived its authority and efficacy from the legislative command of the State and was not intended to operate or become effective without the command. That State command, the Court held, was not rendered unlawful by the Sherman Act. The Court, however, emphasized in *Parker* that the State marketing program was consistent with the Federal Agricultural Adjustment Act.

In both the *Vepco* and *Georgia Power* cases, the plaintiffs alleged that certain practices of the defendant electric utilities constituted unlawful tying arrangements under the antitrust laws and were used to induce customers to use electricity for all of their energy needs. In the *Vepco* case, the practices had neither been approved nor disapproved by the State regulatory commission. In the *Georgia Power* case, the fifth circuit stated that although each of the practices had been initiated by the defendant electric company, each had been the subject of an adversary proceeding before the Georgia Public Service Commission and were effective by order of the Commission. Both courts found that attacks upon the practices under the Federal antitrust laws were barred by the application of the *Parker* v. *Brown* doctrine. The fourth circuit held that since the practices were within the ambit of regulation by the State regulatory agency, its silence with respect to the practices amounted to approval. In the *Georgia Power* case, the fifth circuit held that the orders of the Georgia Public Service Commission constituted requisite State action under the *Parker* doctrine.

These decisions have been widely discussed by legal commentators. I understand that the plaintiff in the *Georgia Power* case will seek certiorari to the U.S. Supreme Court. Unfortunately, as far as the development of the law is concerned, the *Vepco* case, I am told, has been settled. Consequently, there will be no effort to seek certiorari to the U.S. Supreme Court. Since there may be further proceedings in at least one of the cases, I will not comment upon the soundness of

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[1] 438 F. 2d 248 (1971).
[2] 317 U.S. 341.

the decisions under present law. I am hopeful that this committee will carefully follow the developments in these cases or any similar ones which may arise in the courts. If it is ultimately determined that approval by a local administrative agency immunizes the practices of utilities from the antitrust laws, the hope, whether through the bill in question or otherwise, for meaningful competition between gas and electric companies will virtually be at an end, irrespective of whether or not there is divestment of competing services by combination companies.

The significance of the immunity which may result from these cases can be appreciated more clearly when the size of the utility industry is considered. The 1970 Statistical Abstract of the United States, prepared by the U.S. Department of Commerce contains a tabulation [1] of the total assets and annual receipts of active corporations in the United States as shown by Federal income tax returns. This tabulation groups corporations into eight basic categories one of which covers public utilities—"transportation, communication, electric, gas, sanitary service." Of these eight categories, only two—"manufacturing" and "finance, insurance, real estate"—have greater assets or annual receipts than utilities. This tabulation shows that as of 1967, utilities had assets in excess of $220 billion and annual receipts in excess of $100 billion. To complete the picture, it must be noted that utilities are regulated in each of the 50 State commissions or agencies.[2]

As much in sympathy as I am with the stated policy underlying the bill in question, it is my strong belief that inter-energy competition may be promoted sooner and more effectively by this committee's giving serious study and consideration to whether new legislation may be required to insure that anticompetitive practices by State-regulated utilities are made subject to the Federal antitrust laws.

As mentioned earlier, I have several reservations about the bill in its present form. It overlooks the fact that the evil that should be eliminated is really the anticompetitive conduct—the suppression of competition—rather than who does it. It is just as reprehensible to have meaningful competition destroyed by a so-called pure single energy company, be it privately or publicly owned, as by a combination company. Indeed, there is probably less motivation for such conduct by the combination company.

It would appear to be more logical and infinitely more just to set out the prohibited conduct in terms of acts that are proscribed irrespective of who commits them. This, to me, would provide the best consumer protection. If combination companies are required to separate their gas and electic operations irrespective of how desirable it otherwise might be, the new company organized to carry on the electric operation will be significantly larger in terms of investment and revenue. Unless the anticompetitive abuses which I have described are corrected, the newly formed gas company will in all likelihood be quickly victimized by the electric company.

Next, I would like to point out that the practical application of two important technological advances is just over the horizon. One is the use of the fuel cell. The other is the onsite generation of electric power

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[1] P. 475.

[2] See, for example, Welch, Cases and Text on Public Utility Regulation 579 (rev. ed., 1968).

by gas-fired turbines. Much more actual experience in the operation of these new advances is required, in my judgment, before legislation is considered which will affect experimentation with and utilization of this new technology.

Although, I am sure it was not the intention of this committee in formulating the proposed bill to affect or limit the development of these two advances, the language of the proposed bill could have serious and far-reaching effects. One unintended consequence may be the extension of the monopoly position of the electric utilities by preventing gas utilities from offering competitive alternatives by use of the fuel cell on total energy operations.

The definition of electric utility in the proposed bill and the prohibition of control on the part of gas utilities over electric utilities may well stultify and hamper the development of this new technology and competitive alternatives.

In summary, I am in complete agreement with the declaration of policy stated in the bill that "it is in the national interest to promote interenergy competition between electric and gas whenever possible, and to insure that their rates and the quality of their services, shall relate to costs of providing such forms of energy."

I respectfully submit, however, that this policy will be better served at this time by the consideration of legislation by this committee aimed at insuring that resort may be had to the Federal antitrust laws to curb present anticompetitive abuses by State-regulated utilities.

Senator HART. Mr. Lee, thank you for the thought that is reflected in the testimony you have just given us.

Parenthetically, the subcommittee is and will continue to follow the evolution of that Parker doctrine. What we can do about it is another story.

You caution us that we may unintentionally slow down the very developments that the bill really seeks to achieve.

One unintended consequence may be the extension of the monopoly position of the electric utilities by preventing gas utilities from offering competitive alternatives by use of the fuel cell or total energy operation.

I guess I am asking you this now as a lawyer not as an engineer. Happily you are both.

Would this depend on whether the buyer, the consumer, was billed for the use of gas or the use of the electricity generated? Would that be the determining thing?

Mr. LEE. It could be. Let me state it just a little differently, Senator.

For the fuel cell, and it is some years away in its practical application, to be practical, most people in the gas industry believe that the cell itself will have to be financed and owned by and operated by the utility company because the average customer does not want to buy this piece of merchandise. What he wants to buy is the service that it renders. And it could well be interpreted that what one is doing in the customer's house with this fuel cell is generating electricity, one of the things that is forbidden in the bill, as I see the bill now.

We are involved in a case in the State courts in Georgia now with a total energy plant where it is claimed that we are an electric company. We own some gas turbines in the building we occupy and sell the power on an annual contract basis to the building owner. And

it is a serious legal question as to whether or not that generation of electricity makes us an electric company also.

Senator HART. If the prevailing opinion proves right: namely, that you will be financing the cell?

Mr. LEE. Yes; owning it and operating it.

Senator HART. Owning it and operating it. And I as a business office or homeowner would be leasing from you?

Mr. LEE. I believe you would just be buying the service, Senator.

Senator HART. Buying the service.

Mr. LEE. Yes, sir. In other words, you would be buying electricity and you would also be buying most heat from the cell. It would depend on——

Senator HART. Obviously, the thing I was leading to was the possibility that we would have to be as aware of anticompetitive abuse of the gas distributor if he got an exclusive leasing.

Mr. LEE. That is right. Absolutely. That is one of the points that the S. 403, as I read it now, could preclude the furnishing of this cell or the generation of this power.

Mr. CHUMBRIS. Mr. Chairman, may I interject? The day before yesterday when Mr. Willis appeared and presented the point of the fuel cell, Senator Hruska asked him whether he may not be—since Mr. Willis was critical of the combination companies and urged that they be separate, would he not then, his company being a gas company, be doing exactly what he is proposed against by divestiture of a combined company, if that interpretation as you are placing it—if the State court of the State agencies determine that you are also in the electric business, then you are in a sense a combined company, even though it may be a small portion of your overall business.

Mr. LEE. We would then be a combined company but the real vice of the combined company as I understand 403 is trying to eliminate, is where there is no meaningful competition. The customer can only go to one person.

Now, in the operation I envisage where—you see, the electric companies sell heat now. If the gas companies were precluded from the sale of, say, total energy, which is going to be some form of electric generation, all you would do is extend the monopoly of the electric company.

Mr. CHUMBRIS. I was not getting into the merits of it. Senator Hruska was asking these questions.

Mr. LEE. I am trying to discuss the thing from a legal standpoint. As I understand the bill, what it is really trying to do is to establish meaningful competition, to make sure that the customer has the ability to buy both from a reasonably regulated operation, that where the gas industry gets a fair shake at the executive table, so to speak, in being able to develop the system and develop the services. But you must recognize that you can also go so far that you get predatory in competition and that has happened between the gas and electric industry in some areas.

Senator HART. Before I forget it, we have had testimony on the development of the fuel cell by the TARGET group.

Mr. LEE. Yes.

Senator HART. Is your company——

Mr. LEE. We are a member of TARGET group; yes.

Senator HART. I think it is implicit in your statement, but would you make a more precise response to the argument that the economies that result from a combination override the minimal benefits that would follow from the competition of the separate companies specifically as you see it in Georgia.

Mr. LEE. I do not think that there would be any—I would think that the saving in joint operations would be minimal and not worth the recombination for those. In other words, I do not attach a great deal of importance to the total dollar value of saving by joint operation. There is some there. The question of whether that is in the better interests of the consumer or not can be a really argumentative one.

Senator HART. You mentioned in your testimony the voluntary divestiture of, I think it was, Atlanta Gas & Light.

Mr. LEE. That was done in 1929, and it was sold—what was happening at that time, the natural gas was coming from—a natural gas line was being built from Monroe, La., to Atlanta, and the Georgia Power Co. did not want to buy natural gas. In their statement, they said it would give them problems if they tried to operate natural gas in competition with the electric industry, and they agreed to sell it. In fact, I will furnish the staff with the statement the president of the power company made at the time he made the same, if you would like to have it.

Senator HART. We would.

(The statement referred to follows:)

HANSELL, POST, BRANDON & DORSEY,
Atlanta, Ga., June 25, 1971.

Mr. HOWARD E. O'LEARY, Jr.,
Chief Counsel and Staff Director, Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, U.S. Senate, Washington, D.C.

DEAR MR. O'LEARY: At the conclusion of his testimony before the Hart Committee last week, Mr. W. L. Lee indicated that he would supply the Committee with a copy of a statement made by the President of Georgia Power Company during 1929 when the stock of Atlanta Gas Light Company was sold and the company became a separate operation. Enclosed is a copy of a portion of *History of the Georgia Power Company, 1855–1956*, written by Mr. Wade H. Wright. The statement in question appears at pages 245–46.

Yours very truly,

ALBERT G. NORMAN, Jr.,
Attorney for Atlanta Gas Light Co.

Enclosure.

HISTORY OF THE GEORGIA POWER CO., 1855–1956

(By Wade H. Wright)

CHAPTER 1 * * *

ATLANTA GAS LIGHT CO.

* * * The first public utility problem with which the City of Atlanta became concerned was the matter of lighting its streets.

When the population had reached the 2,500 mark, it was felt that the City must have steet lights. This was in the year 1850. A public water supply was still twenty-five years in the future, and gas for cooking purposes had not yet been thought of. Street railway transportation was two decades away, and electric lighting was undreamed of.

By 1853, street lights had become a paramount need in Atlanta. In the minutes of the city council of that year it is recorded that a resolution was adopted requiring that a lamp be placed on Market Street (now Broad Street) Bridge, and

others at points where they were most needed. This was to be done at the expense of the City, provided the citizens in the neighborhood would agree to supply the lamps with the necessary fuel oil.

A year later a proposal to light the City with coal gas was presented to Council. A committee appointed to investigate the proposition reported that nearly all of the citizens were anxious for a coal gas works to be established. However, the committee was of the opinion that it would be impossible to raise by popular subscription the considerable sum necessary to carry out the enterprise. The City's finances were at such a low ebb that it was regarded as inexpedient for Council to make any subscription or appropriation.

In February, 1855, the city council again took up the gas proposition, contacting William Helme, a gas works expert and promoter from Philadelphia. Mr. Helme came to Atlanta and at several meeting of the City Council explained his proposal for lighting the City streets. The proposal was embodied in an ordinance which was passed by Council with practically no opposition and which empowered the Mayor to close the contract with Mr. Helme. According to the terms of the contract, the street lamps were to be lighted at an annual cost of $15 a lamp.

Soon afterward another contract was entered into with John Schofield and Joshua Schofield to make and deliver to the City, on or before October 1, 1855, fifty ornamental lamp posts, including lamps and burners, for $21 each. The system was duly installed, and the gas lights were turned on for the first time on Christmas Day, 1855.

The Gas Company was chartered by the General Assembly of Georgia on February 16, 1856, more than a month after the gas works and distribution system were placed in operation. In the interim, the Company presumably operated as a de facto corporation. Under its charter, as originally granted, the Company was authorized to sell gas only for lighting purposes. The charter was amended in 1889, authorizing the Company to furnish gas for any and all uses.

Presumably, the plant operated from December 25, 1855, until 1864 when Union troops under General William T. Sherman, attacking the City, damaged the gas works to such an extent that they were put out of commission.

In 1866, the Atlanta Gas Light Company announced that it was ready to resume the manufacture of gas both for private and public use. Gas was turned on for the first time after the War Between the States on September 15, 1866.

In 1868, the gas rate was $5.50 per 1,000 cubic feet, with a discount of 50 cents per 1,000 cubic feet if the bill was paid by the tenth of the following month. In 1881, the Atlanta Gas Light Company offered gas for cooking, and a special cooking rate of $2 per 1,000 cubic feet was made available.

In its early history, the City of Atlanta was a substantial stockholder in the Atlanta Gas Light Company, but by the end of the year 1887 the City had disposed of all its stock. Control of the Company at that time was held by the United Gas Improvement Company of Philadelphia. United Gas Improvement continued to own and control the Company until 1903, when it was acquired by the Georgia Railway and Electric Company.

* * * * * * *

* * * records of the Atlanta City Council, it seems that a sales agent of the British Electric Company visited the City in 1882 for the purpose of creating interest in a central station electric company and that, as a result of his visit, a company was organized and granted a franchise to do an electric-lighting business. Apparently, after a more thorough investigation, the Brush Company decided the outlook was not sufficiently encouraging and the franchise was never accepted.

Atlanta at that time was lighted with gas lamps. It had 448 street lights with a probable yearly increase of 25 to 30 lamps.

The stock of the Gas Company was owned in large part by the City, which was receiving satisfactory dividends on its shares. It is not difficult to understand why the city officials did not look with favor upon a new enterprise which would compete with its Gas Company, and thus take from the City a major source of revenue.

The attitude of Atlanta citizens toward the introduction of electricity as a street-lighting medium was one of indifference. Even as late as 1890, electric lighting was looked upon with considerable skepticism and was regarded by many as a doubtful substitute for the oil lamps and gas jets then in general use.

STATE OF THE ELECTRIC ART IN 1883

In the early eighties the Edison Electric Light Company, the Brush Electric Company, Thompson-Houston Company, and the Fuller-Wood Company were all organizing local lighting companies and installing both arc lights and incandescent lamps (for indoor lighting). Some were using Edison carbon filament lamps, and others were using incandescent lamps of other makes, which were subsequently held to be an infringement of the Edison patent.

Current used for lighting up to that time was direct current, and the maximum distance it could be transmitted safely and economically was only about three miles. The maximum area capable of being lighted by a single system or power plant was limited to approximately one square mile.

Electric motors had not come into practical commercial use. * * *

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* * * We have put up during the year three electric lights, making twenty-five lights now in use.

These, of course, were all arc lights and they accounted for twenty-five of the forty-five lights the Company originally purchased from the Southern Light Company of New York.

No statistics are available with reference to the operations of the Company from 1884 to 1887, but the Company's difficulty in raising capital, the frequent changes in the personnel of its officers and directors, and the lack of "know-how" and experience on the part of its organizers, all indicate that during the early years the Company had rough going.

The minutes of a meeting of the Board of Directors held on February 17, 1886, recite that, inasmuch as the secretary and the superintendent had agreed to a reduction in their salaries until the business of the Company would justify an increase, the salary of the superintendent was fixed at $75 per month, and the salary of the secretary at $30 per month.

In 1887, several events occurred which, in a large measure, removed the handicap under which the Company had been laboring in competing for the street lighting business.

The City of Atlanta owned 4,165 shares of the 16,585 shares of stock of the Atlanta Gas Light Company. During the early part of the year, the City sold 1,887 shares of its stock at a price of $26.50 per share, for a total of $50,005.50. Of this sum, the City appropriated $50,000 to pay its subscription to the building fund of the Georgia Institute of Technology, then under construction.

Between June 30, and December 31, the City sold the remainder of its stock in the Gas Company, and out of the proceeds appropriated $15,000 for the Exposition building at Piedmont Park, $25,000 for the Boys' High School Building, and $5,635.01 for the Fourth Ward school building.

After the City had thus disposed of its financial interest in the Atlanta Gas Light Company, the record indicates a more sympathetic interest in, and a more cooperative attitude toward the Georgia Electric Light Company of Atlanta. In any event, the Electric Company took on new life.

On May 14, 1887, Judge H. E. W. Palmer was elected president of the Company to fill the vacancy caused by the resignation * * *

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* * * In order to reduce such interruptions to a minimum, the Company purchased and installed at the Davis Street Plant a 6,000-horsepower gas engine connected to a 2,000-kilowatt generator. The contract for the purchase of this gas engine unit specified that it must be able to start up and take on full load within two minutes, so that, in the case of interruption, it could pick up the load and, with the aid of storage batteries, keep both the street railway and electric light and power service going with a minimum of delay.

In the early years, the street railway used about 80 per cent of the power output of the Company and accounted for about 70 per cent of its gross and net earnings. These ratios held more or less constant until about 1910.

The ratio of operating expenses, exclusive of taxes, to gross revenues for these early years was well below 50 per cent.

The first year in which the revenues of the Railway Department exceeded $1,000,000 was 1904, when the receipts were $1,186,636.09. The first year in which electric revenue reached $1,000,000 was 1911, when the amount was $1,079,026.57. Electric revenue inside the seven-mile zone did not catch up with the transportation revenue inside the seven-mile zone until 1926.

ATLANTIC GAS LIGHT COMPANY ACQUIRED

In 1903, the Georgia Railway and Electric Company acquired the entire capital stock of the Atlanta Gas Light Company, consisting of 6,900 shares of preferred stock of the par value of $100 per share and 10,146 shares of common stock at the par value of $25 per share, and gave in exchange 6,000 shares of its own preferred stock and $1,014,600 par value of its own common stock, together with $25 in cash.

The stock of the Atlanta Gas Light Company was acquired from United Gas Improvement Company of Philadelphia. U.G.I. was already the holder of a substantial block of Georgia Railway and Electric stock, and the additional shares received in exchange for Atlanta Gas Light stock made it by far the largest single stockholder.

At that time the Gas Company had 122 miles of gas mains, 11,000 meters, and an average daily send-out of 1,629,500 cubic feet of gas. This was about eight times the number of electric meters in Atlanta.

The Gas Company was operating under a closed mortgage which prevented it from financing its future construction requirements from the sale of bonds. This made it necessary for the Georgia Railway and Electric Company to finance the Gas Company's additions and improvements.

United Gas Improvement Company maintained efficient gas engineering, accounting, and operating staffs, whose services were available to its affiliates, such as the Georgia Railway and Electric Company. With the assistance of the U.G.I. Organization, the Georgia Railway and Electric Company was able to develop an extensive and profitable gas business in Atlanta, along with its street railway business and competitive electric light and power business. At the same time it was able to maintain excellent corporate relations between the two organizations.

STEAM HEAT SERVICE IN ATLANTA

The franchise to do a steam heating business in Atlanta was first granted by the city to Ernest Woodruff, Robert J. Lowry, A. E. Thornton, and J. Carroll Payne in February, 1900. In March, 1900, the franchise was conveyed to the Atlanta Steam Company.

A steam heating franchise previously had been granted to the Atlanta Railway and Power Company, but was vetoed by the Mayor on the ground that the charter did not empower the Company to engage in the steam heating business.

The steam heating franchise, was acquired by the Georgia Railway and Electric Company from the Atlanta Steam Company on September 25, 1903.

The thought behind the acquisition of this utility was that exhaust steam could be delivered along with electricity to office buildings, hotels, and public buildings in the center of the City, and that this service would make it unnecessary for them to install their own boilers for the generation of heat—boilers which might also be used for the generation of electricity for lighting purposes.

In the earlier days, around the turn of the century, some of * * *

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* * * legal requirements had been complied with, they received the certificate of incorporation which, with the consolidation agreement, became the charter of the consolidated Company.

On the way back to his office, Mr. Awkwright let Mr. Alston out of his car at the corner of Broad and Marietta streets. Returning to his office, Mr. Awkwright at once called Chester Bingham, vice president of the Southeastern Power and Light Company, in New York to tell him the good news. When he reported that the certificate of incorporation had been secured, Mr. Bingham responded, "Fine; I have just heard about it. Congratulations." Mr. Arkwright was so taken aback that someone else had beaten him with the news that he exclaimed, "The h--- you have! Who told you?" Mr. Bingham replied that Mr. Alston had phoned him only a few minutes before.

Simultaneously with the granting of the certificate of incorporation, all of the properties and franchises formerly belonging to the individual consolidating companies automatically passed to the consolidated Company.

The Georgia Power Company became a holding company with respect to the ownership and control of the Atlanta Gas Light Company, Atlanta Northern Railway Company, Atlanta Coach Company, and the Mutual Light and Water Company, and with respect to the Georgia Light, Power and Railways, which owned and controlled the Macon group of properties. The Macon group, consisting of the Macon Railway and Light Company, the Central Georgia Power

Company, Central Georgia Transmission Company, and the Georgia Public Service Corporation, continued to be operated under the names by which they had been known in the past, though as subsidiaries of Georgia Power Company.

The consolidation brought under one management practically all the properties in Georgia controlled by the Southeastern Power and Light Company and coordinated all the power resources and facilities into one system.

The press and business leaders throughout the State hailed the consolidation as an event which meant greater opportunities and advantages for every community served and for the State as a whole.

The Company began with the officers who had served the * * *

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CHAPTER 4

Events of 1929

SALE OF GAS PROPERTIES

* * * The year 1929 was an eventful one in the annals of the Georgia Power Company.

On March 9, Mr. Arkwright made the following announcement with respect to the sale of the stock of the Atlanta Gas Light Company and other gas properties:

The Georgia Power Company has agreed to sell the entire capital stock of the Atlanta Gas Light Company and of the Macon Gas Company, and the gas plants and distributing systems of the Georgia Power Company in Athens, Brunswick, and Decatur to Colonel E. A. Pierce and associates of Central Public Service Corporation of Chicago.

The purchasers are engaged extensively in the manufacture and distribution of gas in a number of places throughout the country, including the following cities in Georgia: Augusta, Rome, Griffin, Waycross, and Valdosta. The purchasers have had long experience in the gas business and are well equipped to give the public excellent gas service.

In selling the gas properties and business, the Goergia Power Company will be able to concentrate its efforts and resources to a more intensive development of the electric light and power business in the State of Georgia; and the purchasers, being engaged exclusively in the gas business in this territory, will be able to concentrate their efforts and resources to the development of the gas business. The purchasers are not strangers to the people of this State and have already established themselves in the confidence of the communities in Georgia where they are now rendering gas service. The gas properties will be delivered to the purchasers on or about the first day of May, 1929.

The properties were delivered at a ceremony in the Electric Building on the afternoon of May 1. As far as Atlanta and Macon were concerned, about the only immediate change made was in the ownership of the stock. The same personnel continued to operate the properties. The headquarters and records of the Atlanta Gas Light Company were transferred from the Electric Building to the new Gas Company headquarters at the corner of Peachtree and Harris streets, and a similar transfer was made at Macon.

The sale of the Atlanta Gas Light Company was made prior to the time natural gas became available in Georgia, although the construction of the pipe line from Louisiana to Atlanta and other points East was under way. The management of the Georgia Power Company recognized that the introduction of natural gas would bring about complications whether the Company did or did not undertake to distribute it. The situation made the Company more ready to accept an offer for the gas system than it would have been otherwise. On the other hand, the purchasers were familiar with the possibilities of natural gas.

The purchasers retained the name of the Atlanta Gas Light Company. The relations between the management of that Company and of the Georgia Power Company have always been friendly. The Georgia Power Company is now the largest customer of the Atlanta Gas Light Company, using gas as fuel, to the extent available, in the operation of Plant Atkinson.

Natural gas was first turned on in Atlanta on February 2, 1930, and the changeover from artificial to natural gas was made on April 4.

As a condition of the sale of the gas properties, the Georgia Power Company had to pay off and retire the following underlying bonds: $7,624,000 refunding and improvement mortgage bonds of the Georgia Railway and Electric Company:

$5,175,000 first consolidated mortgage bonds of the Georgia Railway and Electric Company; $725,500 bonds of the Mutual Light and Water Company. These totaled $13,524,500.

The money with which to call and retire the bonds was advanced by the Commonwealth and Southern Corporation and was repaid, after the transaction was closed, out of the proceeds of the sale.

Mr. LEE. He thought that each company would do better if it pursued its separate way.

Senator HART. And in your opinion, has his prediction been sound?

Mr. LEE. Yes.

Senator HART. Mr. O'Leary.

Mr. O'LEARY. Along that line, the consumer is better off.

Mr. LEE. I would say yes. I do not know how it stands right now since we have had several pipeline rate increases, but about a year ago we had the lowest gas rates in the southeast in Georgia. We have been able to expand the company since 1960 from about 60 cities to 192 in the last decade, and put gas service in lots of other places and extended it to lots of other communities.

There perhaps would have been a tendency with a combination company, I mean, not deliberately, but based on the basic economics itself, that you would have tried to develop the electric company particularly in the rural area.

Now, we have lots of rural and semirural lines. I do not think they would have been built by a combination company because the overall impact to the stockholder of the combination company, it might have been better just to have had one.

Mr. O'LEARY. The tendency of the combination company would have been to push electricity.

Mr. LEE. I would think so. I would think it would be natural.

Mr. O'LEARY. By pushing electricity, would that expand their rate base more than if they pushed the gas?

Mr. LEE. I do not believe I could make any meaningful answer to that. That would depend on all the circumstances. That could result in the minimum combination rate base, perhaps would, but it would depend on all the surrounding circumstances. I just do not think you can make a definitive answer to it.

Mr. O'LEARY. Mr. Lee, in your statement are you referring to Georgia Power's optional residential rate schedule for all electric homes, and does that mean that the customer who uses, say, a thousand kilowatt hours a month——

Mr. LEE. What I am referring to is two or three things in some of their rate schedules, one of which has come under fire from the Georgia commission, but the power company has not done anything about it, that if a customer will take electric heating, they will waive the demand charge not only on the heating but also on the air conditioning, and that means that the customer who has electric air conditioning would have to pay the full demand charge on his air conditioning if he had gas heat.

Mr. O'LEARY. Thank you, sir.

Senator HART. Mr. Chumbris.

Mr. CHUMBRIS. Mr. Chairman, thank you. I do not have any questions for the witness because of the time limitation. The Senator has a vote to make.

Mr. Chairman, before we close, I would like to remind the record that in the discussions of the economists who have testified before us,

particularly W. H. Collins and J. W. Wilson their statements have been reiterated here this morning; that another witness from the National Economic Research Associates, Joe D. Pace, senior economist, on May 13 did not get a chance to testify because of the shortness of time like we have today, but his statement was inserted in the record. And I remind the record that in his statement he reviews the comments of these other economists—B. M. Owen, J. H. Landon, P. C. Mann, J. W. Wilson, and W. H. Collins. And in trying to determine what is the best for the public interest, the readers of the record would review all of the statements of the economists in the record thus far and any other statements that might be submitted by individuals for the record, before the record closes.

Senator HART. Mr. Norman, did you care to add anything to our exchange?

Mr. NORMAN. I do not think so, Senator. I am here only to perhaps assist Mr. Lee in answering any questions but he has done that very well.

Senator HART. Mr. Lee, you anticipated most of the questions in the statement. We appreciate very much your testimony.

Mr. LEE. Thank you.

Mr. O'LEARY. Mr. Chairman, we would like to offer for the record, a memorandum from the Securities and Exchange Commission, a statement by Consumers Power Co., a study by Mrs. Regina Herzlinger, the subcommittee's letter to the Federal Power Commission asking for the update of the Herzlinger study, the Federal Power Commission's update of that study, a letter and attachment from Senator Metcalf, a letter from the Wyoming Public Service Commission, letters of May 10 and May 12, 1971, from the Washington Water Power Co., and a letter from Commissioner Hagen of the North Dakota Public Service Commission.

Senator HART. Without objection, they will be received and admitted.

(The documents referred to follow:)

MEMORANDUM PREPARED BY THE SECURITIES AND EXCHANGE COMMISSION ON S. 403 92D CONGRESS FOR THE SENATE COMMITTEE ON THE JUDICIARY

This memorandum is in response to a request from the Senate Committee on the Judiciary for our comments with respect to S. 403, which would amend the Federal Power Act. In substance this Bill is designed to eliminate combined ownership or control of gas and electric utility companies. It provides in Section 403 that after January 1, 1973, it shall be unlawful for any company to operate, under single ownership or control, facilities used for the generation, transmission or distribution of electric energy and the production and transmission or distribution of natural or manufactured gas for heat, light and power. The underlying policy is expressed in Section 401 of the Bill which states, among other things, that "it is in the national interest to promote interenergy competition between electric and gas wherever possible. . . ."

The combination of gas and electric utility properties under single ownership or control has been considered by this Commission in the course of its regulation of holding-company systems under the Public Utility Holding Company Act of 1935 ("Holding Company Act"). Section 11(b)(1) of the Holding Company Act empowers the Commission to require that each registered holding company system limit its operations to a single integrated public-utility system, defined in Section 2(a)(29) as encompassing either electric or retail gas utility facilities. Thus, under Section 11(b)(1), an electric utility holding-company system cannot retain gas utility properties unless it demonstrates, among other things, that such gas utility system "cannot be operated as an independent system

without the loss of substantial economies which can be secured by the retention of control by such holding company," and vice versa.

Over the years the Commission has ordered the separation of gas and electric utility systems under Section 11(b)(1) of the Holding Company Act.[1] In *The North American Company*, 18 SEC 611, 621 (1945), the Commission stated that it is "highly unrealistic" to expect "vital competition between the two types of service when controlled by the same interest." In a later decision with respect to *The North American Company*, the Commission refered to "the inevitable tendency of joint control over gas and electric businesses to stifle the natural competitive features of these enterprises by the favoring of that business in which the controlling company is most interested and which is most profitable" and "the substantial benefits which . . . accrue from healthy and aggressive competition between gas and electric systems." 32 SEC 169, 179–80 (1950)

In this context and in view of the mandate of Section 1(b)(4) to protect consumer interests through the elimination of the "restraint of free and independent competition" in transactions by subsidiary public utility companies, the Commission required, pursuant to Section 11(b)(1) of the Holding Company Act, New England Electric System, a registered holding company, to divest its gas utility properties. *New England Electric System*, Holding Company Act Release No. 15053 (March 19, 1964). In twice affirming such order, the Supreme Court emphasized the adverse factors inherent in the retention in one holding-company system of both gas and electric businesses. *SEC* v. *New England Electric System*, 390 U.S. 207 (1968) and *SEC* v. *New England Electric System*, 384 U.S. 176 (1966).

The combination of gas and electric properties under single ownership or control may also arise in the case of acquisitions which are subject to Section 10 of the Holding Company Act. This Section sets forth certain standards governing acquisitions. Among them is Section 10(c). Paragraph (1) provides that the Commission shall not approve an acquisition which is "detrimental to the carrying out of the provisions of Section 11" and paragraph (2) requires an affirmative finding that the proposed acquisition "will serve the public interest by tending towards the economical and efficient development of an integrated public-utility system." Thus, an integrated electric utility system cannot acquire gas utility facilities and, conversely, an integrated gas utility system cannot acquire electric utility facilities.

There are presently four registered holding companies which own and operate gas and electric facilities. In 1967 the Commission approved, under Section 10 of the Holding Company Act, the acquisition by American Electric Power Company, Inc., a registered holding company, of the common stock of Michigan Gas and Electric Company, a combination gas and electric company, but under a commitment that American Electric will dispose of the gas properties and retain only the electric properties of Michigan Gas. See Holding Company Act Release No. 15800 (July 24, 1967, p. 13). As of this date this commitment has not been fulfilled.

In 1966 the Commission approved the acquisition by Northeast Utilities, a registered holding company, of the common stocks of The Connecticut Light and Power Company and The Hartford Electric Light Company and Western Massachusetts Electric Company. Connecticut Light and Hartford hold both electric and gas facilities. The Commission found that the electric properties of the three companies constituted a single integrated electric utility system and stated that the status of the gas properties of Hartford and Connecticut Light would be "subject to determination in future proceedings" before the Commission. See Holding Company Act Release No. 15448 (April 13, 1966). Northeast Utilities has since announced its intention to dispose of the gas properties. Middle South Utilities, Inc. and Delmarva Power and Light Company, both registered holding companies, include gas and electric utilities, the retention of which has not been resolved under the standards of Section 11(b)(1).

In a recent decision the Commission approved a proposed acquisition by Middle South Utilities, Inc., a registered holding company, of the common and preferred stocks of Arkansas-Missouri Power Company, a non-associate electric

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[1] See, for example, *New England Electric System*, 41 SEC 888, 892 (1964), aff'd. *SEC* v. *New England Electric System*, 384 U.S. 176 (1966), 390 U.S. 207 (1968); *Columbia Gas and Electric Corp.*, 8 SEC 443, 462–63 (1941); *The United Gas Improvement Co.*, 9 SEC 52, 77–83 (1941); *The North American Co.*, 11 SEC 194, 215–16 (1942); *Philadelphia Co.*, 28 SEC 35 (1948), aff'd, *Philadelphia Co.* v. *SEC*, 177 F. 2d 720, 723 (C.A.D.C., 1949).

and gas utility company (Holding Company Act Release No. 17116, May 5, 1971). The Commission's order approving the proposed acquisition was subject to the condition, among other things, that the gas properties of Arkansas-Missouri be divested.

These decisions thus permit an electric utility system to acquire a combination company subject to the requirement that the gas properties be divested, and thus permit the integration of electric properties which meet the standards of Section 11(b)(1) and of Section 2(a)(29). S. 403 does not appear to provide such flexibility.

The standards of Section 10, which deal with acquisitions as distinguished from retentions under Section 11(b)(1), apply not only to acquisitions by a registered holding company but by a holding company exempt under Section 3(a) of the Holding Company Act. Recently the Commission has considered an application by Illinois Power Company, an exempt holding company, for approval of a proposed acquisition of the common stock of Central Illinois Public Service Company. Both companies are engaged in the electric and gas utility business within the State of Illinois. In its decision (Holding Company Act Release No. 16574, January 2, 1970, reaffirmed in Holding Company Act Release No. 17137, May 19, 1971), the Commission approved the proposed acquisition and a continuation of the existing exemption under Section 3(a)(1) of the Holding Company Act but on condition that the gas properties of both companies shall be divested. In imposing such condition the Commission referred to the Supreme Court decision in the case of New England Electric System, noted above, indicating that "the Supreme Court's statements in our view reflect an approach in interpretation of the Act in the area of competition between gas and electric companies . . ."

The prohibition against combined ownership and control of gas and electric utility companies in S. 403 is unqualified and precludes approval thereof under standards like those contained in Sections 10 and 11(b)(1) of the Holding Company Act. Section 404 of S. 403 grants to the Federal Power Commission authority to enforce the prohibitions specified in Section 403 by order and by appropriate action in the Federal district court. If the intent of S. 403 is not to supersede the Holding Company Act in this respect, the enactment of S. 403 would result in the Securities and Exchange Commission regulating retentions and acquisitions under the Holding Company Act and the Federal Power Commission exercising jurisdiction under S. 403 with respect to retentions and acquisitions not subject to the Holding Company Act.

In this connection we note that Section 318 of the Federal Power Act provides that when any person is subject both to the requirements of the Holding Company Act or a rule, regulation or order thereunder and to the requirements of the Federal Power Act "with respect to the same subject matter," the Holding Company Act shall prevail unless the Securities and Exchange Commission has exempted the transaction under the Holding Company Act. We do not read S. 403 as repealing Section 318 and do not believe it should do so. It is therefore necessary for the Congress in considering S. 403 to reconcile the Holding Company Act and the Federal Power Act with respect to the subject matter of S. 403 in order to avoid possible conflicts of jurisdiction between the two agencies or the application of different standards and procedures with regard to the subject matter with which S. 403 is concerned.

We believe that S. 403 should be expressly made inapplicable to companies subject to the Holding Company Act. We take no position whether or not the regulatory provisions of the Holding Company Act should be extended to combination gas and electric companies which are not subject to the Holding Company Act in any respect. We suggest only that if the Congress favors the adoption of the Bill, S. 403 should be amended to give the Federal Power Commission sufficient flexibility to permit divestment over reasonable periods of time.

In December of 1969 the Commission submitted to both Houses of the 91st Congress a draft bill which would transfer to the Federal Power Commission virtually all of the SEC's jurisdiction over public utility holding companies except its securities laws functions with respect to such companies. This bill was introduced as H.R. 15516 on January 22, 1970 but was not enacted. If such a bill were to be enacted by the Present Congress, it would eliminate the conflict between the two agencies. It would not, however, eliminate the conflict between the Holding Company Act and the Federal Power Act as proposed to be amended by S. 403, since Section 318 of the Federal Power Act is not affected by S. 403.

U.S. SENATE,
COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D.C., June 14, 1971.

Hon. PHILIP HART,
Chairman, Antitrust and Monopoly Subcommittee, Senate Judiciary Committee, Washington, D.C.

DEAR MR. CHAIRMAN: I would appreciate having the enclosed letter and column made part of the hearing record on S. 403, my divestiture bill.

Very truly yours,

LEE METCALF.

Enclosures.

U.S. SENATE,
COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D.C., June 14, 1971.

MR. DICK REWE,
Editorial Page Editor,
Post & Times Star,
Cincinnati, Ohio

DEAR MR. REWE: My attention has been called to a "Today's Business" column being circulated by "P.I.P.—Electric Companies Public Information Program." Headlined "Open Season On Utilities," the column was written by Bill Styles and appeared in the 13 May issue of your paper.

Inasmuch as Mr. Styles makes several factual errors in the course of commenting critically on legislation which I introduced, and which is now the subject of hearings by Senator Hart's Antitrust and Monopoly Subcommittee, I feel obliged to comment to you and, through you, I hope, your readers.

My bill, S. 403, would require combination gas-electric companies to dispose of one property or the other. The object is to inject competition into the monopolistic energy field. A number of gas companies support the bill. They apparently are not as fearful of free enterprise competition as are the combination gas-electric companies which have a comfortable double monopoly.

Mr. Styles quotes the president of Cincinnati Gas and Electric, B. John Yeager, as saying that "customers are already protected by State and Federal regulatory bodies." This is especially untrue in Ohio, where the Public Utility Commission has only appellate jurisdiction over rates in incorporated areas. Ohio is additionally unique in that it is the only State permitting a "reproduction cost new" rate base, which allows utilities to inflate the value of their plant far above its original cost. Neither the Federal Power Commission nor State commissions are now empowered to require divestiture of combination companies. That is why I introduced S. 403.

Mr. Styles writes that "he's (Metcalf) had shots at utility advertising expenditures, which he claims are more than they spend on research and development." These aren't my "claims." These are the facts as reported by utilities themselves to the Federal Power Commission. They spend eight times as much on advertising and sales promotion as they do on all R&D. In the case of Cincinnati Gas and Electric it's nine to one. Enclosed are the figures as reprinted from the FPC's annual statistical compilation.

Mr. Styles states that "when he (Metcalf) attacks their (utility companies') average 15 and 16 cents profit out of every revenue dollar they think he ought to take a public look at the more pertinent return on total investment which runs 3 to 4 percent." I have looked at return on total investment, again in the utilities' own reports to the FPC published this spring. I find that the only major investor-owned utility in Ohio with a rate of return on investment below five percent is Ohio Valley Electric Corporation. Unfortunately none of your readers can buy electricity from it because it sells power at wholesale only to 15 investor-owned utilities. I also note that the two Ohio utilities have a rate of return on investment of more than nine percent, and one of them is Cincinnati Gas and Electric (9.14%).

I suggest that your columnist would profit from familiarization with utility law and accounts.

Very truly yours,

LEE METCALF.

[From the Post & Times-Star, Cincinnati, May 13, 1971]

TODAY'S BUSINESS—OPEN SEASON ON UTILITIES

(By Bill Styles)

It's that time of year again when Sen. Lee Metcalf (D., Mont.) polishes up his gun collection and starts taking pot shots at the nation's utilities.

Last spring he zeroed in on what he called their inflationary profits, a well-used target of his. And he's had shots at utility advertising expenditures, which he claims are more than they spend on research and development.

But this year he has introduced a bill that would require the break-up of combined gas and electric companies into separate firms, one selling gas and one electric power.

What's more, the bill has reached the hearing stage before the Senate antitrust and monopoly subcommittee.

Its aim, according to Metcalf, is to foster competition and help keep down the cost of gas and electricity to the consumer.

Assuming the rather remote chance of passage of such a measure, it would have a drastic effect on Cincinnati, requiring Cincinnati Gas & Electric Co. to get out of either the gas business or the power business.

B. John Yeager, CG&E president, isn't down to any serious consideration of which one would go yet.

And while the company does have its general counsel on hand for the hearings, it is leaving testimony to the Edison Electric Institute, trade organization and spokesman for the electric utility industry.

Yeager notes "this has been brought up before."

"But what bothers us," he says, "is that it overlooks the fact that customers are already protected by state and federal regulatory bodies. The charge that with no competition you can't get protection of the customer is simply not true."

Utility men say Metcalf does too much shooting from the hip before he gets his facts straight. And they charge he's been doing this ever since a Montana utility supported his opposition in an election.

They protest that his recent charges they spend more on advertising than they do on research just don't check with the facts, particularly during the recent nuclear power experimental period.

And when he attacks their average 15 and 16 cents profit out of every revenue dollar they think he ought to take a public look at the more pertinent return on total investment which runs 3 to 4 per cent.

Yeager agrees that if a bill such as Metcalf's ever became law "we would have enormous practical and financial problems in trying to divest."

And he doesn't see where it would benefit the customer all that much.

As a matter of fact it very likely would cost the customer more, he adds. "We would have to have two management and administrative staffs, double accounting and advertising staffs and two of a lot of other functions that we now have combined."

As one man in the office, who has even been known to complain about his utility bills now and then, noted:

"After he (Metcalf) gets through splitting up the utilities, he might want to start on fruit stores. We could have one selling oranges, another just coconuts and another bananas."

THE WASHINGTON WATER POWER CO.,
ELECTRIC AND NATURAL GAS SERVICE,
Spokane, Wash., May 12, 1971.

Re S-403.

HON. PHILIP A. HART,
Chairman, Subcommittee on Antitrust and Monopoly, Judiciary Committee, U.S. Senate, Washington, D.C.

DEAR SENATOR HART: We would like to supplement and correct our letter of May 10, 1971 filed in opposition to S-403.

The statistics cited in our letter with respect to the number of customers served by The Washington Water Power Company referred only to residential customers. If commercial and industrial customers are included the following figures should be used.

In 1957 the company served approximately 144,000 electric customers. In 1970 it served approximately 167,000 electric customers and 53,000 gas customers.

Very truly yours,

GEORGE M. BRUNZELL, *President.*

THE WASHINGTON WATER POWER CO.,
ELECTRIC AND NATURAL GAS SERVICE,
Spokane, Wash., May 10, 1971.

Re S–403.
Hon. PHILIP A. HART,
Chairman, Subcommittee on Antitrust and Monopoly, Judiciary Committee, U.S. Senate, Washington, D.C.

DEAR SENATOR HART: The Washington Water Power Company, which provides both electric and natural gas services in Eastern Washington and Northern Idaho, is opposed to S–403 and makes the following statement for the record to be made at the hearing of May 11–13, 1971.

The Washington Water Power Company was formed in 1889 in the City of Spokane, Washington, for the purpose of providing electrical service to railroads and the community of Spokane Falls, later renamed Spokane. It gradually expanded its operations until today it operates electric generation, transmission and distribution facilities in a substantial portion of Eastern Washington, Northern Idaho, and also has a generating plant and a minor number of electric customers in Western Montana. At one time, it operated street car, bus and interurban facilities, but over the years disposed of these operations. In 1957, The Washington Water Power Company served approximately 125,000 electric customers and employed approximately 1,185 people.

The Spokane Natural Gas Company was originally formed in 1909 (then named the Spokane Gas & Fuel Co.) to provide manufactured gas to the downtown area of Spokane, Washington. From 1948 to 1956 it distributed butane-air gas. In 1956 natural gas was made available to Spokane. The former company was reorganized and renamed Spokane Natural Gas Company. In 1958, Spokane Natural Gas Company served natural gas to the City of Spokane, Spokane Valley, Medical Lake, Pullman, and Fairchild Air Force Base in Washington and Moscow, Idaho. Customers outside of Spokane were primarily industrial customers and colleges. Its principal officers were primarily people from the Southwest of the United States, some of whom were responsible for the engineering or construction of the pipeline to the Pacific Northwest. It endeavored to expand the service of natural gas in Spokane but, after two years, it ran into serious financial difficulties. In 1957, the last full year of its operation, Spokane Natural Gas Company had gross operating revenues of approximately $3,500,000. In 1957 it had a deficit in its operations of $797,000. Its accumulated deficit at the end of 1957 was $1,110,000 and its total capitalization was approximately $14,000,000. It served approximately 10,000 customers with about 97 employees.

The Washington Water Power Company, believing that the distribution of natural gas in this area would be an asset to the economic development of the community, early in 1958 offered to acquire Spokane Natural Gas Company. After public hearings before the Washington Public Service Commission, now the Washington Utilities and Transportation Commission, and the Idaho Public Utilities Commission, the merger of Spokane Natural Gas Company into The Washington Water Power Company was approved. The merger became final on June 2, 1958. In approving the merger, the Washington Public Service Commission found that the merger would reduce debt financing costs and would result in many operating economies. It further found that the economies would accrue to the benefit of the present and prospective customers of both companies and that the merger was in the public interest. The Idaho Public Utilities Commission, likewise, found that substantial savings could be made by merging the operations of the two companies, that many joint operations could be consolidated, that financing costs would be reduced, that service could be extended to areas in Idaho not then served, that the employees would be benefited and that the merger would be of great benefit to the communities served and those not yet receiving natural gas service. Both Commissions found the merger to be in the public interest after having held public hearings and having fully investigated all the facts in connection with the merger.

In the fall of 1958 Cascade Natural Gas Company, which operated gas facilities in a number of small communities in the State of Washington, also developed financial difficulties. It operated the gas system in the cities of Lewiston, Idaho and Clarkston, Washington where The Washington Water Company provided electric service. In order to help Cascade's financial condition and to consolidate the position of the company, The Washington Water Power Company agreed to purchase the Lewiston, Idaho and Clarkston, Washington facilities from Cascade Natural Gas Company. The purchase was consummated after a public hearing and approval by the Washington Public Service Commission and the Idaho Public Utilities Commission.

Since going into operation in the communities above described, the company has been able to expand the natural gas service into many communities not previously served with gas, which are provided with electric service by the company, and, in addition, into Bonners Ferry, Idaho, which supplies its own electric service through a municipal operation, and to Sandpoint, Idaho where electric service is provided by Pacific Power & Light Company, and to Wallace, Idaho served by Citizens' Utilities Company.

The company operates in an area that has a modest growth rate. The counties in which it operates had a population growth of 7.8% and a housing unit growth of 10.3% from 1960 to 1970, whereas the State of Washington had growth rates of 19.5% and 23.6%, respectively, and Idaho had growth rates of 6.8% and 13.0% respectively.

Spokane County, the principal population center served by the company and the third largest county in population in the State of Washington, had a population growth of 3.3% and a housing unit growth of 6.7% while King County, the largest county, had population growth of 23.7% and a housing unit growth of 27.8% and 29.7% and Snohomish, the fourth largest county, grew a whopping 54% and 56.5%. Ada County, Idaho, which is not in the company's service territory and which is the largest county in Idaho, had a population growth of 20.1% and a housing unit growth of 25.3%.

For this, and other reasons, direct comparisons with other companies are difficult, if not impossible. In any event, the savings predicted by the commissions and the benefits to the communities anticipated by both commissions in their orders were more than realized. By the end of 1959 the gas operations had moved from a deficit position into an earning position and within a short time thereafter the gas properties were earning a reasonable rate of return on investment. There have been three rate reductions in gas rates resulting in reductions in revenues applicable to such years as follows: 1964, approximately $544,000; 1967, approximately $220,000; 1968, approximately $22,000. Also, on the electric side the company has made five reductions in rates since 1960. There was an electric rate increase in 1960 to cover the impact of placing in service a new large generating plant, but since that date the company has made rate reductions resulting in reductions in revenue applicable to such years as follows: approximately $15,000 in 1964; 1967, approximately $525,000; 1968, approximately $410,000; 1969, approximately $430,000, and 1970, approximately $530,000. This contrasts sharply with the fact that all of the separate electric and gas companies in the Pacific Northwest have either recently had general rate increases or have applied for general rate increases while this company has increased its gas rates only to cover an increase in cost of purchased gas and has had no electric rate increase since 1960. Furthermore, no general rate increases are contemplated in the immediate future.

By combining administrative functions, meter reading, accounting, and several other services, the company has been able to operate more efficiently for the benefit of both electric and gas customers. In 1970, the company served approximately 146,999 electric customers and provided both of these services with about 1,099 employees (less than the number of employees in 1957 when the company was serving about 125,000 electric customers and was not providing natural gas distribution services).

If the company's natural gas facilities were owned and operated by another company, it is estimated that The Washington Water Power Company would require approximately 980 employees for electric operations, or a reduction of only about 115 from the present level of combined operations. However, the new natural gas company could not operate with less than about 245 employees, thus increasing the number of employees required to perform the same two services by about 130 or about 12%. In addition, both companies would be weaker financially. The gas operations, in particular, would have difficulty raising money at the capital costs presently enjoyed by the combined company. The exact amount, of course, would depend upon a number of conditions existing at the time separation was effected, including the terms of the separation, the interest rates at that time, and a number of other factors. Additional office space, garages, office machines, maintenance equipment and supplies would have to be provided in each of the communities served which would duplicate existing facilities. If substantial refinancing were required at present interest rates, the results would be disastrous to the customers presently served by the company and could make further expansion difficult if not impossible.

There is one thing that is certain about a separation and that is that an increase in rates to both electric and gas customers would be required, further jeopardizing the competitive position of both services with respect to competition

with oil, with publicly owned utilities and other non-regulated utilities. The distribution of natural gas is essentially a local service. The United States Government should not arbitrarily impose on states and local communities a financial burden which they have not asked for and do not want. The bill under consideration does exactly that.

We respectfully urge that S–403 is not in the public interest and should be rejected.

Very truly yours,

GEORGE M. BRUNZELL,
President and Chief Executive Officer.

PUBLIC SERVICE COMMISSION,
Bismarck, N. Dak., May 12, 1971.

Re S. 403, a bill to prohibit certain combinations and control between electric and gas utilities.

Hon. PHILIP A. HART,
Chairman, Senate Committee on the Judiciary, New Senate Office Building, Washington, D.C.

DEAR SENATOR HART: I am writing in support of S. 403. Although I realize there are advantages and disadvantages for the public in the operations of combination gas and electric companies, I believe the long range view should be that the gas and electric companies generally should be separated.

The problem simply stated is that there is a danger in the concentration of control of an industry that is already monopolistic. The control of the energy industry should not be vested in a few hands. The more diverse the control the better it is for a free democratic society.

Sincerely yours,

BRUCE HAGEN, *Commissioner.*

THE STATE OF WYOMING,
PUBLIC SERVICE COMMISSION,
Cheyenne, Wyo., May 7, 1971.

Re S. 403, a bill to prohibit certain combinations and control between electric and gas utilities.

DEAR SENATOR HART: The Wyoming Public Service Commission opposes the above captioned proposed legislation for the following reasons:

1. Combination companies owe their existence to the unique and special conditions in the areas in which they were authorized to provide utility service. In many cases the advantages of the combined company will outweigh whatever disadvantages may be apparent. Requiring a split of the combination gas and electric companies regardless of conditions of operation and requirements of the public served may create burdens and costs without any benefit to the public. The advantages and disadvantages are local matters for the state utility regulatory agencies to examine, weigh, and taken action as in necessary.

2. Sweeping federal preemption, as proposed by S. 403 is inappropriate since it does away with the examination of the operations of combination companies in relation to the specific local needs and conditions of the areas in which they provide service.

3. Splitting of the combination electric and gas companies at this time could be harmful to consumers because of the worsening energy shortage and current financing difficulties.

4. In Wyoming the economies arising out of the operation of the two Wyoming combination companies in the areas of key operating and management personnel, equipment, buildings and administrative expenses outweigh any benefits that may result from a split. The Commission stresses that combination companies cannot give preference to either the gas or electric activities and that there must be competition between the activities; so a split would accomplish only added costs and expenses.

5. In Wyoming the activities of combination gas and electric companies are separated for the important utility matters such as rate base, rate of return, and service.

We appreciate your consideration of this Commission's position in this matter.

Yours very truly,

WALTER W. HUDSON,
Chairman.

Subject: S–403.
To: Antitrust Subcommittee of the Senate Judiciary Committee.
From: Submitted by Consumers Power Co. in opposition to the bill.

Consumers Power Company sells electricity and gas and also steam for heating. Its service area includes 67 of the 68 counties in the Lower Peninsula of Michigan, with an electric service area of 27,400 square miles and a gas service area of nearly 12,800 square miles. As of December 31, 1970 the Company served over one million electric customers, 854,000 gas customers and more than 300 steam customers. As of the same date annual electric revenue totaled $334,900,000 and gas revenue totaled $273,870,000.

Electric sales in 1970 totaled 18.8 billion kWh, being a 96.9% increase over 1960 sales of 9.55 billion kWh. Residential electric sales in 1970 totaled 5.93 billion kWh, or an increase of 85.1% over 1960 residential sales of 3.2 billion kWh.

Total gas sales in 1970 were 310 billion cubic feet, being a 162.3% increase over 1960 gas sales of 118 billion cubic feet and residential gas sales totaled 138 billion cubic feet in 1970, or an increase of 122.5% over 1960 residential sales of 62 billion cubic feet.

The general argument which has been propounded by proponents of the bill against the continued existence of combination companies is that competition between gas and electric businesses has become intense and that a company really cannot compete against itself. Even in the most intense period of this "competition," Consumers Power Company, as the above growth figures indicate, has marketed both products vigorously and successfully. Further, although the sum total of the number of gas customers and electric customers served by the Company is approximately 1,937,000, only about 350,000 customers receive both gas and electric service from the Company. Most of our gas customers are located in an area served by another electric utility and most of our electric customers are in the service area of another gas utility.

The Company believes that being a combination utility is to the advantage of both the Company and the customer. We have a very thorough understanding of both businesses and we know the strengths and weaknesses of each form of energy in each proposed use by our customers. We can furnish information which will help the customer determine what is best for him.

Further, we believe that passage of S–403 would be contrary to the best interests of the customers of Consumers Power Company in particular and the public in general, and that such passage would accomplish no meaningful beneficial result.

Most of the proponents of separation of combination companies concede that there are built-in cost savings in combined operations. These savings are found in the fact of combined administrative staff, a single accounting and billing and collection operation, joint use of headquarters and service buildings, and economies in meter reading. These economies are being realized by Consumers Power Company and separation of the gas and electric departments would add substantially to the costs of such operations.

Further, the procedure of divestment would cause substantial additional initial and annual costs which would be incurred in the organization of a separate company. For example, the capitalization of a gas company to acquire Consumers Power Company's gas plant and properties having a depreciated original cost of more than $500,000,000 would require the issuance of substantial amounts of new capital, in the forms of First Mortgage bonds and preferred and common stock. In today's money market new gas bonds of a straight gas company would require an interest cost of more than 8% and a similar dividend rate on preferred stock. On typical capitalization ratios of straight gas companyies, a rate of return on plant of more than 9½% would be required to provide a fair rate of return. This compares to the Company's most recently (1969) authorized rate of return of 7.15% and current required rate of return of 8%. Clearly, such increases in cost would be borne by the ultimate user of gas service and cannot be in the public interest when the alternative of continuing the present combination company is readily available.

In addition, the rapid growth experienced since World War II is being moderated by the present shortness in supply of both electricity and gas. This very situation alone would make the generalization of public policy stated in Section 401 of the bill inappropriate. We in Michigan are operating under gas sales restrictions in view of the national shortage of natural gas. Furthermore, matters of environmental delays and other problems in bringing electric generating

capacity into service have caused serious concern over our ability to meet normal electric growth requirements. Coupled with these problems of energy shortage are rapid increases in costs (including labor, materials, purchased gas and coal, and escalating interest costs), making this a very inappropriate time to consider a divestment procedure which would significantly increase the cost of service.

Aside from these so-called "onetime" or "short-term" disadvantages, critics of combination companies point to an alleged disinterest of combination utility managements in such matters as gas supply and gas industry activities, including cooperative research and promotional programs. Consumers Power has actively been a member of both the Edison Electric Institute and American Gas Association for many years. In gas matters the Company is actively engaged in research in pipeline efficiency, compressor station design and system planning, engineering and operation. It is conducting further research in matters of transmission control and dispatching and underground gas storage. Research performed outside the Company includes support of American Gas Association's Project Target (respecting the development of fuel cells) and contributions to the Institute of Gas Technology.

Most recently, in an effort to increase available gas supply, the Company has announced its intention to construct a reforming plant to produce natural gas from natural gas liquids looking toward a 20% increase in daily gas supply by 1974. Looking toward increasing gas supply on a longer range, the Company, through a subsidiary, is engaged in exploration for gas in Northern Michigan, Louisiana and Texas and is also associated with others in purchasing and developing leases in offshore Louisiana.

In the electric department the Company has been in the forefront of the development of nuclear power, including the design, fabrication and use of high power density fuels. Further, research is conducted in transmission, system planning, engineering and operation. The Company is supporting research activities of the Edison Electric Institute including plutonium recycle research and development and is participating in a fast breeder reactor development program. Extensive studies are under way with respect to the Great Lakes environment and in the area of air and water quality.

Activities such as these hardly justify characterization of either one of our operations as a "stepchild" of the other.

Moreover, the competitive activities of public utilities in Michigan are regulated by the Michigan Public Service Commission. For example, in 1967 the Michigan Public Service Commission investigated the promotional practices of electric and gas public utilities in Case U–2756 and issued orders restricting promotional practices by companies serving gas and/or electricity. The local regulation of competitive activities of utilities, whether in Michigan or elsewhere, is the existing appropriate substitute for the competition called for by proponents of this bill, and because of such local regulation as well as existing promotion, it cannot be assumed that passage of the bill would produce any meaningful result insofar as promoting competition is concerned. As a matter of fact, the high costs attendant to divestment would almost assuredly place one form of energy in a less favorable position to the other than now exists.

Finally, if S–403 should be passed, in spite of the adverse results which it would achieve, combination utilities companies and stockholders of gas and electric companies would be faced with a number of statutory ambiguities. For example, does ownership of stock in a gas and in an electric company by a minority stockholder constitute a violation of the act because he exercises some "control" when he votes for the board of directors? Also, would the act permit distribution of the stock of a new gas or electric company to the stockholders of the combination utility from which such business is being separated?

In short, as demonstrated by Consumers Power Company's performance, the supposed advantages of divestment are illusory. Moreover in any event this is not a time in our economic life to consider such a divestment. The matter of recapitalization or refinancing at today's high money cost makes divestment impractical and this is particularly true in view of the time requirement of January 1973, stated in S–403. We are in a period of shortage of all forms of energy and a period of cost increases and inflation which would make divestment an unfair burden for both the combination companies and their customers.

In view of the facts, the policy objectives of S–403 are not warranted.

Respectfully submitted.

W. R. Boris,
Vice President, Finance.

STATEMENT BY THE HONORABLE JOHN B. CHITTICK, CITY COUNCILLOR OF FITCHBURG, MASS.

Mr. Chairman and Members of the Subcommittee: I appreciate having this opportunity to submit a statement in support of S. 403, legislation which would require the dissolution of combination gas and electric companies.

I believe my experience in trying to bring the attention of the public to the increased rates and poor service engendered by gas and electric monopolies will be of interest to the subcommittee.

Presently, because of public protest and concern, the Massachusetts Department of Public Utilities is engaged in an investigation of charges made against the Fitchburg Gas and Electric Company at a hearing in June.

As the representative of the people of that hearing, I presented the following testimony which I respectfully request be made a part of the record of these important hearings.

The issue and the problem is larger than Fitchburg, Massachusetts, but I believe attention should be given to the effects of gas and electric monopolies on middle size cities, such as Fitchburg with its population of about 50,000.

With no competition, and therefore no incentive to offer better service and lower rates, the monopoly has a stranglehold on the taxpayers of Fitchburg. We have been fighting this for a long time, and it is encouraging that the Senate has initiated action on legislation which could be of help to consumers across this nation.

STATEMENT OF CITY COUNCILLOR JOHN B. CHITTICK, DELIVERED ON JUNE 15, BEFORE THE MASSACHUSETTS DEPARTMENT OF PUBLIC UTILITIES' INVESTIGATION OF THE FITCHBURG GAS & ELECTRIC CO.

I am here today as spokesman and Counsel for many concerned and upset Consumers of the Fitchburg Gas & Electric Company. In early January it was evident to all in the city that we as customers had reached the breaking point with this Gas & Electric monopoly. Now it is June 15, and we are here before you—asking for relief from an intolerable situation.

While we are prepared to present the people's complaints, we are without legal counsel due to lack of finances, and are just individuals, relying on the Massachusetts Department of Public Utilities for your expertise and help. We have received no co-operation from this Company despite public promises of information and explanation, made as early as February 10th.

We have been waiting for the D.P.U. to help us as promised and yet have found little assistance forth coming. As a result we have been forced to subpoena the books and records of this Public Utility.

In order for the Consumers to argue an intelligent case about rates and overestimated bills, we require this information. Unfortunately we have been promised much during the last six months and have been delivered little.

This whole controvery has pointed up the serious problem of how very difficult it is for the consumers to get the legal and financial assistance necessary to fight a gas and electric monopoly in this State. We have discovered that unless we could raise $10,000 to $20,000 for an investigation of the rates, of plant efficiency, and of the company management, that there is little that we as individuals can do.

It seems that the Massachusetts Consumers' Council is right when it says that it is the consumers in this state that are regulated and not the utilities. This is a sad situation.

We, as customers, are upset with the fact that it seems apparent that Fitchburg Gas & Electric Light Co. consumers are paying some of the highest bills in the nation.

According to the 1966 survey of electric rates in the country by the Federal Power Commission, it was reported Fitchburg consumers paid the highest electric rates outside of Alaska, Hawaii and the northern tip of Maine. The national average for 250 KWH was $7.34. The Massachusetts average was $8.77. Yet Fitchburg paid $9.96 for every 250 KWHs.

According to the 1969 Federal Power Commission Survey of electric rates, New England "ranked highest in the 250 KWH category." The average New England bill for 250 KWHs was $8.38. Yet once again Fitchburg consumers paid the highest electric rates—$9.91 for every 250 KWHs.

As consumers we do not agree that this is a reasonable rate distinction. We do not feel that these high rates can be justified with the comment "Well, somebody has to pay the highest bills."

Fitchburg is not a rich city. It is not a wealthy suburban community that has residents that can absorb such high costs. We have one of the highest unemployment rates in the state—now above 10%. Many of our residents are living on strict and fixed incomes.

Yet a resident of the neighboring community of Leominster is paying 26% less for electricity than his Fitchburg counterpart. Is this right?

In their Annual Report—Fitchburg Gas & Electric Light Co. reports that the average residential customer uses about 4200 KWHs annually.

Based on this month's June rate and fuel adjustment—an adjustment, incidentally, which is not as high as it has been during the colder months,—the average Fitchburg consumer is thus paying $14.95 per month—while his friend in Leominster is paying a sum of $11.90—or 25.6% less. Over a period of one year that represents a difference of $36.60! Yet all Mr. Masiello of the Massachusetts Department of Public Utilities could say in a public meeting to this startling difference was "Big Deal. I don't recall the outlandish!"

As consumers, we are upset by the fact that we have had almost every month, successive monthly fuel adjustment increases, beginning last September 1970.

As consumers, we are disappointed that this company can call itself a "public utility" and yet show more concern for the profits of its stockholders than of its hard-pressed customers, who are not free to take their business elsewhere.

But is the Fitchburg Gas & Electric Co. to blame?

Perhaps a quick review of some of the more outstanding complaints, will enlighten us as to their true public interest and civic code of ethics.

(1) Does the Department of Public Utilities know that in Fitchburg you can have your electricity shut off without proper notice?

Just ask Mrs. Mary Asselta in Whalom or John DeLeo of 206 Summer Street, and there are other names on record.

(2) Did you know that you can be threatened with punitive action unless the disputed bill is paid immediately and in full?

Just ask Ralph Fortin of 116 Mt. Vernon Street and Mr. and Mrs. Robert Isabelle of the Rendezvous Restaurant and 100 Franklin Road and Mrs. Paul Cassinari of 9 Williams Street and there are other names on record.

(3) Did you know that in Fitchburg you might be physically assaulted if the disputed bill is not paid up?

Just ask Mrs. Francis Haumann of 370 Daniels Street and there are other names on record.

(4) Did you know that as a consumer, you have no recourse when the legal contractis not honored by this company?

Just ask Arthur Lammi of 351 High Rock Road and Amos L. Smith of 40 Ray Ave. and there are other names on record.

(5) Did you know that as an elderly person, you can be forced to close off two of the four rooms in your apartment and sleep in the kitchen so you won't have your heat turned off in the middle of a cold winter?

Just ask Mrs. Wilko Jasbert and her husband of 223 Mechanic St. and there are other names on record.

(6) Did you know that you can be promised certain estimates for annual heating by salesmen and company advertisements when installing electric heat, only to find after three months that you've paid what they said would be your annual cost?

Just ask Dr. Frederick Mansour of 396 Whalom Road and Edward Popoli of Lunenburg and there are other names on record.

(7) Did you know that industries are not settling in Fitchburg because of its high electric rates?

Just ask former chairman of the Industrial Development Commission, Bernard Ward—470 Main Street, and Katherine Shaef of the Worcester Telegram.

(8) Did you know that you can use substanically less KWHs of electricity one month and yet pay more than the previous one under this Co.'s billing procedures.

Ask Mrs. Rebecca Wolfgang of 1036 Mass Ave. in Lunenburg.

(9) Did you know that you must pay almost 47% more for electricity if you do not have a company-installed water heater in your home.

Just ask Lionell L'Abbe of 270 Franklin Road and there are other names on record.

(10) Did you know that people of social and financial prominence in this city are given preferential treatment by this public utility?

Just ask the officers of this Company. Their names are on record.

(11) And did you know that this Company makes empty promises to the city Council and consumers of this city and yet never needs to honor them?

Just ask President Howard Evirs of the Fitchburg Gas & Electric Light Company.

As individual consumers, we are faced with a serious dilemma. We are being unduly hurt economically in this community by having to pay the highest bills in New England and perhaps in the entire country.

We initiated petitions under Massachusetts General Laws 164, Section 93, to ask the D.P.U. to hold a hearing and to help us get to the bottom of this mess. Yet we find that we are thwarted in our efforts by being denied the very information needed by us.

We know that Fitchburg Gas and Electric Light Co. is not acting in the public interest by these repeated cases of overcharges, poor service and company arrogance.

W want the D.P.U. to help us, the consumer, to find alternate source of power. We cannot economically continue to do business with a Company such as this.

We would like to demand at this time that the D.P.U. order the Fitchburg Gas & Electric Light Company to divest itself of its electrical service, so that we may be able to have a larger power company serve us at more economical and competitive rates.

If the Department cannot help us in this regard, then we ask that you help us, the consumers, to initiate action to make this a municipally owned and operated company, so that we will be eligible for cheaper fuel costs at a more competitive level with our neighbors.

AMERICAN GAS ASSOCIATION, INC.,
Arlington, Va., May 21, 1971.

Senator PHILIP A. HART,
Chairman, Antitrust and Monopoly Subcommittee, U.S. Senate, Old Senate Office Building, Washington, D.C.

DEAR SENATOR HART: It has come to our attention that in testimony before the Senate Antitrust and Monopoly Subcommitee during hearings on S. 403, Senator Lee Metcalf stated that at one time the executive vice president of the American Gas Association had stated that many members of A.G.A. would support legislation requiring separation of combination gas and electric utilities.

As we have indicated in a letter to Senator Metcalf, a copy of which is attached, the testimony to which Senator Metcalf apparently was referring was not made by an officer of the American Gas Association. The statement in question was the opinion of one individual company executive.

We would appreciate having the record of the hearings on S. 403 corrected to reflect the true nature of the remarks in question and hope this correspondence will serve that purpose.

Very truly yours,

GEORGE H. LAWRENCE.

Attachment.

AMERICAN GAS ASSOCIATION, INC.,
Arlington, Va., May 20, 1971.

Senator LEE METCALF,
U.S. Senate,
Old Senate Office Building,
Washington, D.C.

DEAR SENATOR METCALF: It has come to our attention that in your testimony bofore the Senate Judiciary Antitrust and Monopoly Subcommittee hearings on S. 403 you stated that "during hearings on S. 607 . . . the then executive vice president of the American Gas Association told me that quite a few members of A.G.A. would support a bill (such as 403)." We assume you were referring to the remarks of Mr. William J. Crowley, who testified in opposition to S. 607 on behalf of the American Gas Association.

Although Mr. Crowley was a director of the American Gas Association, he was not and never has been an officer of A.G.A. At the time he testified on S. 607, he was Executive Vice President of the Northern Illinois Gas Company, Aurora, Illinois, which serves the suburban Chicago area. It was in his capacity as an officer of that company, and drawing on his prior experience as an executive of an Illinois electric company, that his remarks relating to divestiture were made on cross examination by you.

Thus, Mr. Crowley is not and was not executive vice president of A.G.A. Actually, Mr. Crowley has retired as an official of Northern Illinois Gas Company and at present is serving as Chairman of the Postal Rate Commission here in Washington. It is hoped that the sending of a copy of this letter to the Chairman of the Senate Antitrust and Monopoly Subcommittee will be sufficient to correct the record in the hearings on S. 403. We would appreciate, however, any steps you might take to see that appropriate corrections are made.

Sincerely,

GEORGE LAWRENCE.

ILLINOIS COMMERCE COMMISSION,
Springfield, Ill., May 21, 1971.

Re S. 403, a bill to prohibit certain combinations and control between electric and gas companies.

Hon. PHILIP A. HART,
Senate Building,
Washington, D.C.

DEAR SENATOR HART: In Illinois we have all combinations of utilities. Commonwealth Edison Company is a large single purpose utility company providing electric service in the City of Chicago and the major portion of northern one-third of the State. Edison is in competition with three (3) large, single purpose, gas utilities, The Peoples Gas Light and Coke Company, North Shore Gas Company and Northern Illinois Gas Company. We have five (5) large combination electric and gas companies serving major portions of the southern two-thirds of the State. In some communities one combination company provides one utility service while another combination company, or a single service utility company, provides the other utility service. We have two (2) small single purpose electric utility companies, nine (9) small to medium sized single purpose gas companies, three (3) small combination utility companies and approximately seventy (70) municipal utilities, a few of which provide combination utility service.

In addition we experienced the transition of a large combination company into two single purpose utility companies. Three combination companies, Public Service Company of Northern Illinois, Western United Gas and Electric Company, Illinois Northern Utilities Company and Commonwealth Edison Company, a single purpose utility company, merged into Commonwealth Edison Company, a combination utility. In 1953, Commonwealth Edison Company "spun off" its gas properties to form Northern Illinois Gas Company. We believe we have experienced the full range of problems that could occur with respect to combination utility's and single utility's operations.

No matter which organizational structure is followed, combination or single purpose utility, each has its own set of problems. The combination utility management can promote one service over the other. The single purpose utility can compete so furiously that the effect of competition results in practices not in the public interest. We have had both cases occur. Our Public Utilities Act, however, provides this Commission with more than sufficient authority to adequately deal with the problems to hold utility activities within reasonable bounds. To legislate away one form of organization for another, as proposed by S 403, merely changes the nature of the problems.

There are a number of obvious advantages of combination utility service. There is a saving in cost of providing service since only one meter reader is required to walk the town instead of two, since only one computer is needed and only one computer run is required for billing the customers instead of two, since only one set of top management and personnel for specific departments (such as customer credit and collection) are needed instead of two. In some cases because of the greater work load of a combination utility, one serviceman can be assigned to a single community where only a part time serviceman would be assigned in the same community by a single purpose utility. A serviceman stationed within the community can provide service faster than one who has to come from another town. Quick response means safer service for the customer. A combination utility provides convenience for the customer since he is not required to deal with two utilities.

There are also obvious disadvantages of combination utility service. If a customer has difficulty paying his bill promptly, both of his services may be subject to discontinuance for nonpayment rather than one. Credit deposits, if required, would be for neither service or for both services, whereas for the two, single service utilities, service deposits would be required for neither, one or for both

services. If the personnel have a "take it or leave it" attitude toward the public, the problem affects both services. In the long run, however, the probabilities of greater customer difficulty from one combination utility is no greater than for two single service utilities. This Commission, like most State Commissions, has authority to deal with such problems to find reasonable solutions.

As previously mentioned, when Edison "spun off" its gas properties to form Northern Illinois Gas Company, fierce competition resulted between the two for the consumers' energy business. This same fierce competition existed between Edison and Peoples Gas. Buying business became a way of life with each trying to outbid the other. Merits of the form of energy being sold became secondary to decisions, and decisions to use one or the other source of energy was being made by persons other than the user. It became necessary for this Commission to enter a General Order forbidding some types of promotional practices and limiting others.

Since problems occur whether the utility is a combination company or two competing utility companies, the State Commission is in a position to be fully aware of the activities of the companies by reason of the complaints filed with the Commission by consumers and by reason of investigations made from time to time by the Commission staff. We agree with the position of the officers of the NARUC that the problems raised should receive individual consideration as to their unique features in the light of local conditions. Judgments made as to whether the continuation of the problem is contrary to the public interest has been, can be, and should continue to be with the local State regulatory authority. Accordingly, sweeping preemption as proposed by S 403 is inappropriate in this area and any proposal to change the organization of utility companies should continue to be reserved for decisions by the States.

Sincerely yours,

HAROLD E. SHUTT,
Chief Gas and Electrical Engineer.

PENNSYLVANIA PETROLEUM ASSOCIATION,
Harrisburg, Pa., July 7, 1971.

Hon. PHILIP A. HART,
Chairman, Subcommittee on Antitrust and Monopoly Committee on the Judiciary, Old Senate Office Building, Washington, D.C.

DEAR SENATOR HART: The membership of the Pennsylvania Petroleum Association, consisting of over four hundred independent oil jobbers, wishes to express its wholehearted support of the statement made before your committee on June 16, 1971 by Robert Greenes for the National Oil Jobbers Council supporting Senate Bill 403.

The reason for this letter supporting UOJC's position, is the statement made by Robert D. Lynch, a National Oil Fuel Institute Vice-President, which appeared in the June 28, 1971 "National Petroleum News Bulletin". In his statement he takes a stand completely opposite to the one made to your committee by Mr. Greenes. The Pennsylvania Petroleum Association feels that your committee might possibly learn of Mr. Lynch's statement and wonder why two national organizations that supposedly represent oil jobbers would take views on this issue. Knowledge of the makeup of each of these groups will possibly help your committee understand why they would take opposing views.

The National Oil Jobbers Council is supported financially 100% by independent oil jobbers and the National Oil Jobbers Council Board of Directors consists 100% of independent oil jobbers. The National Oil Fuel Institute is supported financially almost 100% by the refiners. The balance of the funding comes from equipment manufacturers. Its Board of Directors consists of refiner people, equipment manufacturers and jobbers. Incidentally, the Pennsylvania Petroleum Association is an affiliate of both these national organizations.

We wish to commend you and your committee for the fine work that you have done and are doing in behalf of the small businessmen in our nation.

Sincerely,

DONALD K. HOLTZMAN, *President.*

HUNTON, WILLIAMS, GAY, POWELL & GIBSON,
Richmond, Va., August 27, 1971.

Hon. PHILIP A. HART,
Senate Office Building,
Washington, D.C.

DEAR SENATOR HART: You have kindly kept the record of hearings on S. 403 open until September 1, 1971, so that it might include, for the benefit of the Committee and others, the analysis then being made by National Economic Research Associates, Inc. (NERA). We believe this study is the first statistical evaluation of all the relevant facts and will therefore constitute a milestone in the literature on this subject. It is a pleasure to enclose six copies of the statement of Joe D. Pace, Senior Economist at NERA, dated August 27, 1971, which summarizes the conclusions.

S. 403 raises the issue whether combination companies supplying both electricity and gas should be separated into single service companies supplying either electricity or gas but not both. From the mere fact that consumption of electricity per residence is lower in areas served by combination companies, and the average rate per kilowatt hour is greater. Witnesses Collins, Willis and Herzlinger infer that combination company performance is demonstrably poorer. Other witnesses, such as Ross and Freedman, rely in large measure on this conclusion to support their further opinion that both gas and electric consumers would be better off after such divestiture. Indeed this was the only consumer benefit from divestiture advanced in all the hearings as an offset to the enormous financial burden that both electric and gas customers would have to bear in the increased capital and operating costs necessarily resulting from such divestiture. The NERA study, however, demonstrates that this asserted benefit is altogether illusory.

The basic question raised by such testimony is perfectly clear and factual. It is whether the lower consumption and higher rates are due to service by combination companies as such or to other factors. This question is not to be decided by assumptions or by fragmentary data. The approved statistical procedure is to assemble all the relevant data and explore their correlation with the significant variables. The NERA study does exactly this by a comprehensive statistical review. It takes into account all components of the industry, by reviewing all investor-owned electric utilities in the contiguous United States and all major cities served by such companies. It then faces up directly to the two basic questions: first, what is the realistic explanation for the differences in use patterns; and second, what is the realistic explanation for the differences in revenue patterns?

The study indicates that as much as 70% of the differences in patterns of use may be explained by demographic factors, such as population density, prevalence of low rent apartments and the effect of climate on air conditioning demands. Revenue differences are, as might be expected, associated not only with demographic factors, but also with underlying cost differences. Specifically, the NERA study reveals that 10 demographic, locational and cost factors explain 68% of all the variations in average residential electric revenue (Part III of the enclosed statement and Table 7).

Having identified these affirmative correlations, the NERA study next inquires what, if any, correlation may exist between average residential electric revenue and service by combination companies. Here again the facts control. They show that combination company performance does not differ substantially from single service electric utility performance:

". . . differences existing between combination companies and single service electric utilities are explained largely by variations in the geographic, demographic and cost conditions faced, rather than by whether or not a given utility controls both gas and electricity operations. The contention that the average residential customer is adversely affected simply because he is served by a combination utility cannot be accepted." (pp. 6–7)

These conclusions with regard to average residential electric revenues were corroborated by the NERA analysis of typical electric bills covering a fixed and equal quantity of electricity in the case of combination companies and in the case of single service electric companies.

Agreeing with other witnesses, Dr. Pace also states that while comparably detailed data are unavailable for analyzing gas operations, the limited data which are available indicate that combinationism is not an adverse factor.

In the light of these meticulous analyses, the facts do not support the earlier witnesses who postulate adverse consequences to either electric or gas consumers because they are served by combination companies. Quite to the contrary, the study concludes that:

"In plain language, this means that while demographic, geographic and underlying cost conditions very strongly affect the average residential electric revenue required, under current circumstances, it matters little, on average, whether a combination company or a single service electric utility renders service in a given community." (p. 55)

This invalidates the entire evidence in support of the bill. As the study concludes:

"Clearly, therefore, the hypothesis that combination companies have an adverse effect on electric bills for consumption levels applicable to the average customer must be rejected." (p. 62)

As Dr. Irwin M. Stelzer noted in his testimony before this Committee, and Dr. Pace repeats in the enclosed statement, one of the principal factors underlying this result is the effect of rate regulation. While this is often ignored in superficial antitrust analyses, it is increasingly apparent that regulation has been equally effective in safeguarding the public interest under both monopoly conditions (the combination company) and duopoly conditions (single service companies for either electricity or gas).

The earlier testimony of Frederick T. Searls and the earlier testimony and enclosed rebuttal testimony of Eugene W. Meyer, Vice President of Kidder, Peabody & Co., shows that enactment of S. 403 or any other legislation requiring divestiture of combination companies would immediately necessitate higher electric and gas rates for all affected consumers and result in severe dislocations of the securities markets for all utility securities. As against these obvious disadvantages, the record as now supplemented by the NERA study shows that (*a*) there would be no practical benefits whatever to the consuming public from the forced break-up of combination companies and (*b*) any support for forced break-up from classical economic theory would be a misapplication because of failure to recognize the existence and effect of rate regulation.

We would appreciate your having this letter and the two enclosures printed in the record of the hearings.

Respectfully yours,

GEORGE D. GIBSON.

Enclosures.

REBUTTAL STATEMENT OF EUGENE W. MEYER REGARDING U.S. SENATE BILL 403

Earlier in these hearings before the U.S. Senate Antitrust and Monopoly Subcommittee I testified concerning the financing problems that would be created by the enactment of U.S. Senate Bill 403. I appreciate this opportunity to reply to observations on this subject made by two subsequent witnesses, Mr. Solomon Freedman of the Securities and Exchange Commission and Mr. Robert H. Willis of Connecticut Natural Gas Corporation.

Mr. Freedman suggests that the tremendous financial problems that would be created by forced divestiture could be avoided if the Bill were amended to "contain provisions, similar to that embodied in Sections 11(d) and 11(e) of the Public Utilities Holding Company Act. . . ." In effect, this would mean arbitrarily splitting up a combination company's securities and handing existing security holders two pieces of paper instead of one. While this may be mechanically possible, in reality it would be extraordinarily unfair to investors because the combined value of the two new securities might in many instances be well below that of the single security they now hold.

The results would be substantially different from those resulting from Holding Company Act divestitures where the securities that were split up were usually those of the holding company, not those of the operating subsidiaries, many of which continued in existence virtually unchanged. In the forced divestiture of a combination company, on the other hand, the split-up of a single operating company would normally be involved. The split-up of operating companies, involving changes in management and the loss of economies of combined operations, would undoubtedly result in higher costs and lower earnings, at least

initially, for the two severed operating companies. Because of the crucial importance of earnings to fixed charges coverage and per share earnings growth, the market value of the two pieces of paper held by the investor after such a forced split up could very well be substantially less than the one security he held previously.

There is also another crucial difference between the situation existing when the Holding Company Act was passed and the situation existing today with regard to combination companies. By eliminating or controlling corporate pyramiding, by correcting abuses which had in some instances included the issuance of "watered" securities, and by strengthening management at the operating levels, the Holding Company Act helped to restore investor confidence in utility securities in the aftermath of the Great Depression. By contrast, today, none of those abuses exists or can exist in the face of effective State and Federal regulation. Consequently, there is no lack of investor confidence in the corporate structures of utilities today. Instead, the existing uncertainties are those resulting from general market conditions, inadequate rates due to repaid inflation and changing governmental policies.

Presently, utility companies of all kinds are recording rapidly declining coverage ratios, erratic earnings and high financing costs. Investors are dubious about regulation's willingness to permit rates of return necessary to maintain the financial integrity of the industry. These uncertainties have driven market prices down and, therefore, financing costs up. If new legislation ordering the split-up of 73 combination utility companies were to be passed, the uncertainty surrounding the utility securities markets would be further increased, resulting in substantially higher financing costs for *all* utilities. Far from restoring investor confidence in utility securities as did the Holding Company Act, a forced split of combination company securities would have exactly opposite results. Still another uncertainty for utility security markets would be created by virtue of the years of time required to exhaust all legal remedies before divestiture can be completed, witness the ongoing procedures in the cases of New England Electric System and El Paso Natural Gas.

Today, projected utility expenditures for new electric plant and gas exploration over the next five years are larger than ever before in history. Utility financing will account for well over 20% of new corporate financing during the next five years. The security markets which must provide this capital would be jeopardized by enactment of this proposed legislation, with or without the Holding Company Act provisions.

Mr. Robert H. Wills, in his prepared testimony, said that since an electric company could retain the cash paid by the newly formed gas properties, it could use these funds in lieu of new money from the market for future expansion. This, he continued, would mean lower rates to the electric customers to presumably offset higher rates to gas customers. But Mr. Willis' conclusion is wrong for several reasons.

Mr. Willis' basic assumption that the surviving electric company could retain the cash paid by the newly formed gas company and use it for future expansion is wrong. An investigation of the available indentures of a number (21) of the larger combination companies indicates that over half of the companies have provisions which restrict their use of these proceeds to some degree. All or part of the proceeds, under specified conditions, must be applied to the redemption of the company's outstanding bonds within specified periods of time. It is abundantly clear that many companies do not have the very rapid growth rate required to achieve new investment in time to avoid these restrictions, thereby voiding Mr. Willis' assumption for, at least, a large segment of the industry.

But even in those situations where the cash receipts from divestiture could, under the terms of the indentures, be retained by trustees for take-down by the Company against future property additions, these funds could usually be invested only in short-term Government securities. These investments would provide earnings lower than those generated by the utility properties in which the funds were previously invested. This decrease in earnings would lower the surviving company's coverage ratios, a prob'em which is already too serious in the utility industry.

And there is yet another flaw in Mr. Willis' generalization. There are many areas through the country where customers receive one service from a combination company and the other service from a straight company. I live in Morristown, New Jersey where my electricity is provided by Jersey Central Power and Light, a subsidiary of General Public Utilities, a straight electric company.

On the other hand, my gas service is provided by Public Service Electric and Gas, which is a combination company. Mr. Willis did not deny that gas rates would go up under the provisions of S403 but alleges that this would be offset by lower electric rates. I doubt very seriously that Jersey Central would reduce my electric rates just because my gas rates were increased as the result of a Public Service Electric and Gas divestiture. Careful analysis will show that hundreds of thousands of customers would be similarly affected by S403.

For all of these reasons, it is impossible in the abstract to determine whether electric rates would be higher or lower as a result of S403. Once again, the evidence favors a consideration of each combination company based on its own particular situation rather than any new industry-wide legislation.

Mr. Willis, in his prepared testimony, indicates that I used a "straw man" based on a particular set of adverse money market conditions in arriving at my conclusions. May I point out that every care was taken to use only money market conditions and assumptions which pertain to today's business world. Mr. Willis, on the other hand, prognosticates that today's high senior money costs will decline and "reach a moderate level with which we all must live for the future." Furthermore, he states that S403 "would have no adverse effect on rate payers if spin-offs are accomplished under optimum money market conditions."

I submit that the "moderate level" for senior money costs is neither defined nor substantiated. "Optimum money market conditions" are likewise not defined or substantiated. The Senate should not be asked to rely on long-term money market prognostications in its deliberations concerning the propriety of restructuring an entire industry. As Mr. Willis stated in his testimony, "the cost of securities in the money markets varies from day to day, week to week, and year to year." But this ignores the undeniable fact that the long-term trend of interest rates has been *upward* since World War II.

STATEMENT OF JOE D. PACE, SENIOR ECONOMIST, NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.

SUMMARY

My name is Joe D. Pace. I am employed as a Senior Economist by National Economic Research Associates, Inc., a firm of consulting economists located at 80 Broad Street in New York City. On May 13 of this year, I presented testimony to this Subcommittee discussing past statistical studies of combination company performance relative to the performance of single service gas and electric utilities. In that testimony, I noted that while past studies agree that annual electricity use per residential customer is lower in areas served by combination companies, they have failed to probe deeply enough into possible relationships between this occurrence and various geographic or demographic factors which may differentially characterize the service areas of single service electric utilities as opposed to those of combination companies. I noted further that given the step-down nature of electric utility tariffs, all else being equal, a lower level of kilowatt-hour consumption per customer will be associated inevitably with a higher level of average revenue received per kilowatt-hour sold. It follows, therefore, that if the price of electricity is measured by average electric revenue, it is essential that variation in kilowatt-hour consumption per customer and the reasons underlying that variation be taken into account before any performance conclusions can be drawn.

As an alternative, of course, the investigator may choose a measure of electricity rates which is not as highly sensitive to variations in kilowatt-hour consumption per customer. The Federal Power Commission's *Typical Electric Bills* which calculates for all major cities the amount one must pay monthly for a *fixed level of electricity consumption* provides the source for such a price measure.[1]

In this statement, I present the results of an exhaustive statistical study of the residential electricity market in which both possible avenues of investigation were pursued. First, average electric revenue was used as the price measure with geographic and demographic factors which appear to contribute significantly to usage variation taken into account; and secondly, as a cross-check on the average revenue results, typical residential electric bills for various levels of kilowatt-hour consumption per month were used as price measures.

[1] This publication gives for each city the monthly electric bills for 100, 500, 750 and 1,000 kilowatt-hours of residential consumption as well as a number of commercial and industrial bills.

The main body of my statement is divided into three sections, followed by an appendix giving technical details. In Section I, the Combination Company Setting, a number of comparisons and contrasts between combination companies and single service electric utilities and the large urbanized areas served by each group are presented. Briefly, the following are the findings in that section: (1) distinctive geographic clustering of combination companies and of single service electric utilities is apparent—combination companies dominate in the States of New York, Wsconsin, Iowa and Illinois, while single service electric utilities are heavily concentrated in the Southeast and South Central regions of the country; (2) the fuel costs and state and local tax burdens faced by combination companies are substantially greater than those confronted by single service electric utilities; (3) single service electric utility systems, on average, are significantly larger than combination utility systems; (4) the urban areas served by combination companies tend to be larger, more densely populated and characterized by more apartment units than do single service electric utility areas; and (5) because of locational differences, the potential demand for air conditioning is much greater in areas served by single service electric utilities. Given these facts, it is not surprising to find also that residential electricity rates are higher and annual electricity consumption per residential customer is lower in areas served by combination companies. Whether the geographic and demographic conditions explain all or only a small part of the observed usage and rate differences between combination companies and single service electric utilities is the question addressed in Sections II and III of my statement.

Section II, the Framework of the Study, begins with a description of the basic statistical technique utilized to determine whether performance differences or variations in underlying demographic, locational and cost conditions explain the observed rate and usage differentials between combination companies and single service electric utilities. An example of how perverse statistical results can be obtained by ignoring important factors also is given here. This is followed by an outline of the statistical model employed, including a description of the factors to be taken into account and their logical relationship to variations in residential electricity rates and usage.

Section III of my statement is Results and Conclusions. In the first part of that section, I show that four demographic factors and two locational factors may explain almost three-quarters of all variation in annual electricity consumption per residential customer. Chief among the important factors are the population density of the area served, the prevalence of low rent apartments and the potential demand for air conditioning.

In part two of Section III, the results of analyzing variations in average residential electric revenue are presented. Factors taken into account in this analysis include the six demographic and locational variables identified in part one as potentially significant influences on electricity consumption per customer as well as a number of cost determining conditions. The finding here is that 10 highly significant demographic, locational and cost factors explain 68 per cent of all variation in average residential electric revenue. The significant cost factors prove to be state and local tax burdens, system size, the importance of hydroelectric generation, purchased power as a per cent of total sales and the overall degree of urbanization characterizing each utility's service territory. The hypothesis that combination company performance differs systematically from single service electric utility performance is then tested. The average revenue results indicate that the contention that combination companies adversely affect the average residential customer clearly must be rejected. An exploration of some of the reasons why my statistical study reaches a conclusion different from that of several other investigators reveals as crucial differences my taking into account demographic factors, variations in state and local tax burdens and differences in the defintion of a combination company; factors which are ignored largely in prior studies, such as those presented to this Subcommittee by Professors Wilson or Collins.

Finally, in part three of Section III, the results of extending the analysis to four typical residential electric bills are presented. As might be expected, the ability to explain variations in a particular point on the rate schedules of different utilities is considerably less than the ability to explain general levels of average revenue. Thus, the cost factors which I have quantified, the most important of which is state and local tax burdens, explain only 11 to 37 per cent of the variation in the different electric bills. Despite this, the statistical analysis of typical electric bills confirms my rejection of the hypothesis that combination companies have any systematically adverse effect on rates for characteristic levels of residential electricity consumption. Only at the 1,000 kilowatt-hour per month

level of consumption (roughly double the national average) does a relationship between combinationism and higher bills, which some might consider marginally significant, appear. Further statistical tests demonstrate clearly, however, that even this relationship is dependent entirely on extreme observations and does not hold for the great majority of the utilities studied.

On the whole, then, my results indicate strongly that differences existing between combination companies and single service electric utilities are explained largely by variations in the geographic, demographic and cost conditions faced, rather than by whether or not a given utility controls both gas and electricity operations. The contention that the average residential customer is adversely affected simply because he is served by a combination utility cannot be accepted. While the general proposition that monopoly power arising from the joint control of closely substitutable products carries with it the potential for abuse in the form of higher prices or poorer service is well established both in economics and in law, my results indicate that conditions prevailing in this particular regulated industry tend to sever the usual and presumably automatic link between joint control of substitutable products and economic inefficiency. Among such conditions, which were reviewed in detail by Dr. Irwin M. Stelzer in his testimony of May 13, 1971 before this Subcommittee, most obvious is the existence of comprehensive governmental regulation. While it is true, of course, that regulation like competition generally is imperfect, nevertheless, there can be no doubt that it does modify utility behavior in numerous ways which limit the utility's ability to exploit monopoly power. Furthermore, it must be recognized that gas and electric energy currently are far from perfect substitutes for one another. This seems to be true particularly within the relevant price ranges prevailing in the northern portions of the county. In those areas, the vigorous rivalry frequently may be that between the gas supplier and fuel oil dealers. Thus, the degree of additional monopoly power conferred on combination utilities so located, which coincidentally includes the vast majority of all such utilities, may not be great. It should be noted as well that the regulated gas and electric utility industries are characterized by an extremely free flow of technological knowledge. That this may contribute significantly to offsetting any monopolistic tendencies toward laxity and a lack of innovative behavior is clear. Finally, it cannot be denied that the combination company form of organization does provide some opportunities to achieve economies of joint operations. It is certainly not beyond the realm of possibility that the firm which grasps these opportunities vigorously may more than offset any tendencies toward monopolistic inefficiency.

THE COMBINATION COMPANY SETTING

The first step in any systematic approach toward statistically comparing combination company performance with that of single service electric utilities must be to develop a set of criteria which will permit the appropriate categorization of each utility considered either as a combination utility or as a single service firm. The most simple way to classify firms would be to count as a combination company any electric utility which serves any gas customers directly or which has a corporate affiliation with another company offering gas service. Given this approach, however, the Southern California Edison Company, although deriving considerably less than 1/1,000th of its total revenue from gas operations, would be classed as a combination company. So too would be all seven class A and B American Electric Power Company subsidiaries because of their affiliation through the holding company with Michigan Power Company—a combination company whose gas revenue accounts for less than 2 per cent of total AEP system revenue.[2] A considerable number of companies under similar circumstances would be categorized simply as "combination companies" and in no way distinguished from utilities such as Northern Indiana Public Service Corporation or New Orleans Public Service Company which have virtually a complete overlap in gas and electric operations. A more reasonable definition must take into account the relative importance of gas operations to a given utility and the closeness of its corporate ties to any other firm offering gas service.

A combination company is defined most broadly in this study as: (1) any electric utility whose residential gas customers in 1969 accounted for over 5 per cent of its total residential gas and electric customers; (2) any electric

[2] Class A electric utilities are those whose annual electric revenues equal or exceed $2.5 million. Class B electric utilities are those whose annual electric revenues equal or exceed $1 million but are less than $2.5 million.

utility whose corporate affiliate renders gas service in that electric utility's service area to residential gas customers constituting over 5 per cent of the total residential customers served by the affiliated companies; or (3) any subsidiary electric utility company controlled by a combination company parent. Although several more refined measures of combinationism also were utilized, this classification is useful for making some simple comparisons between combination companies and single service electric utilities. When this definition is employed, 81 or 44.8 per cent of the 181 class A and B investor-owned electric utilities serving residential customers in the United States (excluding Alaska and Hawaii) at the end of 1969 are classed appropriately as combination companies.

Important geographic and demographic differences between combination and single service utilities are apparent. On a regional basis, the relative importance of combination companies varies widely. It is particularly noteworthy that in the Southeast and South Central regions,[3] which are characterized generally by less densely populated service areas, lower fuel costs, lower tax rates and a greater potential demand for air conditioning, single service electric utilities outnumber combination companies by more than 2 to 1 (29 single service companies, 13 combination companies). Further, even though the two groups of companies found in the remainder of the country are roughly equal in size, distinctive geographic clustering is apparent still. In the States of New York, Wisconsin, Illinois and Iowa, class A and B combination companies serving residential customers outnumber single service electric utilities 26 to 3. Table 1 presents in detail the geographic distribution of combination and single service electric utilities on the basis of the number of residential customers served.

TABLE 1.—REGIONAL DISTRIBUTION OF RESIDENTIAL ELECTRIC CUSTOMERS SERVED BY COMBINATION COMPANIES AND BY SINGLE SERVICE ELECTRIC UTILITIES [1]

Region	Combination companies		Single service companies	
	Percent of all customers in region	Percent of all customers served by combination companies	Percent of all customers in region	Percent of all customers served by single service companies
Northeast	69.38	45.68	30.62	16.48
East central	27.36	11.22	72.64	24.35
West central	52.32	15.92	47.68	11.86
Southeast	18.96	5.04	81.04	17.60
South central	21.28	4.93	78.72	14.90
West	48.75	17.22	51.25	14.80

[1] Excludes residential customers in Alaska and Hawaii.

Source: Federal Power Commission, Statistics of Privately Owned Electric Utilities in the United States, 1969, sec. IV, Electric Operating Revenues. Customers, and Sales (Washington, D.C.: U.S. Government Printing Office, 1970), pp. 301–327.

The sharp difference in geographic concentration is only one of a number of potentially important demographic distinctions between the combination and the single service electric utility groups. In order to permit focusing sharply on such factors, the basic sample employed in my analysis included all urban areas which in 1970 comprised 25,000 or more housing units and which were served wholly or in part by an investor-owned electric utility.[4] The adoption of the city as the primary unit of analysis has the advantage of allowing the investigator to make full use of detailed data available in the Preliminary Reports of the 1970 Censuses of Population and Housing and in the Form No. 1 *Annual Reports of Class A and B Electric Utilities to the Federal Power Commission*. Further, employing the relatively modest size criterion of 25,000 housing units yields a broad based sample.

According to the *Preliminary Census of Housing*, 209 urban areas in the United States (excluding Alaska and Hawaii) satisfy the sampling criterion in that they contained 25,000 or more housing units in 1970 and were served by investor-owned utilities. Lack of sufficient detail provided in the Form No. 1 Annual Re-

[3] The geographic regions referred to throughout are those designated in the Federal Power Commission's *The 1970 National Power Survey*, Part II, Exhibit I, 1, p. II–2–2. A map delineating these regions is attached to this statement in the Technical Appendix.

[4] A company was counted as a supplier in a particular urban area only if it served at least 5 per cent of the total number of residential customers in that area.

ports to the Federal Power Commission forced only the exclusion from my analysis of two small communities and the consolidation of nine other cities into larger urbanized areas.[5] Thus, there are available adequate data covering 207 communities which are grouped into 198 urban areas. However, because of their atypical nature, four additional urban areas and the companies serving them were excluded from my study, thus leaving for statistical analysis 194 urban areas served by 95 different investor-owned electric utilities.[6] Single service electric utilities supplied electricity exclusively in 103 of these areas, shared five communities with municipal utilities and jointly served another two cities with combination companies. Combination companies, in addition to jointly serving two communities with a single service electric utility, supplied electricity exclusively in 82 urban areas and shared two cities with municipal utilities. The combination company was the majority supplier in both areas jointly served by a combination and a single service utility. Thus, single service electric utilities were the dominant investor-owned firm supplying service in 108 or 55.7 per cent of the 194 urbanized areas considered, while combination companies were the sole or majority supplier in the remaining 86 areas (44.3 per cent). In Table 2, the regional distribution of these areas is presented. The impression that combination companies dominate the Northeast and West Central regions while being overshadowed greatly by single service electric utilities in the East Central, Southeast and South Central Regions is reinforced by this table.

TABLE 2.—REGIONAL DISTRIBUTION OF URBAN AREAS SERVED BY COMBINATION COMPANIES AND BY SINGLE SERVICE ELECTRIC UTILITIES

Region	Number of urban areas in region	Region as percent of U.S. total	Areas in each region served predominately by combination companies		Areas in each region served predominately by single service electric utilities	
			Number	Percent	Number	Percen
Northeast	53	27.3	33	62.3	20	37.7
East central	35	18.0	11	31.4	24	68.6
West central	20	10.3	13	65.0	7	35.0
Southeast	22	11.3	5	22.7	17	77.3
South central	24	12.4	5	20.8	19	79.2
West	40	20.6	19	47.5	21	52.5
United States[1]	194	100.0	86	44.3	108	55.7

[1] Excluding Alaska and Hawaii.

Source: Brown's Directory of North American Gas Companies, 84th edition (New York: Harbrace Publications, 1970). Electrical World Directory of Electric Utilities, 79th edition (New York: McGraw-Hill, Inc., 1970). Moody's Public Utility Manual, 1970 (New York: Moody's Investors Service, Inc., 1970). U.S. Department of Commerce, Bureau of the Census, 1970 Census of Housing (advance report), series HC (VI)-2-52, 1970-71; "Places of 10,000 Inhabitants or More."

The urban areas utilized as the basis for analysis in this study comprise approximately 41 per cent of the residential electric customers served by *all* class A and B electric utilities in the United States—42.0 per cent of all combination company customers and 40.7 per cent of single service electric utility customers are included. Given the broad coverage of this sample, it should not be surprising to learn that simple data comparisons based on urban areas rather than companies reveal the same types of gross relationships alluded to in earlier statistical studies. On average, as Table 3 indicates, kilowatt-hour consumption

[5] The two excluded urban areas both of which were incorporated are Metairie, Louisiana and Arden Arcade, California whose combined population in 1970 was 218,308. Since some electric utilities report sales, revenue and customer data to the Federal Power Commission on a divisional rather than city basis, some consolidation of communities was necessary in order to conform more closely to the reported areas. The consolidations were as follows: Bayonne with Jersey City (N.J.); Towson with Dundalk (Md.); Alexandria with Arlington (Va.); Chesapeake, Portsmouth and Virginia Beach with Norfolk (Va.); Hampton with Newport News (Va.); and Miami Beach and Hialeah with Miami (Fla.).

[6] Three cities (Portland, Oregon; Spokane, Washington and Boise, Idaho) were excluded because they are served by utilities whose power requirements are met almost entirely by hydroelectric generation. Because of this, the quantification of production cost influencing factors on a basis comparable to those for most companies (e.g., fuel costs and type of steam plant construction) would be most difficult. The other excluded city is Las Vegas, which for reasons not entirely clear but perhaps related to differences in life style, has a level of residential use far exceeding other cities in the same area.

per residential customer is higher and average residential electric revenue is lower in single service electric utility served areas than in combination company areas. This relationship holds for five of the six regions. Further, typical residential electric bills for the 500, 750 and 1,000 kilowatt-hour levels of monthly consumption are uniformly higher in combination company served communities. The results are mixed only for the 250 kilowatt-hour residential electric bill.

TABLE 3.—USE, AVERAGE REVENUE, AND TYPICAL ELECTRIC BILL DATA FOR RESIDENTIAL CUSTOMERS RESIDING IN URBANIZED AREAS, 1969[1]

Type of electric utility serving	Average annual kilowatt-hour consumption	Average electric revenue per 1,000 kilowatt-hours	Typical residential electric bills (kilowatt-hours)			
			250	500	750	1,000
Northeast:						
Combination	4,227	$27.42	$7.85	$11.28	$15.42	$20.10
Single service	4,892	26.40	8.02	10.52	14.69	19.11
East Central:						
Combination	4,715	24.56	7.07	9.43	13.81	18.43
Single service	5,433	23.11	7.17	8.95	12.72	16.92
West Central:						
Combination	5,127	25.16	7.26	10.89	15.13	19.56
Single service	5,731	25.13	7.78	10.88	14.82	19.16
Southeast:						
Combination	8,200	19.41	7.38	10.45	13.85	17.18
Single service	8,660	18.28	6.72	10.06	13.46	16.91
South Central:						
Combination	7,378	22.51	7.25	9.89	14.61	19.32
Single service	8,814	21.26	7.46	9.76	12.97	16.78
West:						
Combination	5,083	22.89	7.18	10.26	13.74	17.41
Single service	4,745	23.65	6.98	9.56	12.69	16.49
United States:						
Combination	5,029	24.96	7.45	10.63	14.66	18.99
Single service	6,336	22.86	7.31	9.79	13.37	17.35

[1] These averages include all urban areas comprising 25,000 or more housing units and served wholly or in part by an investor-owned electric utility.

Source: "Annual Report of Class A and B Electric Utilities to the Federal Power Commission" (form No. 1), "Sales of Electricity—by Communities," p. 410, 1969. Federal Power Commission, "Typical Electric Bills, 1969" (Washington, D.C., U.S. Government Printing Office, 1969).

It should be stressed, once again, that whether the consistently unfavorable comparisons cited in Table 3 reflect entirely or at least in part poor performance by combination companies as many others have concluded or whether they result merely from the differential pattern of demographic and geographic factors faced by the combination company and the single service electric utility groups is a question yet to be answered. However, it is interesting and suggestive to look in this introductory overview at the values for each utility group of various demographic and cost factors which logically might be expected to result in significant variations in electricity rates and usage. Table 4 indicates that the 86 urban areas served by combination utilities are substantially larger and more densely populated, on average, than the 108 single service electric utility cities. Furthermore, as might be expected, apartment units account for a considerably greater proportion of total housing units in the combination company served communities. Another important distinction lies in the climate prevailing in the two groups of cities. As indicated by the cooling degree days data, the demand for energy for air conditioning might be expected to be roughly one-third greater in areas served by single service electric utilities.[7] Table 4 also provides income data since income could be expected to be an important influence on residential electricity consumption. In the aggregate, however, it is apparent that there is little difference in income level between the single service and combination utility areas.

[7] Cooling degree days is a measure of the warmness of the weather prevailing in a given area. The measure used here is based on the extent to which the daily mean temperature exceeded 65°F during the months of June, July and August, 1969.

TABLE 4.—DEMOGRAPHIC DATA FOR 194 URBAN AREAS, 1970

Factor	Average for areas served predominately by combination companies	Average for areas served predominately by single service electric utilities
Number of housing units	112,417	85,406
Population density	6,462	5,226
Percent apartments	46.1	38.6
Cooling degree days	725	967
Effective buying income estimate per household [1]	$10,454	$10,475
Percent households with cash incomes of less than $3,000 [1]	15.1	15.9
Housing units renting for less than $100 per month as a percent of total housing units	23.5	23.0

[1] 1969 data.

Source: Moody's Public Utility Manual, 1970 (New York: Moody's Investors Service, Inc., 1970). "1970 Survey of Buying Power," Sales Management, vol. 104, No. 13, June 10, 1970. U.S. Department of Commerce, Bureau of the Census, 1970 Census of Housing (advance report), Series HC (V1)-2-52, 1970-71. U.S. Department of Commerce, Environmental Science Services Administration, Local Climatological Data—Annual Summary, by State, 1969.

Certain important cost conditions faced by electric utilities also could be expected to be dependent in large part on the location and nature of the territory served. Some that come to mind immediately are fuel costs and the level of state and local taxes. Another potentially important influence on cost is system size which varies widely by region. As Table 5 shows, there are significant differences between the single service electric utilities and the combination companies serving urbanized areas in all of these cost factors.

TABLE 5.—COST FACTORS CHARACTERIZING 54 SINGLE SERVICE ELECTRIC UTILITIES AND COMBINATION COMPANIES SERVING 41 URBANIZED AREAS, 1969

Factor	Average value for combination companies	Average value for single service electric utilities
Fuel cost in cents per million B.t.u.	29.40	25.68
State and local taxes as a percent of total electric revenue	11.70	9.71
Total consolidated system sales in millions of kw.-hr.	10,002	15,273

Source: Federal Power Commission, Statistics of Privately Owned Electric Utilities in the United States, 1969 (Washington, D.C.: U.S. Government Printing Office, 1969). Moody's Public Utility Manual, 1970 (New York: Moody's Investors Service, Inc., 1970). Uniform Statistical Report for year ended Dec. 31, 1969.

To summarize, in this section, I have presented a number of comparisons and contrasts between combination companies and single service electric utilities. While the data do indicate that combination companies generally have lower levels of residential electric use per customer and higher residential rates and average revenues than do single service electric utilities, the comparisons indicate further that there are a number of substantial differences between the two groups of utilities in the location and nature of territory served and in important cost conditions which are determined largely by location. It must be apparent to even the casual observer that when a larger proportion of a given utility's residential customers reside in apartments and when the prevailing climate is such as to dampen the demand for air conditioning, electricity consumption per residential customer will be lower, all else being equal. It must be clear also that despite equal levels of efficiency, companies which are smaller, face higher fuel costs and bear greater tax burdens will be forced generally to charge higher rates. Whether the geographic and demographic conditions explain the observed usage and rate differentials between combination companies and single service electric utilities is a question that can be answered only by a detailed statistical analysis aimed at sorting out the effects of various locational, demographic and cost conditions on consumption and rates. In the next section of this statement, I describe the statistical techniques which I have employed to deal with this crucial question.

THE FRAMEWORK OF THE STUDY

The basic statistical technique employed in my study is known as "multiple regression." In the following few paragraphs, I will attempt to explain the logic and interpretation of this type of analysis.

A simple correlation indicates the degree of association between one variable and another variable—for example, between weight and height. Multiple correlation indicates the degree of association between one variable and a group of other variables taken jointly—for example, between weight as the "dependent variable" and height and age as the "independent variables." The technique of "multiple regression" results in an equation relating the dependent variable to the independent variables. Suppose, for example, that we compute a multiple regression relating weight to height and age and obtain the following equation as the result:

$$W=8.3+2.1H+1.2A$$

This equation tells us that, based on the knowledge obtained from our sample, the best way of estimating the value of W for any individual for whom we know only H and A is by inserting the values of H and A into the equation. The regression coefficients (2.1 and 1.2) indicate the magnitude of a given independent variable's effect on the dependent variable when other independent variables are held constant. Thus, the equation indicates that an increase in age of one year, with height held constant, is associated on average with a weight increase of 1.2 pounds. The degree of assurance that may be accorded to the results also can be measured by testing the "statistical significance" of the regression coefficients. If we say that the age coefficient is statistically significant at the 5 per cent level of confidence, this means that if age truly had a negative effect or no effect on weight, we would expect to obtain a coefficient as high as 1.2 in only five out of 100 equations each fitted to different sample data. Another useful statistic is the coefficient of multiple determination. This statistic (denoted by $\overline{R}^2$ indicates the goodness of fit. For example, an $\overline{R}^2$ of .80 for our regression would indicate that 80 per cent of the total variation in weight is associated with variations in height and age.[8]

Given the problem before us, it is particularly important to stress that regressions show only the "association" between one variable and one or more other factors; they do not indicate that the independent variables are either correctly specified and comprehensive or that those variables "explain" the dependent variable. Causation, as well as the specification of the model, must be established by theory, not by statistics. For example, if the researcher simply related weight to age, the resulting regression equation might well indicate that there is a negative association between weight and age (as one's age increases, his weight declines), a relationship clearly contrary to theory. Only when he includes height in his regression to take account of the fact that the older people in his sample tend to be shorter can the true relationship be observed. This example points up why I emphasized in my earlier statement to this Subcommittee that the true relationship between electricity rates and combinationism can be known only after taking account of important variations in demographic and geographic factors.

I first employed multiple regression in my analysis as a means for determining which demographic and geographic factors from a myriad of possibilities consistent with theory seem to be associated most closely with variations in electricity consumption per residential customer. Basic data on consumption per residential customer, by community, for all 194 urban areas comprising 25,000 or more housing units in 1970, were obtained from page 410 of each 1969 Annual Report of Class A and B Electric Utilities to the Federal Power Commission (Form No. 1). Then, 14 measures which can be characterized generally as housing, urbanization, income, weather and locational factors were culled from various sources and included in the regression equation. These variables are listed below with an explanation of how they might be expected to affect electricity consumption per customer.

[8] Throughout this statement, the overall explanatory power of the regression is measured by the *adjusted* coefficient of multiple determination. In some instances, the adjustment for degrees of freedom may result in a decrease in this measure of explanatory power when an additional independent variable is introduced into a regression. See for example, Table 8.

A. Housing Measures

1. Apartment units as a percent of total housing units

Since apartments may be expected as a general matter to be smaller than single family dwelling units, electricity consumption by apartment dwellers will tend to be lower. Frequently, available space in an apartment simply will not permit the occupant to install appliances such as a large refrigerator, dishwater, clothes washer or dryer. Furthermore, in older apartment units, lack of adequate wiring may prevent the installation of air conditioning units. The apartment dweller to some extent necessarily shifts his energy consumption to commercial establishments, as for example, by washing and drying his clothes at a laundromat. Thus, it is reasonable to expect that where apartment units predominate, electricity consumption per residential customer will tend to be lower.

2. Seasonal and migratory units per 1,000 total housing units

This variable measures the relative number of vacation or migratory worker homes in each urban area. All else being equal, annual electricity consumption in such homes which are occupied only a portion of the year will be substantially below that generally characteristic of homes occupied year-round. Where the number of seasonal and migratory housing units is relatively large, therefore, the average level of electricity consumption per residential customer can be expected to be inordinately low.

B. Urbanization Measures

1. Number of housing units in the community

This variable, of course, reflects the overall size of the community. To the extent that community size mirrors at least in part the age and type of housing (older housing, more apartments) and the income of its occupants, city size may be associated with the level of electricity consumption.

2. Population density (Thousands of persons per square mile)

Population density, like the per cent apartments variable, may impart a good deal of information about the type of housing prevailing in a given community. Observing the number of apartment units, while useful, does not enable one to discriminate large two family dwelling units with ample space for large appliances from smaller high rise apartment units. A population density variable, at least in part, fills this informational gap. As a general matter, very high population densities will indicate the presence of a relatively large number of high rise apartment complexes. Thus, a reasonable expectation is that higher population densities will be associated with lower levels of electricity consumption per residential customer.

3. Reporting adjustment index (Number of residential electric customers in urban area divided by number of housing units in the community)

This variable was included in the regressions in order to reflect differences in the basis of data reporting by electric utilities. Frequently, the sales, customer and revenue data reported in the Federal Power Commission Form No. 1's for a given city refer to the general urbanized area rather than to the city alone. Thus, they may include the effects of higher income lower density suburban areas lying outside the core community. To the extent that such areas are reflected in the reporting, we would expect the usage figures shown for the core community to be overstated. Our measure captures this overstatement in that if the reporting unit and the Census unit are coincident, we would expect the number of residential customers to be equal roughly to the number of dwelling units giving our measure a value of 1. If the reporting area includes suburbs, the number of residential customers shown should exceed the number of housing units known to be in the community as defined by the Census, thus giving our measure a value exceeding 1. All else equal, then, the higher the value of this variable, the more suburban areas are included in the utility's reporting area and therefore higher reported levels of electricity consumption per residential customer can be expected.

C. Income Measures

1. Percent of total housing units without all sound plumbing facilities

That this measure is a proxy for income is obvious. It was employed, in part, because no direct measures of income are available currently from preliminary

1970 Census reports. The expectation is clearly that the higher the income level prevailing in a given community (the lower the per cent of total housing units without all sound plumbing facilities), the higher will be the utilization of various energy consuming appliances and therefore the higher will be electricity consumption per residential customer.

2. Percent of total housing units occupied by more than 1.51 persons per room

As was the case with the preceding variable, this measure was included in the regression as an income proxy. The expectation is that overcrowded housing would reflect low incomes and thus be associated with low electricity usage.

3. Apartment units renting for less than $100 per month as a percent of total housing units

This measure reflects both housing and income conditions. In densely populated areas characterized generally by a large number of apartments and by pockets of low income consumers, the value of this variable will be relatively high. Clearly, therefore, it is reasonable to expect, all else being equal, that the greater the value of this variable for a given area, the lower will be electricity consumption per residential customer.

4. Per capita income, 1969

These data which were obtained from the May 1970 Survey of Current Business provide a direct measure of income. However, as they are available only for Standard Metropolitan Statistical Areas rather than for individual communities, other measures which might be more accurate were tested also.

5. Effective buying income estimates, per household, 1969

This measure, obtained from the Sales Management "Survey of Buying Power" provides an alternative direct measure of income and is available on a community basis.

6. Percent of households with cash incomes of less than $3,000

This income measure, also obtained from Sales Management, provides information about the distribution of income within communities. The expectation, of course, is that the higher the proportion of families receiving extremely low annual incomes, the lower will be electricity consumption.

D. Weather Measures

1. Cooling degree days for June, July and August, 1969 (In thousands)

This variable, which was calculated from basic U.S. Weather Bureau data, is essentially a measure of the warmness of the weather experienced on the extent to which the daily mean temperature exceeds 65° F. For example, on a day when the mean temperature is 80° F, 15 cooling degree days would be experienced. Higher values of this variable indicate warmer weather and thus greater potential demand for air conditioning. Obviously, all else being equal, greater demand for air conditioning will be associated with higher levels of electricity consumption per customer.

2. Income adjusted cooling degree days, 1969 (In thousands)

Logically, the demand for air conditioning is income sensitive as well as weather sensitive. In order to capture this joint effect, one measure introduced into the regressions was the cooling degree days prevailing in each urban multiplied by the relative income level of the area. Thus, if one area had double the average income (as measured by the estimated effective buying power of households) its cooling degree days would be multiplied by two. Since values of this measure increase either for higher incomes or warmer weather, the clear expectation is that high values will be associated with high levels of electricity consumption.

E. Locational Measures

1. Geographic variables

A set of variables was entered into the regressions to indicate in which of the six National Power Survey regions each urban area was located. Thus, general unspecified demographic or cultural differences among regions which might affect patterns of electricity consumption could be tested for their significance.

A multiple regression relating electricity consumption per residential customer to the group of 14 demographic and geographic factors listed above enabled

me to determine which factors appear to have a significant influence and which of the alternative measures of a given factor is associated most closely with electricity usage. This knowledge was utilized then in my analysis of variations in average residential electric revenue.

F. Cost Influencing Factors

Average residential electric revenue is determined jointly by the prevailing level of use per residential customer and by the rates in effect. From this it follows that a comprehensive model must take account of all important conditions beyond the control of individual electric utilities which could be expected to influence either their general level of costs or the level of residential electricity consumption. Thus, in addition to the geographic and demographic factors identified in the first stage of my analysis as potentially significant influences on residential electricity consumption, a number of cost factors were quantified and included in the average revenue regressions. A description and explanation of these factors is given below.

1. State and local taxes per dollar of total electric revenue

State and local taxes, while varying widely, generally consume a significant portion of total electric revenue (on average, 11 per cent). Since utility stockholders cannot be expected to accept subnormal returns where relatively high local taxes prevail, it follows that high tax burdens must be passed on directly to consumers in the form of increased rates. Thus, a strong positive association between this measure and average residential electric revenue can be expected. State and local taxes per $1,000 of net electric plant was utilized also as a variable to reflect directly prevailing property tax rates.

2. Fuel costs

On average, fuel costs absorb about 17 per cent of total electric revenue. Variations in fuel costs were taken into account by including for each sample observation the applicable 1969 statewide fuel price in cents per million Btu. As an alternative, the actual 1969 fuel costs of each sample member was tested for its influence on average revenue. While actual fuel costs may reflect to some extent the efficiency of a given utility's purchasing operation, my statistical tests indicated that after taking account of the general level of fuel costs prevailing in each state, there was no significant relationship between combinationism and individual utility fuel expenses.

3. Hydroelectric generation as a proportion of total generation

While steam generation is a production mode available to all utilities, significant hydroelectric generation possibilities are restricted to a relatively small number of favorably situated utilities. Since a rational utility will exploit hydroelectric possibilities only if they promise to be lower in costs than nuclear or fossil fuel alternatives, clearly, on balance, utilities with relatively large hydroelectric installations can be expected to have lower total production costs. Furthermore, utilities employing long-lived hydroelectric facilities may escape part of any inflation in fuel and debt costs. Thus, a negative relationship between average revenue and the proportion of hydroelectric generation should prevail.

4. Purchased power as a proportion of total sales

Utilities which purchase a large portion of their requirements may have costs which differ systematically from those of companies self-generating their requirements. As a general matter, power purchased from a neighboring utility may require transmission over a greater distance than would be necessary if self-generation were employed. Partially or totally offsetting this, however, may be the fact that such power provides the vehicle for taking advantage of the neighbors' scale. Therefore, *a priorio*, it is difficult to predict the net direction of effect which power purchases might be expected to have on electric utility production costs.

5. Oil or gas generation variable

Where oil or gas can be relied upon as exclusive fuels for electricity generation, capital cost savings of perhaps 15 to 20 per cent can be achieved by eliminating the need for coal handling facilities at generating plants. Furthermore, substantial operation and maintenance expense savings accrue generally to oil or gas burning plants. In order to reflect the potential for these cost savings and thus for lower rates, a variable was utilized in my analysis to discriminate between utilities located in that group of states where oil and/or gas generation accounts for over 90 per cent of total steam generation and all other utilities.

6. System size

Large size may present utilities with a number of opportunities to achieve cost savings. It is well known that relatively large generating units yield substantial savings in capital, fuel and labor costs. Similarly, the use of higher voltage transmission to move large blocks of power may reduce significantly the investment required per unit of capacity. Up to a point, economies of scale may characterize as well such functions as general supervision and customer accounting and servicing. Finally, it should be noted that if investors generally consider large utilities less risky so that such utilities can raise capital for perhaps one-half of a percentage point less than smaller firms, a substantial cost saving is achieved thereby. The scale measure employed in my regression analysis is total consolidated system 1969 sales in millions of megawatt-hours. Clearly, the expectation is that larger size will be associated with lower costs and thus lower levels of average revenue.

7. Urbanization variables

The cost of the distribution facilities required to serve the average residential customer can vary quite widely depending in general on the population density of the service area and on undergrounding requirements. While increases in density up to a point may reduce distribution costs, very high densities will be associated with expensive and congested rights-of-way, a need for undergrounding facilities and high construction and repair costs. For these reasons, the higher the proportion of a given utility's customers which are located in densely populated areas, the higher distribution costs are likely to be. In order to quantify the general degree of urbanization faced by the utilities serving my sample of cities, I included as variables in my regression: (a) the number of housing units in sample communities with population densities of over 5,000 persons per square mile served by a given utility divided by the total number of that utility's residential customers; and (b) the number of housing units in sample communities with population densities of over 10,000 persons per square mile served by a given utility divided by the total number of that utility's residential customers. The expectation is that higher values of either of these companywide urbanization measures will be associated with higher average revenue.

8. Statewide net electric operating revenue as a percent of net electric plant

On average, net electric operating revenue—the amount available for utility stockholders and bondholders—is equal to roughly 23 percent of total electric operating revenue. Obviously, therefore, variations in the rate of return permitted by various regulatory bodies may lead to substantial differences in the rates charged. For a given level of operating expenses, a higher return can be earned only by charging higher rates. In order to measure the general level of earnings permitted in each state, net electric operating revenue as a percent of net electric plant was calculated for all class A and B utilities serving residential customers in a given state and then averaged. The expected relationship between high earnings and high rates may be mitigated, of course, to the extent that high earnings are allowed only for unusually efficient utilities.

These eight general categories of cost influencing variables, as well as those demographic factors appearing to influence significantly residential electricity consumption per customer, were tested via multiple regression for the significance of their association with variations in average residential electric revenue and for their level of explanatory power.

Having derived a regression equation relating average residential electric revenue to significant cost and demographic conditions largely beyond the control of individual utilities, the hypothesis that combination company performance (as reflected by the level of average revenue received) varies systematically and significantly from that of single service electric utilities could then be tested. In order to do this, three alternative measures of combinationism were quantified and introduced into the final average revenue regression.

The first and most crude of the combinationism measures employed was that previously described in Section I of this statement. Essentially, the combination company variable distinguishes any company whose residential gas customers constitute 5 percent or more of its total gas and electric residential customers from companies having little or no gas business. As earlier noted, corporate affiliations also were taken into account when constructing this variable.

The second and somewhat more refined measure of combinationism, which is referred to here as the combination city variable, distinguishes as combination areas only those cities in which the same utility renders both gas and electric service. Thus, this measure takes into account whether the gas and electric

operations of a given utility actually overlap in the community being considered.

The third and most refined measure of combinationism, referred to as the overlap variable, approximates, based on available American Gas Association and Federal Power Commission data, the proportion of each company's residential electric customers who also are served gas by that company. This measure, then, reflects the actual degree of coincidence in gas and electric service areas enjoyed by each company.

If, as some contend, combination companies have a substantial adverse impact on performance, then the introduction of combinationism variables into the average revenue regression should result both in a significant increase in the explanatory power of the regression and in statistically significant positive coefficients relating combinationism to average revenue. On the other hand, if combination companies achieve economies so substantial as to reduce costs and rates, introduction of the combinationism variables should increase the explanatory power of the regression and yield statistically significant negative coefficients. If in reality there is no difference in performance due to the overriding effect of regulatory constraints or to the fact that the benefits and drawbacks associated with combination companies offset one another, then the combinationism variable coefficients should prove to be statistically insignificant and the explanatory power of the regression should be virtually unaffected. The results of testing combination company performance by employing the methodology described thus far and the conclusions which can be drawn validly from those results are presented in the next section of my statement.

As a cross-check on he results derived from my average revenue analysis, typical electric bills prevailing in 1969 for the 250, 500, 750 and 1,000 kilowatt-hour levels of residential consumption also were utilized as measures of electricity prices. Since these bills presumably are not related to average residential electricity usage, it is unnecessary and indeed it would be contrary to theory to include usage influencing demographic factors in this set of regressions. Instead, for each utility serving one or more of the urban areas in my sample, the typical electric bill applicable to each usage level was related statistically via multiple regression only to the eight groups of cost influencing variables previously described. Once the best relationship between the cost variables and each electric bill was derived, the combinationism variables were introduced into the regressions. As before, a statistically significant positive relationship between the bills and combinationism would indicate poor combination company performance; a negative and significant relationship would indicate superior combination company performance, while insignificant results would be a sign of no substantial performance difference. The results of this portion of the analysis also are presented in the next section of my statement.

RESULTS AND CONCLUSIONS

A. The first step of my statistical analysis was aimed at identifying those geographic and demographic factors and the particular ways of measuring them which seem to be most closely associated with variations in electricity use per residential customer. As previously noted, the sample comprised 194 urbanized areas which contain approximately 41 per cent of all residential electric customers served by class A and B investor-owned electric utilities in the United States.

The 1969 average annual electricity consumption of residential customers served by investor-owned utilities in each urban area was obtained from Annual Reports to the Federal Power Commission (Form No. 1). In instances where municipal utilities also rendered service in one of the urban areas, their 1969 average annual electricity use per residential customer was obtained directly by telephone from the Federal Power Commission. These usage figures then were combined with the relevant investor-owned utility usage figures to obtain the average annual level of kilowatt-hour consumption per residential customer for the city as a whole. The sources and methods of calculation of the 14 demographic and locational factors tested at this stage are given in the Technical Appendix.

Multiple regression analysis revealed six factors which appear to be strongly and significantly related to variations in residential electricity use.[9] These in-

[9] Generally, econometricians refer to a result as "statistically significant" only if the likelihood that the observed result could have occurred by chance alone is less than 5 per cent.

clude two urbanization variables, one combined housing and income variable, one weather variable and two locational variables.

As hypothesized, the regression reveals a negative relationship between population density and usage. This means that, all else being equal, the greater the population density of the area being considered, the lower is its expected level of annual kilowatt-hour consumption per residential customer. This is consistent with the notion that more densely populated areas are characterized generally by a greater number of small renter-occupied dwelling units.

A positive relationship was found between the reporting adjustment index (number of residential electric customers in each urban area divided by the number of housing units in the community) and usage. As explained in Section II of my statement, some utilities include surrounding suburban areas when they report data by communities. Where this is the case, the number of residential customers shown will be high relative to the number of housing units in the core community, thus giving my measure a high value. Regression analysis confirms that the inclusion of lower density higher income suburban areas in the data is associated with higher expected values of residential electricity consumption per customer.

The relationship between the per cent low rent apartment units and electricity usage is negative. This indicates, as hypothesized, that a lower income level, or a greater relative number of apartments given the income distribution, is associated with lower levels of residential electricity consumption.

Income adjusted cooling degree days is associated positively with electricity consumption per residential customer. This means that a community with a relatively warm climate and high income occupants can be expected to have a higher level of residential electricity use. This, of course, is consistent with the hypothesis that this variable measures the potential demand for air conditioning.

Two geographic region variables also proved to be significant and positive. These are the Southeast and South Central regional variables. The positive relationship indicates that for a given set of values of other variables, the expected level of electricity consumption per residential customer is higher for a community located in the Southeast than for communities located in other areas. Communties in the South Central region, all else being equal, can be expected to display usage levels below those in the Southeast region but above those in all other regions. These differences reflect variations in all unquantified factors; for example, factors such as general life style and preferences, average age of housing, rate of increase in incomes, the prevelence of master metering and counting apartment units as commercial customers, and the like.

The regression results described thus far are summarized in Table 6. In addition to presenting the overall relationships found, Table 6 shows the statistical significance of each relationship and the overall explanatory power of the regression. As noted earlier, the level of statistical significance indicates the degree of assurance that may be accorded to the results. For example, a significance level of 0.5 means essentially that the likelihood of obtaining the observed result, when in fact no relationship or one of the opposite magnitude exists, is only 5 per cent. The significance levels shown in Table 6 indicate that the likelihood of such an error here is less than one-fifth of 1 per cent. The 73 per cent overall explanatory power of the regression indicates further that a majority of the variation in kilowatt-hour consumption per residential customer may be explained by the six significant demographic and locational factors.

TABLE 6.—REGRESSION RESULTS ELECTRICITY USE PER RESIDENTIAL CUSTOMER

Factor	Relationship to annual electricity use per residential customer	Statistical significance of relationship [1]
1. Population density	Negative	0.002
2. Reporting adjustment index	Positive	.002
3. Low-rent apartments as percent of total housing units	Negative	.002
4. Income adjusted cooling degree days	Positive	.002
5. Southeast region variable	do	.002
6. South Central region variable	do	.002

[1] Probability that observed result is due to random error only.

Note: Overall explanatory power of regression: 73 percent.

B. The second step of my analysis was aimed at testing the significance of the relationships between average residential electric revenue per thousand kilowatt-hours sold and both cost and demographic conditions. Sales and revenue data, by community, were obtained from Annual Reports to the Federal Power Commission for every investor-owned electric utility serving all or a part of any of the 194 urbanized areas.[10] Since two investor-owned utilities provide service in each of two sample areas, there are a total of 196 average revenue observations. The sources and calculations of the eight groups of cost factors enumerated in Section II of my statement and employed in the average revenue analysis are given in the Technical Appendix. In addition to testing these cost variables for their influence, each of the six demographic and locational variables identified in step one of my analysis as a seemingly significant influence on usage levels was tested for its impact on average revenue. A priori, the expectation was that the relationships between these six variables and average revenue levels should be opposite in direction from those found in the usage regressions. Quite simply, the hypothesis was that, all else being equal, due to the step-down nature of rate schedules, anything which tends to increase usage per customer should tend to decrease the average revenue received and vice versa.[11] Thus, the expected relationships between average revenue levels and each of the demographic or locational factors wre as follows: population density—positive; reporting adjustment index—negative; per cent low rent apartments—positive; income adjusted cooling degree days—negative; Southeast Region variable—negative; South Central Region variable—negative.

Multiple regression analysis revealed that five of the eight types of cost factors tested are related significantly to variations in average residential electric revenue. These are state and local taxes per dollar of revenue, total system scale, hydroelectric generation as a proportion of total generation, purchased power as a proportion of total kilowatt-hour sales and urbanization.

A positive relationship was found between state and local taxes per dollar of revenue and the expected level of average revenue. This, of course, is consistent with the hypothesis that electric utilities facing high state and local taxes will be forced to recoup such taxes by charging their customers higher rates.

The overall size of the utility rendering service, as expected, is related negatively to average revenue. This indicates that, on balance, large systems do achieve significant economies of scale and pass these economies on to customers in the form of lower rates.

The regression further reveals that hydroelectric generation as a proportion of total generation bears a negative relationship to average revenue received. Thus, utilities with significant opportunities to utilize hydroelectric generation do obtain lower costs and offer lower rates.

The proportion of power purchased from other utility systems is related positively to average revenue. All else being equal, then, the indication is that utilities purchasing a large share of their power requirements in lieu of self-generation tend to incur higher costs.

Finally, the overall degree of urbanization faced by each given utility, expressed as the number of housing units in its service territory which are located in areas of over 5,000 population density relative to its total number of customers, was found to be related positively to average revenue. The indication is, therefore, that the more urbanized is the service territory as a whole, the higher rates tend to be. This result is consistent with the idea that densely populated areas impose on electric utilities more undergrounding requirements and higher distribution facility construction costs.

All six usage influencing demographic and locational factors were found to bear the expected relationship to average revenue. The South Central regional variable, however, did prove to be statistically insignificant. In short, the regression indicated, all else being equal, that average residential electric revenue will be higher in densely populated areas characterized by a large number of low rent apartments and in areas where the potential demand for air conditioning is low. Furthermore, if the city is located in the Southeast or if the utility has included suburban areas in its reporting, the expected average revenue figure is lower.

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[10] As previously noted, utilities serving less than 5 per cent of the customers in an urbanized area were not included in the sample.

[11] As an example, if high population density is associated with low electric consumption per residential customer (a negative relationship) and if low consumption automatically yields high revenue per kilowatt-hour sold, then high density should be associated with high average revenue (a positive relationship).

The average revenue regression results are summarized in Table 7. Again, the statistical significance of the relationships and the overall explanatory power of the regression are given. All relationships are significant at better than a 2.9 per cent probability level and the results therefore may be considered extremely reliable. Furthermore, the 10 factors listed are sufficient to explain roughly 68 per cent of all variation in average residential electric revenue.

TABLE 7.—REGRESSION RESULTS AVERAGE RESIDENTIAL ELECTRIC SERVICE

Factor	Relationship to average residential electric revenue	Statistical significance of relationship [1]
1. Population density	Positive	0.002
2. Reporting adjustment index	Negative	.012
3 Low-rent apartments as percent of total housing units	Positive	.029
4. Income adjusted cooling degree days	Negative	.002
5. Southeast region variable	do	.002
6. State and local taxes per dollar of revenue	Positive	.002
7. Total system size	Negative	.002
8. Proportion hydroelectric generation	do	.002
9. Proportion purchased power	Positive	.002
10. Urbanization (over 5,000 density)	do	.002

[1] Probability that observed result is due to random error only.

Note: Overall explanatory power of regression: 68 percent.

In the next step of my statistical analysis, the hypothesis that combination company performance (as reflected in average revenues) differs significantly from single service electric utility performance was tested. To reiterate, when the combinationism variables are added to the average revenue regressions, the alternatives are as follows:

1. If combination company performance is inferior, then a positive statistically significant relationship between combinationism and average revenue, as well as an increase in the overall explanatory power of the regression, should be found.

2. If combination company performance is superior, the result should be a statistically significant negative relationship and an increase in the explanatory power of the regression.

3. If combination company performance does not differ substantially from single service electric utility performance, a statistically insignificant relationship between combinationism and average revenue accompanied by little or no increase in the explanatory power of the regression should be the finding.

The results of my analysis are shown in Table 8. There can be little doubt that alternative 3 is the hypothesis that must be accepted. The relationship between combinationism and average revenue, all else being equal, is negative and statistically insignificant. The explanatory power of the regressions is not improved by including combinationism variables. In plain language, this means that while demographic, geographic and underlying cost conditions very strongly affect the average residential electric revenue required, under current circumstances, it matters little, on average, whether a combination company or a single service electric utility renders service in a given community.

TABLE 8.—RESULTS OF ADDING COMBINATIONISM VARIABLES TO AVERAGE REVENUE REGRESSION

Variable added	Percent increase (decrease) in explanatory power of average revenue regression	Relationship between combinationism and average revenue	Statistical significance of relationship [1]
Combination company variable	(0.2)	Negative	0.596; insignificant.
Combination city variable	(.2)	do	0.562; insignificant.
Overlap variable	(.1)	do	0.412; insignificant.

[1] Probability that observed result is due to random error only.

It is instructive to explore briefly some of the reasons why my conclusions differ from those of several other researchers. Generally, others have failed to take into account adequately demographic factors which affect usage.[12] If I also do this by deleting the five significant demographic and locational variables from the average revenue regression, the explanatory power of my regression falls by 14 per cent and the relationship between combinationism and average revenue changes from negative to positive—a relationship which, if significant, could be taken as a sign of combination company inefficiency. If in addition, I exclude the variable reflecting differences in state and local tax burdens, which has been ignored universally by other researchers, the relationship between the combinationism variables and average revenue becomes more strongly positive and marginally significant. (These regressions are shown in the Technical Appendix.) This may be taken merely as an affirmation of what we knew initially: combination companies do have lower levels of annual electricity consumption per residential customer and higher average revenue. If one fails to explain these differences by taking account of all important conditions beyond the control of individual utilities, he must conclude that combinationism itself explains the differentials. The regression results presented above indicate strongly that the crucial differences between my analysis and others lie in my inclusion of variations in demographic factors and state and local tax burdens and possibly as well in my use of more refined measures of combinationism.

C. The next step of my analysis involved employing as price measures four typical electric bills applicable to each of the 95 companies serving all or a part of the 194 urbanized areas previously analyzed. The bills used were those for 250, 500, 750 and 1,000 kilowatt-hours of residential electricity consumption per month in 1969.

In 1969, the average level of residential electricity consumption per customer for all class A and B investor-owned utilities was 520 kilowatt-hours per month. The consumption level nearest the average actually prevailing in my sample of 194 urban areas was 250 kilowatt-hours per month in 59 cities (30.4 per cent), 500 kilowatt-hours monthly in 99 cases (51.0 per cent), 750 kilowatt-hours per month in 31 communities (16.0 per cent) and 1,000 kilowatt-hours monthly in five areas (2.6 per cent). Thus, one could say fairly that the "typical" electric bill is that for 500 kilowatt-hours per month, although, a considerable number of customers consume amounts closer to 250 or 750 kilowatt-hours per month.

The results of regressing each bill on the state and local tax, fuel cost, hydroelectric, purchased power, oil-gas generation, scale, urbanization and profit rate variables are summarized in Table 9. As indicated there, the only consistently significant explanatory factor was state and local taxes per dollar of revenue. As expected, of course, the regressions indicate that the greater the tax burden, the higher electric rates tend to be. The system size variable, which reflects the opportunity to achieve economies of scale, was significant in three of the four regressions and negatively related to rates, as hypothesized. Table 9 indicates further that the explanatory power of the regressions varies from a low of 11 per cent to a high of 37 per cent and, as a general matter, increases as bills for higher levels of consumption are considered.

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[12] On June 16, 1971, Professor William Collins testified that he felt he had controlled "geographic location, degree of urbanization, and general population density, and other factors . . . which were difficult to quantify" by employing a paired observation test [see transcript page 427]. Apparently, Professor Collins considers his mental impressions regarding the comparability of various utilities with respect to complex and interrelated geographic and demographic factors superior to any efforts to quantify and evaluate statistically their comparability. Clearly, this is unlikely to be so. An example of the magnitude of inaccuracy that can result from such an approach can be found in Collins' pairing of Boston Edison Company and Long Island Lighting Company. While Collins may consider these companies comparable in demographic characteristics, a look at the data reveals that when we compare the Boston SMSA with Nassau and Suffolk Counties in New York (the primary service areas of Boston Edison and Long Island Lighting Company, respectively) we find that Boston's population density is 34 per cent higher, its proportion apartments is three times as great, its proportion low rent apartments is more than eight times as great, its average income is 40 per cent lower and its proportion households with less than $3,000 annual income is 2.7 times greater. Collins testified further [see transcript page 430] that he controlled for variations in state and local tax burdens by subtracting tax costs from operation and maintenance expenses and then making his comparisons. While it is true that this particular comparison controls tax variations, it does not simultaneously control variations in other factors. This inability to jointly control for different factors is a basic defect in Collins' methodology and such a deficiency may contribute to obscuring these relationships.

TABLE 9.—TYPICAL ELECTRIC BILL REGRESSION RESULTS

[In kilowatt-hours]

Factor	Relationships between cost factors and bills, levels of significance [1]			
	250 bill	500 bill	750 bill	1,000 bill
1. State and local taxes per dollar of revenue	Positive .002	Positive .002	Positive .002	Positive .002.
2. Fuel costs per million B.t.u.				
3. Hydroelectric generation as a proportion of total.				
4. Purchased power as a proportion of total sales.				
5. Oil-gas generation variable			Negative .013	
6. System size		Negative .008	Negative .002	Negative .002.
7. Urbanization (over 5,000 density)				
8. Statewide net electric operating revenue as a percent of net electric plant				
Overall explanatory power of regression (percent).	10.6	30.2	37.2	30.0

[1] Probability that observed result is due to random error only.

While at first sight the explanatory power of the typical electric bill regressions seems quite low, this is not an unexpected result. Here the effort is directed at trying to explain a particular point on each utility's rate schedule, rather than the general level of its rates as is the case when average revenue is used as the price measure. Due to small differences in rate design, variations in the bill for a particular amount of consumption may fail to reflect accurately differences in the general level of rates prevailing. Consider the following two hypothetical rate schedules:

Utility A

Fixed charge 50 cents.
First 100 kw.-hr. 2.75 cents per kw.-hr.
Next 200 kw.-hr. 2.00 cents per kw.-hr.
Next 200 kw.-hr. 1.50 cents per kw.-hr.

If customer uses approved electric water heating:

Fixed charge 50 cents.
First 100 kw.-hr. 2.75 cents per kw.-hr.
Next 200 kw.-hr. 2.00 cents per kw.-hr.
Next 450 kw.-hr. 1.25 cents per kw.-hr.

Utility B

First 50 kw.-hr. 3.30 cents per kw.-hr.
Next 50 kw.-hr. 3.00 cents per kw.-hr.
Next 200 kw.-hr. 2.00 cents per kw.-hr.
Next 200 kw.-hr. 1.50 cents per kw.-hr.

If customer uses approved electric water heating:

First 50 kw.-hr. 3.30 cents per kw.-hr.
Next 50 kw.-hr. 3.00 cents per kw.-hr.
Next 200 kw.-hr. 2.00 cents per kw.-hr.
Next 100 kw.-hr. 1.50 cents per kw.-hr.
Next 100 kw.-hr. 1.40 cents per kw.-hr.
Next 250 kw.-hr. .90 cents per kw.-hr.

Under these rate schedules, the relevant bills are as follows:

	A	B
Nonwater heaging:		
250 kilowatt-hours	$6.25	$6.15
500 kilowatt-hours	10.25	10.15
Water heating:		
500 kilowatt-hours	9.75	10.05
750 kilowatt-hours	12.88	12.30

Since few if any customers employing electric water heating would consume as low as 500 kilowatt-hours per month, the 500 kilowatt-hour water heating bill is irrelevant in reality. Therefore, for normal levels of consumption, utility B has uniformly lower rates. Nevertheless, *Typical Electric Bills* would show the bills listed below which give a somewhat distorted rate picture of the 500 kilowatt-hour level:

	Utility A	Utility B
250 kilowatt-hours	$6.25	$6.15
500 kilowatt-hours	9.75	10.05
750 kilowatt-hours	12.88	12.30

Many other examples based on varying minimum charges, rate block sizes, special appliance riders, off-peak usage requirements and the like could be provided. However, this is sufficient to illustrate how detailed and sometimes irrelevant differences in rate schedules lead to unusual variations in bills and thus reduce the ability to explain such variations on the basis of systematic differences in costs.

The effect of combinationism on the four levels of electric bills was tested using the same methodology as that employed previously. That is, combination company inefficiency would be indicated by a positive statistically significant relationship between combinationism and electric bills; efficiency would be indicated by a negative statistically significant relationship, while an insignificant relationship would indicate no substantial difference in performance. In this instance, only the relatively crude combination company variable and the more refined overlap variable can be tested. The combination city variable which may have different values for each city served by a given company is inapplicable to a sample comprised of companies rather than urban areas.

Table 10 presents the results of testing the influence of combinationism on typical electric bills. At the two consumption levels which characterize the vast majority of residential customers served by the sample utilities—that is, the 250 and 500 kilowatt-hour monthly levels—the signs of the combinationism-electric bill relationships are mixed. Furthermore, the relationships fail even to approach statistical significance and the explanatory power of the regressions is reduced in two of four instances. *Clearly, therefore, the hypothesis that combination companies have an adverse effect on electric bills for consumption levels applicable to the average customer must be rejected.* At the 750 kilowatt-hour level, the signs of both combinationism variables are positive and the explanatory power of the regression is increased slightly in each case. However, the likelihood of observing such a result, when no relationship in fact exists, is sufficiently great, particularly in the case of the overlap variable, that the hypothesis that combination companies have inordinately high bills for this level of consumption also must be rejected. Only at the 1,000 kilowatt-hour level of consumption are results obtained which could be indicative of inferior combination company performance. If these relationships could be accepted as reliable ones, then it could be concluded, all else being equal, that combination company 1,000 kilowatt-hour residential bills are higher by between 2.7 and 3.9 per cent, on average, than those of single service electric utilities. It should be stressed, however, that the positive relationships between combinationism and typical electric bills for 1,000 kilowatt-hours per month *do not* pass the usual statistical tests of reliability. Nevertheless, such significance levels are sufficiently high to merit further inquiry.

TABLE 10.—RESULTS OF ADDING COMBINATIONISM VARIABLES TO TYPICAL ELECTRIC BILL REGRESSIONS

Variable added	Percent increase (decrease) in explanatory power of typical bill regression	Relationship between combinationism and typical bill	Statistical relationship [1] (insignificant)
250-kilowatt-hour electric bill:			
Combination company variable	(5.4)	Negative	0.522
Overlap variable	4.7	Negative	.215
500-kilowatt-hour electric bill:			
Combination company variable	.2	Positive	.298
Overlap variable	(2.0)	Positive	.638
750-kilowatt-hour electric bill:			
Combination company variable	2.8	Positive	.112
Overlap variable	1.0	Positive	.211
1,000-kilowatt-hour electric bill:			
Combination company variable	5.9	Positive	.066
Overlap variable	3.5	Positive	.121

[1] Probability that observed result is due to random error only.

Relationships such as those obtained from the analysis of the 1,000 kilowatt-hour monthly residential electric bill, which may be characterized by some of marginally significmant, frequently may arise from the existence of several unusual observations. Essentially, there are two possibilities. First, there may be no real general relationship between combinationism and 1,000 kilowatt-hour bill levels; despite this, extremely high bills pertaining to one or two combination companies or extremely low bills pertaining to one or two single service utilities may give rise to a relationship which is almost significant. Second, it is possible that there is indeed a true general relationship between combinationism

and high 1,000 killowatt-hour electric bills which merely is obscured by the presence of one or two extremely well-performing combination companies or poorly-performing single service electric utilities. The potential for a few extreme cases to distort true relationships is ever present in statistical analyses. In light of this, the average revenue regression and each of the typical electric bill regressions were tested for their sensitivity to extreme cases. The method of identifying extreme cases and testing their impact on the relationships observed is discussed below.

Common statistical techniques can be used to identify extreme observations. First, the average revenue and typical electric bill regressions are used to estimate for each urban area or company its average residential electric revenue and bills for 250, 500, 750 and 1,000 kilowatt-hours of monthly consumption, after taking account of significant demographic, locational and cost conditions. These estimates can be expected to differ from the actual values due to variations reflecting pure chance, measurement errors, unquantifiable factors and the like. The difference between the actual values and the estimated values are known as the regression "residuals." If the residuals do reflect in fact chance variation among firms or cities which face similar underlying and unquantified conditions (in statistical terms, if they are drawn from the same population), then the number of residuals which will fall within a certain range of values can be predicted theoretically. Residuals which have a value that may be expected to occur very infrequently can be labeled extremes. In my analysis, residuals with values which could be expected to occur less than three out of 1,000 times, if they were in fact drawn from the same population as all other residuals, were counted as extreme observations.

Extreme observations were deleted from the sample and the regression equations were recalculated then using the remaining observations. This led to the deletion of two cases each from the average revenue and 500 kilowatt-hour bill regression and one each from the 250 and 1,000 kilowatt-hours bill regressions. No extremes were identified in the 750 kilowatt-hour bill regressions. *If extremes give the appearance of a marginally significant result where none in fact exists, then the recalculated regressions should show a completely insignificant relationship between combinationism and average revenue or typical electric bills. If extremes merely obscure a true relationship, then the recalculated relationship should be statistically significant.* Table 11, which may be compared directly with Tables 8 and 10, indicates that in every instance where a positive relationship between combinationism and electric bills was found, the reliability of the relationship was reduced substantially by deleting extreme observations. Only in the case of the negative relationship between the overlap variable and 250 kilowatt-hour bills (which, if significant, could be taken as an indication of superior combination company performance) does the significance level of the result improve because of the deletions. Even the relationship between combinationism and 1,000 kilowatt-hour bills is reduced to a completely insignificant level by the elimination of one extreme observation. *This offers further clear and substantial support to the finding that combination companies have no adverse effect, as a general matter, on residential electric rates. This finding holds whether those rates are measured by average revenue or by typical electric bills.*

TABLE 11.—AVERAGE REVENUE AND TYPICAL ELECTRIC BILL REGRESSION RESULTS WITH EXTREME OBSERVATIONS DELETED

Regression	Number of deletions	Remaining sample	Relationship between combinationism and average revenue or bill: Combination company variable	Combination city variable	Overlap variable	Statistical Relationship [1] (insignificant)
Average revenue	2	194	Negative			0.764
Do	2	194		Negative		.912
Do	2	194			Negative	.834
250-kilowatt-hour bill	1	94	Negative			.317
Do	1	94			Negative	.110
500-kilowatt-hour bill	2	93	Positive			.589
Do	2	93			Positive	.992
750-kilowatt-hour bill	0	95	Positive			.112
Do	0	95			Positive	.211
1,000-kilowatt-hour bill	1	94	Positive			.114
Do	1	94			Positive	.184

[1] Probability that observed result is due to random error only.

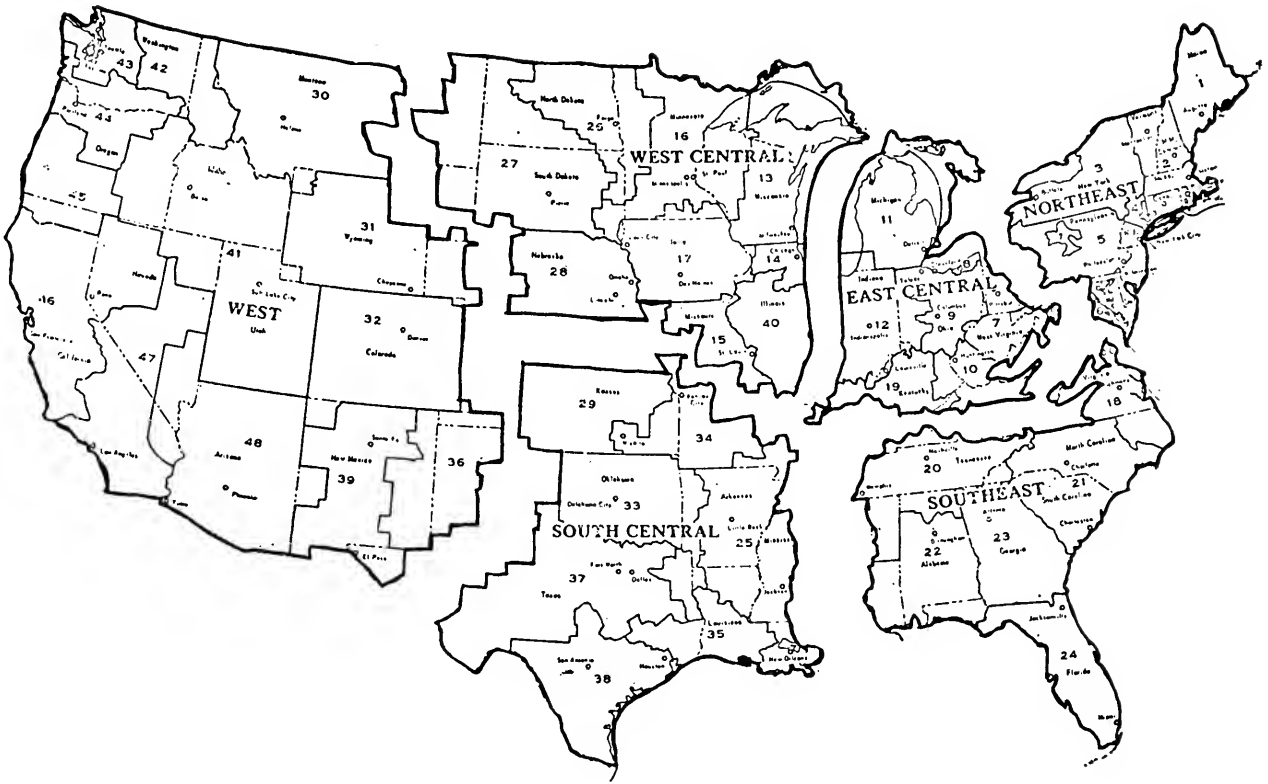
Studies conducted by others (Collins, Owen) agree that the same holds true for residential gas rates. My own studies of residential gas rates, while severely limited by the lack of gas industry data comparable in detail and uniformity to those of the electric utility industry, tend to confirm the findings of these researchers. The important rate influencing variables appear to be the general level of gas pipe line prices in the area and state and local tax burdens. Combinationism is found to be associated insignificantly with lower residential gas rates, all else being equal.

In reaching a public policy decision this accumulation of evidence that the joint control by certain utilities of both gas and electric operations leads to no significant demonstrable effect either on residential electricity or gas rates must be weighed and balanced against the costs of combination company dissolution.

Technical Appendix

Part I—Federal Power Commission National Power Survey Regions
Part II—List of Sample Urbanized Areas and Companies
Part III—Definitions and Sources of Variables
Part IV—Method of Arriving at Multiple Regression Equation
Part V—Regression Results

FEDERAL POWER COMMISSION
NATIONAL POWER SURVEY REGIONS



LIST OF SAMPLE URBANIZED AREAS AND COMPANIES

City	Served by	Combination company	Gas and electric service in city rendered by same company	Single service electric utility
NORTHEAST AREA				
Portland, Maine	Central Maine Power Co			×
Manchester, N.H	Public Service Co. of New Hampshire			×
Boston, Mass	Boston Edison Co			×
	Boston Gas Co.[1]	×	×	×
Brockton, Mass	Brockton Edison Co			×
Cambridge, Mass	Cambridge Electric Light Co	×	×	
Fall River, Mass	Fall River Electric Light Co			×
Lowell, Mass	Massachusetts Electric Co	×		
Lynn, Mass	do	×	×	
New Bedford, Mass	New Bedford Gas & Edison Light Co	×	×	
Newton, Mass	Boston Edison Co			×
Quincy, Mass	Massachusetts Electric Co	×		
Somerville, Mass	Boston Edison Co			×
Springfield, Mass	Western Massachusetts Electric Co			×
Worcester, Mass	Massachusetts Electric Co	×		
Pawtucknt, R.I	Blackstone Valley Electric Co			×
Providence, R.I	Narragansett Electric Co			×
Warwick, R.I	do			×
Bridgeport, Conn	United Illuminating Co			×
Hartford, Conn	Hartford Electric Light Co	×		
New Britain, Conn	Connecticut Light & Power Co	×		
New Haven, Conn	United Illuminating Co			×
Norwalk, Conn	Connecticut Light & Power Co	×	×	
	Norwalk Third Taxing District[2]			
	South Norwalk Electric Works[2]			
Stamford, Conn	Hartford Electric Light Co	×	×	
Waterbury, Conn	Connecticut Light & Power Co	×	×	
Albany, N.Y	Niagara Mohawk Power Corp	×	×	
Buffalo, N.Y	do	×		
Mount Vernon, N.Y	Consolidated Edison Co. of New York	×	×	
New York, N.Y	do	×	×	
	Long Island Lighting Co.[1]	×	×	
Niagara Falls, N.Y	Niagara Mohawk Power Corp	×		
Rochester, N.Y	Rochester Gas & Electric Corp	×	×	
Schenectady, N.Y	Niagara Mohawk Power Corp	×	×	
Syracuse, N.Y	do	×	×	
Utica, N.Y	do	×	×	
Yonkers, N.Y	Consolidated Edison Co of New York	×	×	
Camden, N.J	Public Service Electric & Gas Co	×	×	
Clifton, N.J	do	×	×	
East Orange, N.J	do	×	×	
Elizabeth, N.J	do	×		
Jersey City (N.J.) commercial district (Jersey City, Bayonne).	do	×	×	
Newark, N.J	do	×	×	
Paterson, N.J	do	×	×	
Trenton, N.J	do	×	×	
Allentown, Pa	Pennsylvania Power & Light Co			×
Erie, Pa	Pennsylvania Electric Co			×
Harrisburg, Pa	Pennsylvania Power & Light Co			×
Philadelphia, Pa	Philadelphia Electric Co	×		
Reading, Pa	Metropolitan Edison Co			×
Scranton, Pa	Pennsylvania Power & Light Co			×
Wilmington, Del	Delmarva Power & Light Co	×	×	
Baltimore, Md	Baltimore Gas & Electric Co	×	×	
Dundalk-Towson (Baltimore Co.)	do	×	×	
Silver Spring, Md	Potomac Electric Power Co			×
District of Columbia	do			×
EAST CENTRAL AREA				
Pittsburgh, Pa	Duquesne Light Co			×
Charleston, W. Va	Appalachian Power Co			×
Huntington, W. Va	do			×
Roanoke, Va	do			×
Akron, Ohio	Ohio Edison Co			×
Canton, Ohio	Ohio Power Co			×
Cincinnati, Ohio	Cincinnati Gas & Electric Co	×	×	
Cleveland, Ohio	Cleveland Electric Illuminating Co			×
	Cleveland Division of Light & Power[2]			
Columbus, Ohio	Columbus & Southern Ohio Electric Co			×
	Columbus Municipal Electric Light Department.[2]			
Dayton, Ohio	Dayton Power & Light Co	×	×	
Euclid, Ohio	Cleveland Electric Illuminating Co			×
Lakewood, Ohio	do			×
Parma, Ohio	do			×

LIST OF SAMPLE URBANIZED AREAS AND COMPANIES—Continued

City	Served by	Combination company	Gas and electric service in city rendered by same company	Single service electric utility
Springfield, Ohio	Ohio Edison Co			X
Toledo, Ohio	Toledo Edison Co			X
Youngstown, Ohio	Ohio Edison Co			X
Lexington, Ky	Kentucky Utilities Co			X
Louisville, Ky	Louisville Gas & Electric Co	X	X	
Evansville, Ind	Southern Indiana Gas & Electric Co	X	X	
Fort Wayne, Ind	Indiana & Michigan Electric Co			X
	Fort Wayne Municipal Light & Power [2]			
Gary, Ind	Northern Indiana Public Service Co	X	X	
Hammond, Ind	do	X	X	
Indianapolis, Ind	Indianapolis Power & Light Co			X
South Bend, Ind	Indiana & Michigan Electric Co			X
Ann Arbor, Mich	Detroit Edison Co			X
Dearborn, Mich	do			X
Detroit, Mich	do			X
Flint, Mich	Consumers Power Co	X	X	
Grand Rapids, Mich	do	X		
Kalamazoo, Mich	do	X	X	
Livonia, Mich	Detroit Edison Co			X
Pontiac, Mich	Consumers Power Co	X	X	
	Detroit Edison Co			X
Royal Oak, Mich	do			X
Saginaw, Mich	Consumers Power Co	X	X	
Warren, Mich	Detroit Edison Co			X
WEST CENTRAL AREA				
Chicago, Ill	Commonwealth Edison Co			X
Cicero, Ill	do			X
Decatur, Ill	Illinois Power Co	X	X	
Evanston, Ill	Commonwealth Edison Co			X
Joliet, Ill	do			X
Peoria, Ill	Central Illinois Light Co	X	X	
Rockford, Ill	Commonwealth Edison Co			X
Green Bay, Wis	Wisconsin Public Service Corp	X	X	
Madison, Wis	Madison Gas & Electric Co	X	X	
Milwaukee, Wis	Wisconsin Electric Power Co	X	X	
Racine, Wis	do	X	X	
St. Louis, Mo	Union Electric Co			X
Cedar Rapids, Iowa	Iowa Electric Light & Power Co	X		
Davenport, Iowa	Iowa-Illinois Gas & Electric Co	X	X	
Des Moines, Iowa	Iowa Power & Light Co	X	X	
Sioux City, Iowa	Iowa Public Service Co	X	X	
Waterloo, Iowa	do	X	X	
Duluth, Minn	Minnesota Power & Light Co			X
Minneapolis, Minn	Northern States Power Co	X		
St. Paul, Minn	do	X	X	
SOUTHEAST AREA				
Norfolk, Va., Division (Chesapeake, Norfolk, Portsmouth, Virginia Beach).	Virginia Electric & Power Co	X	X	
Peninsula Division (Hampton, Newport News).	do	X	X	
Potomac Division (Alexandria, Arlington).	do	X		
	Potomac Electric & Power Co.[1]			X
Richmond, Va	Virginia Electric & Power Co	X		
Charlotte, N.C	Duke Power Co			X
Durham, N.C	do			X
Greensboro, N.C	do			X
Raleigh, N.C	Carolina Power & Light Co			X
Winston-Salem, N.C	Duke Power Co			X
Columbia, S.C	South Carolina Electric & Gas Co	X	X	
Atlanta, Ga	Georgia Power Co			X
Columbus, Ga	do			X
Macon, Ga	do			X
Savannah, Ga	Savannah Electric & Power Co			X
Fort Lauderdale, Fla	Florida Power & Light Co			X
Miami Beach, Fla. Dade County (Miami, Miami Beach, Hialeah).	do			X
Hollywood, Fla	do			X
St. Petersburg, Fla	Florida Power Corp			X
Tampa, Fla	Tampa Electric Co			X
Birmingham, Ala	Alabama Power Co			X
Mobile, Ala	do			X
Montgomery, Ala	do			X

LIST OF SAMPLE URBANIZED AREAS AND COMPANIES—Continued

City	Served by	Combination company	Gas and electric service in city rendered by same company	Single service electric utility
SOUTH CENTRAL AREA				
Jackson, Miss	Mississippi Power & Light Co			X
Little Rock, Ark	Arkansas Power & Light Co			X
Baton Rouge, La	Gulf States Utilities	X	X	
New Orleans, La	New Orleans Public Service Co., Inc	X	X	
	Louisiana Power & Light Co			X
Shreveport, La	Southwestern Electric Power Co			X
Kansas City, Mo	Missouri Public Service Co [1]	X		
	Kansas City Power & Light Co			X
St. Joseph, Mo	St. Joseph Light & Power Co	X		
Topeka, Kans	Kansas Power & Light Co	X		
Wichita, Kans	Kansas Gas & Electric Co			X
Lawton, Okla	Public Service Co. of Oklahoma			X
Oklahoma City, Okla	Oklahoma Gas & Electric Co			X
Tulsa, Okla	Public Service Co. of Oklahoma			X
Abilene, Tex	West Texas Utilities			X
Arlington, Tex	Texas Electric Service Co			X
Beaumont, Tex	Gulf States Utilities	X		
Corpus Christi, Tex	Central Power & Light Co			X
Dallas, Tex	Dallas Power & Light Co			X
Fort Worth, Tex	Texas Electric Service Co			X
Houston, Tex	Houston Lighting & Power Co			X
Irving, Tex	Texas Power & Light Co			X
Odessa, Tex	Texas Electric Service Co			X
Pasadena, Tex	Houston Lighting & Power Co			X
Waco, Tex	Texas Power & Light Co			X
Wichita Falls, Tex	Texas Electric Service Co			X
WEST AREA				
Amarillo, Tex	Southwestern Public Service Co			X
El Paso, Tex	El Paso Electric Co			X
Lubbock, Tex	Southwestern Public Service Co			X
	Lubbock Power & Light Department [2]			
Denver, Colo	Public Service Co. of Colorado	X	X	
Lakewood, Colo	Public Service Co. of Colorado	X	X	
Pueblo, Colo	Central Telephone & Utilities	X		
Albuquerque, N.Mex	Public Service Co. of New Mexico			X
Phoenix, Ariz	Arizona Public Service Co	X	X	
	Salt River Project Agricultural Improvement & Power District. [2]			
Tucson, Ariz	Tucson Gas & Electric Co	X	X	
Reno, Nev	Sierra Pacific Power Co	X	X	
Alhambra, Calif	Southern California Edison Co			X
Anaheim, Calif	do			X
	Anaheim-Electrical Division [2]			
Berkeley, Calif	Pacific Gas & Electric Co	X	X	
Concord, Calif	do	X		
Downey, Calif	Southern California Edison Co			X
East Los Angeles, Calif	do			X
Fremont, Calif	Pacific Gas & Electric Co	X	X	
Fresno, Calif	do	X	X	
Fullerton, Calif	Southern California Edison Co			X
Garden Grove, Calif	do			X
Hayward, Calif	Pacific Gas & Electric Co	X	X	
Huntington Beach, Calif	Southern California Edison Co			X
Inglewood, Calif	do			X
Long Beach, Calif	do			X
Oakland, Calif	Pacific Gas & Electric Co	X	X	
Pomona, Calif	Southern California Edison Co			X
Richmond, Calif	Pacific Gas & Electric Co	X	X	
San Bernardino, Calif	Southern California Edison Co			X
San Diego, Calif	San Diego Gas & Electric Co	X	X	
San Francisco, Calif	Pacific Gas & Electric Co	X	X	
San Jose, Calif	do	X	X	
San Mateo, Calif	do	X	X	
Santa Ana, Calif	Southern California Edison Co			X
Santa Barbara, Calif	do			X
Santa Monica, Calif	do			X
Stockton, Calif	Pacific Gas & Electric Co	X	X	
Sunnyvale, Calif	do	X	X	
Torrance, Calif	Southern California Edison Co			X
Whittier, Calif	do			X
Salt Lake City, Utah	Utah Power & Light Co			X

[1] Investor-owned utility serving less than 5 percent of residential electric customers in the city.
[2] Publicly owned electric utility system.

Definitions and Sources of Variables

A. DEPENDENT VARIABLES

1. *Electricity Consumption Per Residential Customer* equals kilowatt-hours sold in thousands divided by average number of customers per month.

Source: *Annual Report of Class A and B Electric Utilities to the Federal Power Commission, 1969* (Form No. 1); p. 410 "Sales of Electricity—by Communities"; average number of customers per month from Account 440, column (d); kilowatt-hours sold from Account 440, column (c).

2. *Average Residential Electric Revenue* equals residential operating revenues divided by kilowatt-hours sold in thousands.

Source: *Annual Report of Class A and B Electric Utilities to the Federal Power Commission, 1969* (Form No. 1); p. 410 "Sales of Electricity—by Communities"; operating revenues from Account 440, column (b); kilowatt-hours sold from Account 440, column (c).

3. *Typical Electric Bills for 250, 500, 750 and 1,000 Kilowatt-hours Consumption Per Month* are taken from the Federal Power Commission's *Typical Electric Bills* (Washington, D.C.: U.S. Government Printing Office, 1969), pp. 1–100. Where a given utility serves more than one large urbanized area and where the bills prevailing in those areas differ, a weighted average bill is employed. The weights used are based on the average number of residential customers served in each urban area and are taken from the *Annual Report of Class A and B Electric Utilities to the Federal Power Commission, 1969* (Form No. 1); p. 410 "Sales of Electricity—by Communities"; Account 440, column (d).

B. INDEPENDENT VARIABLES

1. *Apartment Units As a Per Cent of Total Housing Units* equals 100 per cent minus the per cent that one unit structures are to total housing units.

Source: U.S. Department of Commerce, Bureau of the Census, *1970 Census of Housing* (advance report), Series HC (VI)–2–52, 1970–1971; "Places of 10,000 Inhabitants or More."

2. *Seasonal and Migratory Units Per 1,000 Total Housing Units* equals the number of "Vacant—seasonal and migratory" housing units divided by "All housing units" and then multiplied by 1,000.

Source: U.S. Department of Commerce, Bureau of the Census, *1970 Census of Housing* (advance report), Series HC (VI)–2–52, 1970–1971; "Places of 10,000 Inhabitants or More."

3. *Total Number of Housing Units in the Community* corresponds to "All housing units" as reported in the U.S. Department of Commerce, Bureau of the Census, *1970 Census of Housing* (advance report), Series HC (VI)–2–52, 1970–1971; "Places of 10,000 Inhabitants or More."

4. *Population Density* (Thousands of Persons Per Square Mile) is the 1970 city population in thousands divided by the number of square miles in the community. Population data for 1970 from: U.S. Department of Commerce, Bureau of the Census, *1970 Census of Housing* (advance report), Series HC (VI)–2–52, 1970–1971; "Places of 10,000 Inhabitants or More." Square miles for 1970 from: U.S. Department of Commerce, Bureau of the Census, *Cities with 100,000 Inhabitants or More in 1970—Population, 1940 to 1970 and Area, 1970* and *1970 Land Area Measurements of Incorporated and Unincorporated Places with Population of 2,500 or More*, (unpublished).

5. The *Reporting Adjustment Index* is obtained by dividing the average number of residential customers per month in a given community or division by the total number of housing units in the city. Customer data from: *Annual Report of Class A and B Electric Utilities to the Federal Power Commission, 1969* (Form No. 1); "Sales of Electricity—by Communities"; p. 410, Account 440, column (d). The total number of housing units is taken from: U.S. Department of Commerce, Bureau of the Census, *1970 Census of Housing* (advance report), Series HC (VI)–2–52, 1970–1971; "Places of 10,000 Inhabitants or More."

6. *Per Cent of Total Housing Units Without All Sound Plumbing Facilities* is the number of "All year-round units lacking some or all plumbing" divided by the number of "All year-round housing units" times 100.

Source: U.S. Department of Commerce, Bureau of the Census, *1970 Census of Housing* (advance report), Series HC (VI)–2–52, 1970–1971; "Places of 10,000 Inhabitants or More."

7. *Per Cent of Total Housing Units Occupied by More Than 1.51 Persons Per Room* equals the number of units inhabited by "1.51 or more persons per room" divided by "All occupied housing units" times 100.

Source: U.S. Department of Commerce, Bureau of the Census, *1970 Census of Housing* (advance report), Series HC (VI)–2–52, 1970–1917; "Places of 10,000 Inhabitants or More."

8. *Apartment Units Renting For Less Than $100 Per Month As a Per Cent of Total Housing Units* equals the sum of units specified renter-occupied for contract rent in the four rent classes "Less than $40, $40–$59, $60–$79 and $80–$99" divided by "All housing units" then multiplied by 100.

Source: U.S. Department of Commerce, Bureau of the Census, *1970 Census of Housing* (advance report), Series HC (VI)–2–52, 1970–1971; "Places of 10,000 Inhabitants or More."

9. *Per Capita Income, 1969* is taken from Standard Metropolitan Statistical Area (SMSA) data as reported in the May 1971 *Survey of Current Business*. Any two or more urbanized areas located in the same SMSA will have the same value for this variable.

Source: U.S. Department of Commerce, Office of Business Economics, *Survey of Current Business*, Vol. 51, No. 5, Table 2, "Per Capita Income and Earnings by Broad Industrial Source, by SMSA's, and Non-SMSA's, for Selected Years, 1929–69"; (per capita personal income, where received (dollars), 1969), May 1971, pp. 16–32.

10. *Effective Buying Income Estimates*, 1969 is taken from the "1970 Survey of Buying Power," *Sales Management*, Vol. 104, No. 13, June 10, 1970; Section D, "County-City Data by States; Population, Income, Sales."

11. *The Per Cent of Households With Cash Incomes of Less Than $3,000* is found in the "1970 Survey of Buying Power," *Sales Management*, Vol. 104, No. 13, June 10, 1970; Section D, "County-City Data by States; Population, Income, Sales"; "Per Cent Households by Cash Income Groups; (A) $0–$2,999."

12. *Cooling Degree Days for June, July and August* (In Thousands) is calculated using the formula: Cooling Degree Days=(three month mean temperature—65°) 92+heating degree days. Mean temperature and heating degree day data are obtained from U.S. Department of Commerce, Environmental Science Services Administration, *Local Climatological Data—Annual Summary*, by State, 1969.

13. *Income Adjusted Cooling Degree Days* (In Thousands) equals cooling degree days as defined above multiplied by the 1969 effective buying income estimate per household divided by the average effective buying income estimate for all cities in the sample.

Source: "1970 Survey of Buying Power," *Sales Management*, Vol. 104, No. 13, June 10, 1970; Section D, "County-City Data by States; Population, Income, Sales" and U.S. Department of Commerce, Environmental Science Services Administration, *Local Climatological Data—Annual Summary*, by State, 1969.

14. *Geographic Variables:* Five variables are employed to differentiate among the six National Power Survey regions. The following set of values is assigned to each city according to its regional location.

Region	Variable				
	1	2	3	4	5
Northeast	1	0	0	0	0
East Central	0	1	0	0	0
West Central	0	0	1	0	0
Southeast	0	0	0	1	0
South Central	0	0	0	0	1
West	0	0	0	0	0

Source: Federal Power Commission, *The 1970 National Power Survey*, Part II (Washington, D.C.: U.S. Government Printing Office, 1971), p. II–2–2.

15. *State and Local Taxes Per Dollar of Total Electric Revenue* equals taxes paid other than federal income tax divided by total electric operating revenue of each utility.

Source: Federal Power Commission, *Statistics of Privately Owned Electric Utilities in the United States, 1969* (Washington, D.C.: U.S. Government Printing Office, 1970); Section II "Income and Earned Surplus," lines 1, 6 and 8.

An alternative measure, state and local taxes per dollar of net electric plant, is tested also. Net electric plant data are obtained from Section I "Balance Sheet," line 3 of the same source as above.

16. The *Fuel Cost Variable* equals the average cost per million Btu of fuel consumed for steam-conventional electricity generation. Affiliated operating companies are each given the measure reflecting systemwide fuel costs.

Source: *Uniform Statistical Report* for Year Ended December 31, 1969, page E–13, Schedule XVI, "Fuel Consumed for Electric Generation," line 7.

As an alternative measure, a statewide fuel cost variable is tested. The specific measure used is the composite average cost of fuel per million Btu consumed by state.

Source: Edison Electric Institute, *Statistical Yearbook of the Electric Utility Industry for 1969* (New York: Edison Electric Institute, 1970), Table 43S, "Analysis of Fuel for Electric Generation—Total Electric Utility Industry, Fuel Burned under Boilers and by External Combustion Engines, 1969 by States," p. 51.

17. *Hydroelectric Generation As a Proportion of Total Generation* equals net hydraulic generation (excluding station use) divided by total net generation.

Source: Federal Power Commission, *Statistics of Privately Owned Electric Utilities in the United States, 1969* (Washington, D.C.: U.S. Government Printing Office, 1970); Section VII "Physical Qualities—Electric Plant and Electric Energy Account," lines 31 and 33.

18. *Purchased Power As a Proportion of Total Sales* equals electric energy purchased divided by total kilowatt-hour sales.

Source: Federal Power Commission, *Statistics of Privately Owned Electric Utilities in the United States, 1969* (Washington, D.C.: U.S. Government Printing Office, 1970); Section VII "Physical Quantities—Electric Plant and Electric Energy Account," line 33 and Section IV "Electric Operating Revenues," line 20.

19. The *Oil or Gas Generation Variable* takes a value of 1 if, in 1968, oil and/or gas was used to generate more than 90 per cent of the total power generated thermally in a given state. The value taken in all other instances is 0.

Source: Edison Electric Institute, *Statistical Yearbook of the Electric Utility Industry for 1969* (New York: Edison Electric Institute, 1970), Table 14S, "Generation by Fuel—Total Electric Utility Industry—1968," p. 23.

20. *System Size* equals 1969 system sales in millions of megawatt-hours.

Source: For independent operating companies: Federal Power Commission, *Statistics of Privately Owned Electric Utilities in the United States, 1969* (Washington, D.C.: U.S. Government Printing Office, 1970): Section IV "Electric Operating Revenues," line 20. For affiliated operating companies: *Moody's Public Utility Manual, 1970* (New York: Moody's Investors Service, Inc., 1970).

21. The *Urbanization Variable* (Over 5,000 Density) is the total number of housing units located in sample communities with population densities of over 5,000 persons per square mile served by a given utility divided by the total number of that utility's residential customers. An alternative measure taking account only of housing units located in communities of over 10,000 persons per square mile is tested also.

Source: U.S. Department of Commerce, Bureau of the Census, *1970 Census of Housing* (advance report), Series HC (VI)–2–52, 1970–1971; "Places of 10,000 Inhabitants or More"; U.S. Department of Commerce, Bureau of the Census, *Cities with 100,000 Inhabitants or More in 1970—Population, 1940 to 1970, and Area, 1970* and *1970 Land Area Measurements of Incorporated and Unincorporated Places with Population of 2,500 or More*, (unpublished). Federal Power Commission, *Statistics of Privately Owned Electric Utilities in the United States, 1969* (Washington, D.C.: U.S. Government Printing Office, 1970): Section IV "Electric Operating Revenues," line 1.

22. *Statewide Net Electric Operating Revenue As a Per Cent of Net Electric Plant* is obtained by first calculating net electric operating revenue as a per cent of net electric plant for each class A and B utility serving residential customers in a given state and then averaging these values.

Source: Federal Power Commission, *Statistics of Privately Owned Electric Utilities in the United States, 1969* (Washington, D.C.: U.S. Government Printing Office, 1970); Section II "Income and Earned Surplus," line 15 and Section I "Balance Sheet," line 3.

23. *Combination Company Variable:* A utility is counted as a combination company and given a value of 1 for this variable if it meets either one of the following criteria:

(a) In 1969, its residential gas customers accounted for more than 5 per cent of its gas and electric residential customers combined.

Source: *Moody's Public Utility Manual, 1970* (New York: Moody's Investors Service, Inc., 1970).

(b) If a corporate affiliate of one of the sample utilities served gas customers and if the officers of both companies were the same or if the affiliates had overlapping service territories, then the utility under consideration is counted as a

combination company. As examples, Rockland Electric Company (rendering only electric service) is counted as a combination company because its officers and those of Orange and Rockland Utilities, the parent company (serving both gas and electricity), were the same. Cambridge Electric Light Company is classified as a combination company because its corporate affiliate, Cambridge Gas Company, offers gas service in the same territory. Information on corporate affiliations is obtained from *Moody's Public Utility Manual, 1970* (New York: Moody's Investors Service, Inc., 1970), *Brown's Directory of North American Gas Companies*, 84th edition (New York: Harbrace Publications, 1970) and the *Electrical World Directory of Electric Utilities*, 79th edition (New York: McGraw-Hill, Inc., 1970).

24. *Combination City Variable:* An urbanized area is counted as a combination city and given a value of 1 for this variable when it is determined that the same utility provides both gas and electric service in that city. This variable allows us to discriminate among cities served by combination companies on the basis of whether or not gas and electric service areas actually overlap in a given community.

Source: *Moody's Public Utility Manual, 1970* (New York: Moody's Investors Service, Inc., 1970) and *Brown's Directory of North American Gas Companies*, 84th edition (New York: Harbrace Publications, 1970).

25. *Overlap Variable:* This variable reflects the proportion of a given utility's residential electric customers who also are served gas by that utility. The American Gas Association's *Survey of Residential Gas Service by County, 1967* reports the number of residential gas customers located in each county and whether or not that county receives both its gas and electric service from the same utility. The value given this variable is obtained by summing the number of gas residential customers located in counties rendered combination service by a particular utility and then dividing the total number of residential electric customers served by that company in 1969. As an example, Public Service Electric and Gas Company has an overlap proportion of .805 indicating that approximately 80 per cent of its residential electric customers are located in counties where it serves both gas and electric customers.

Method of Arriving at Multiple Regression Equation

The basic problem was to find a multiple regression equation relating the dependent variable to some combination or group of independent variables which would include all of the statistically significant independent variables and would provide the best fit to the data. The procedure that was employed is known as "stepwise regression" and is now widely used among statisticians. A brief description follows.

The first step was to compute the simple correlations between the dependent variable, say residential electricity consumption per customer, and each of the independent variables (in this case, the demographic and locational factors). The independent variable having the highest correlation with the dependent variable was then selected. A simple linear regression was then computed.

The second step was to selected a second independent variable to add to the initial regression. The variable selected was the one which, when added to the initial regression, gave the highest multiple correlation result. (This was determined by computing some 21 multiple correlations in each of which the two independent variables were (1) the initial independent variable and (2) only one of the possible additional variables.)

The third step was to select the third independent variable which, when added to the first two variables, resulted in the highest multiple correlation. This step parallels the second step.

This process was followed continuously until it was no longer possible to find new and statistically significant variables (i.e., independent variables which improved the multiple correlation) which could be added to the regression. At this point in the usage regression, for example, there were six independent variables which were statistically significant. The multiple correlation coefficient was about 0.73.

All variables discussed in the text at pages 26 to 42 were tested in the appropriate regressions. Although not all variables were found to be statistically significant in any given regression, this does not necessarily mean that other factors have no impact on the dependent variable. It means only that there is no evidence that whatever impact they have goes beyond that reflected in the measures included in the basic equation.

TECHNICAL APPENDIX—PT. V

RESIDENTIAL USE REGRESSION RESULTS—DEMOGRAPHIC VARIABLES

[$\bar{R}^2$=0.730; standard error of estimate=1.11539; d.f.=187]

Variable	Regression coefficient	T-ratio	Mean
Constant term	5.17504	18.464	
Population density	−.112524	−5.189	5.77414
Reporting adjustment index	.174382	3.822	1.46725
Apartment units renting for less than $100 per month as a percent of total housing units	−.042694	−5.63	23.2063
Income adjusted cooling degree days	1.73541	6.925	.853435
Southeast region variable	2.4404	7.713	.113402
South-central region variable	1.55944	4.325	.123711

AVERAGE REVENUE REGRESSION RESULTS—DEMOGRAPHIC AND COST VARIABLES

[$\bar{R}^2$=0.683; standard error of estimate=2.27649; d.f.=185]

Constant term	20.8752	22.374	
Population density	.171994	2.996	5.75267
Reporting adjustment index	−.242375	−2.5	1.46087
Apartment units renting for less than $100 per month as a percent of total housing units	.0372673	2.18	23.2603
Income adjusted cooling degree days	−1.34741	−3.066	.854746
Southeast region variable	−3.09958	−5.371	.112245
State and local taxes per dollar of total electric revenue	35.1045	6.19	.110539
Hydroelectric generation as a proportion of total generation	−6.3412	−3.252	.0617357
Purchased power as a proportion of total sales	2.84272	3.38	.14901
System size	−.0649675	−5.157	22.0455
Urbanization variable (over 5 000 density)	.0379907	3.507	11.1107

DEMOGRAPHIC, COST, AND COMBINATION COMPANY VARIABLES

[$\bar{R}^2$=0.682; standard error of estimate=2.28092; d.f.=184]

Constant term	20.9662	22.06	
Population density	.174331	3.022	5.75267
Reporting adjustment index	−.247093	−2.533	1.46087
Apartment units renting for less than $100 per month as a percent of total housing units	.0369134	2.153	23.2603
Income adjusted cooling degree days	−1.36949	−3.097	.854746
Southeast region variable	−3.09986	−5.361	.112245
State and local taxes per dollar of total electric revenue	35.5744	6.186	.110539
Hydroelectric generation as a proportion of total generation	−6.1179	−3.061	.0617357
Purchased power as a proportion of total sales	2.8574	3.389	.14901
System size	−.0673089	−5.034	22.0455
Urbanization variable (over 5,000 density)	.038082	3.508	11.1107
Combination company variable	−.199981	−.53	.438776

DEMOGRAPHIC, COST, AND COMBINATION CITY VARIABLES

[$\bar{R}^2$=0.682; standard error of estimate=2.28059; d.f.=184]

Constant term	20.9406	22.243	
Population density	.173357	3.012	5.75267
Reporting adjustment index	−.24691	−2.534	1.46087
Apartment units renting for less than $100 per month as a percent of total housing units	.037182	2.171	23.2603
Income adjusted cooling degree days	−1.36252	−3.09	.854746
Southeast region variable	−3.11168	−5.379	.112245
State and local taxes per dollar of total electric revenue	35.6444	6.191	.110539
Hydroelectric generation as a proportion of total generation	−6.06822	−3.02	.0617357
Purchased power as a proportion of total sales	2.80864	3.325	.14901
System size	−.0671449	−5.099	22.0455
Urbanization variable (over 5,000 density)	.0382671	3.523	11.1107
Combination city variable	−.224969	−.58	.341837

DEMOGRAPHIC, COST, AND OVERLAP VARIABLES

[$\bar{R}^2$=0.683; standard error of estimate=2.27855; d.f.=184]

Variable	Regression coefficient	T-ratio	Mean
Constant term	20.9628	22.301	
Population density	.175839	3.05	5.75267
Reporting adjustment index	−.245606	−2.529	1.46087
Apartment units renting for less than $100 per month as a percent of total housing units	.0365174	2.131	23.2603
Income adjusted cooling degree days	−1.35729	−3.085	.854746
Southeast region variable	−3.15093	−5.423	.112245
State and local taxes per dollar of total electric revenue	35.8528	6.235	.110539
Hydroelectric generation as a proportion of total generation	−5.75477	−2.767	.0617357
Purchased power as a proportion of total sales	2.81361	3.339	.14901
Shystem size	−.0683002	−5.153	22.0455
Urbanization variable (over 5,000 density)	.0381966	3.522	11.1107
Overlap variable	−.458655	−.816	.254609

COST VARIABLES

[$\bar{R}^2$=0.539; standard error of estimate=2.74525; d.f.=190]

Constant term	19.7777	24.741	
State and local taxes per dollar of total electric revenue	44.0691	6.586	0.110539
Hydroelectric generation as a proportion of total generation	−3.22115	−1.561	.0617357
Purchased power as a proportion of total sales	4.63705	5.027	.14901
System size	−.0905199	−6.27	22.0455
Urbanization variable (over 5,000 density)	.0571144	5.426	11.1107

COST AND COMBINATION COMPANY VARIABLES

[R^2=0.538; standard error of estimate=2.74999; d.f.=189]

Constant term	19.702	24.291	
State and local taxes per dollar of total electric revenue	43.3181	6.348	0.110539
Hydroelectric generation as a proportion of total generation	−3.58498	−1.661	.0617357
Purchased power as a proportion of total sales	4.60951	4.983	.14901
System size	−.0871932	−5.615	22.0455
Urbanization variable (over 5,000 density)	.0567947	5.379	11.1107
Combination company variable	.263336	.588	.438776

COST AND COMBINATION CITY VARIABLES

[R^2=0.537; standard error of estimate=2.75121; d.f.=189]

Constant term	19.7414	24.501	
State and local taxes per dollar of total electric revenue	43.5313	6.377	0.110539
Hydroelectric generation as a proportion of total generation	−3.49401	−1.612	.0617357
Purchased power as a proportion of total sales	4.65958	5.033	.14901
System size	−.0884435	−5.787	22.0455
Urbanization variable (over 5,000 density)	.0568097	5.373	11.1107
Combination city variable	.195546	.421	.341837

COST AND OVERLAP VARIABLES

[$\bar{R}^2$=0.538; standard error of estimate=2.75048; d.f.=189]

Constant term	19.7358	24.521	
State and local taxes per dollar of total electric revenue	43.3763	6.349	0.110539
Hydroelectric generation as a proportion of total generation	−3.69694	−1.638	.0617357
Purchased power as a proportion of total sales	4.65848	5.036	.14901
System size	−.0877716	−5.709	22.0455
Urbanization variable (over 5,000 density)	.0566215	5.348	11.1107
Overlap variable	.35189	.527	.254609

COST VARIABLES, EXCEPT TAXES

[$\bar{R}^2$=0.437; standard error of estimate=3.0345; d.f.=191]

Constant term	24.3913	57.312	
Hydroelectric generation as a proportion of total generation	.263879	.12	0.0617357
Purchased power as a proportion of total sales	4.70484	4.615	.14901
System size	−.107998	−6.885	22.0455
Urbanization variable (over 5,000 density)	.0947212	9.691	11.1107

COST AND COMBINATION COMPANY VARIABLES, EXCEPT TAXES

[$\bar{R}^2$=0.442; standard error of estmiate=3.02102; d.f.=190]

Variable	Regression coefficient	T-ratio	Mean
Constant term	23.9251	46.943	
Hydroelectric generation as a proportion of total generation	−1.01418	−.435	0.0617357
Purchased power as a proportion of total sales	4.6182	4.544	.14901
System size	−.097053	−5.718	22.0455
Urbanization variable (over 5,000 density)	.0918206	9.285	11.1107
Combination company variable	.795217	1.646	.438776

COST AND COMBINATION CITY VARIABLES, EXCEPT TAXES

[$\bar{R}^2$=0.441; standard error of estimate=3.02476; d.f.=190]

Constant term	24.0367	49.447	
Hydroelectric generation as a proportion of total generation	−.943931	−.403	0.0617357
Purchased power as a proportion of total sales	4.78797	4.705	.14901
System size	−.09923	−5.942	22.0455
Urbanization variable (over 5,000 density)	.0917969	9.237	11.1107
Combination city variable	.748843	1.494	.341837

COST AND OVERLAP VARIABLES, EXCEPT TAXES

[$\bar{R}^2$=0.442; standard error of estimate=3.02163; d.f.=190]

Constant term	24.0118	49.601	
Hydroelectric generation as a proportion of total generation	−1.49499	−.60	0.0617357
Purchased power as a proportion of total sales	4.77238	4.697	.14901
System size	−.0979768	−5.833	22.0455
Urbanization variable (over 5,000 density)	.0911275	9.129	11.1107
Overlap variable	1.1665	1.622	.254609

EXTREMES DELETED [1]—DEMOGRAPHIC AND COST VARIABLES

[$\bar{R}^2$=0.705; standard error of estimate=2.15605; d.f.=183]

Constant term	21.5491	24.067	
Population density	.164209	3.019	5.71012
Reporting adjustment index	−.279523	−3.026	1.46583
Apartment units renting for less than $100 per month as a percent of total housing units	.0317939	1.953	23.2848
Income adjusted cooling degree days	−1.49677	−3.581	.857944
Southeast region variable	−2.93518	−5.359	.113402
State and local taxes per dollar of total electric revenue	32.5017	6.015	.110364
Hydroelectric generation as a proportion of total generation	−6.44876	−3.488	.0623721
Purchased power as a proportion of total sales	3.32948	4.144	.146757
System size	−.0730868	−6.063	22.2469
Urbanization variable (over 5,000 density)	.0507992	4.678	10.6433

EXTREMES DELETED [1]—DEMOGRAPHIC, COST, AND COMBINATION COMPANY VARIABLES

[$\bar{R}^2$=0.714; standard error of estimate=2.16143; d.f.=182]

Constant term	21.5952	23.712	
Population density	.16548	3.025	5.71012
Reporting adjustment index	−.281984	−3.033	1.46583
Apartment units renting for less than $100 per month as a percent of total housing units	.0316341	1.938	23.2848
Income adjusted cooling degree days	−1.50786	−3.585	.857944
Southeast region variable	−2.93581	−5.347	.113402
State and local taxes per dollar of total electric revenue	32.7597	5.972	.110364
Hydroelectric generation as a proportion of total generation	−6.32807	−3.336	.0623721
Purchased power as a proportion of total sales	3.33594	4.14	.146757
System size	−.0743155	−5.822	22.2469
Urbanization variable (over 5,000 density)	.0508268	4.668	10.6433
Combination company variable	−.107003	−.299	.43299

EXTREMES DELETED [1]—DEMOGRAPHIC, COST, AND COMBINATION CITY VARIABLES

[$\bar{R}^2$=0.714; standard error of estimate=2.16189; d.f.=182]

Variable	Regression coefficient	T-ratio	Mean
Constant term	21.5591	23.89	
Population density	.16447	3.012	5.71012
Reporting adjustment index	−.280275	−3.018	1.46583
Apartment units renting for less than $100 per month as a percent of total housing units	.0317965	1.948	23.2848
Income adjusted cooling degree days	−1.49903	−3.572	.857944
Southeast region variable	−2.93771	−5.345	.113402
State and local taxes per dollar of total electric revenue	32.6037	5.929	.110364
Hydroelectric generation as a proportion of total generation	−6.39918	−3.352	.0623721
Purchased power as a proportion of total sales	3.32232	4.11	.146757
System size	−.0734594	−5.848	22.2469
Urbanization variable (over 5,000 density)	.0508279	4.666	10.6433
Combination city variable	−.0403426	−.109	.335052

EXTREMES DELETED [1]—DEMOGRAPHIC, COST, AND OVERLAP VARIABLES

[$\bar{R}^2$=0.714; standard error of estimate=2.16171; d.f.=182]

Constant term	21.5667	23.916	
Population density	.165192	3.017	5.71012
Reporting adjustment index	−.280021	−3.022	1.46583
Apartment units renting for less than $100 per month as a percent of total housing units	.0316331	1.936	23.2848
Income adjusted cooling degree days	−1.4985	−3.575	.857944
Southeast region variable	−2.94866	−5.332	.113402
State and local taxes per dollar of total electric revenue	32.7005	5.942	.110364
Hydroelectric generation as a proportion of total generation	−6.30706	−3.19	.0623721
Purchased power as a proportion of total sales	3.31929	4.113	.146757
System size	−.0738419	−5.847	22.2469
Urbanization variable (over 5,000 density)	.0507501	4.66	10.6433
Overlap variable	−.111015	−.206	.249269

250 Kw.-hr. BILL REGRESSION RESULTS—COST VARIABLES

[$\bar{R}^2$=0.106; standard error of estimate=0.781448; d.f.=93]

Constant term	6.66282	28.314	
State and local taxes per dollar of total electric revenue	7.30083	3.488	0.105701

250 Kw.-hr. BILL REGRESSION RESULTS—COST AND COMBINATION COMPANY VARIABLES

[$\bar{R}^2$=0.100; standard error of estimate=0.783965; d.f.=92]

Constant term	6.67143	28.213	
State and local taxes per dollar of total electric revenue	7.65539	3.524	0.105701
Combination company variable	−.106785	−.636	.431579

250 Kw.-hr. BILL REGRESSION RESULTS—COST AND OVERLAP VARIABLES

[$\bar{R}^2$=0.111; standard error of estimate=0.779255; d.f.=92]

Constant term	6.65208	28.329	
State and local taxes per dollar of total electric revenue	8.11661	3.707	0.105701
Overlap variable	−.307021	−1.235	.245851

250 Kw.-hr. BILL REGRESSION RESULTS WITH EXTREMES DELETED [2]—COST VARIABLES

[$\bar{R}^2$=0.126; standard error of estimate=0.747226; d.f.=92]

Constant term	6.65599	29.579	
State and local taxes per dollar of total electric revenue	7.59889	3.792	0.105512

250 Kw.-hr. BILL REGRESSION RESULTS WITH EXTREMES DELETED [2]—COST AND COMBINATION COMPANY VARIABLES

[$\bar{R}^2$=0.126; standard error of estimate=0.747209; d.f.=91]

Variable	Regression coefficient	T-ratio	Mean
Constant term	6.66877	29.589	
State and local taxes per dollar of total electric revenue	8.14498	3.923	0.105512
Combination company variable	−.161398	−1.002	.43617

250 Kw.-hr. BILL REGRESSION RESULTS WITH EXTREMES DELETED [2]—COST AND OVERLAP VARIABLES

[$\bar{R}^2$=0.140; standard error of estimate=0.740955; d.f.=91]

Constant term	6.64235	29.747	
State and local taxes per dollar of total electric revenue	8.62378	4.131	0.105512
Overlap variable	−.380321	−1.601	.248466

500 Kw.-hr. BILL REGRESSION RESULTS—COST VARIABLES

[$\bar{R}^2$=0.302; standard error of estimate=1.07417; d.f.=92]

Constant term	8.95205	24.649	
State and local taxes per dollar of total electric revenue	15.9243	5.466	0.105701
System size	−.020881	−2.675	14.9416

500 Kw.-hr. BILL REGRESSION RESULTS—COST AND COMBINATION COMPANY VARIABLES

[$\bar{R}^2$=0.303; standard error of estimate=1.0737; d.f.=91]

Constant term	8.88432	24.088	
State and local taxes per dollar of total electric revenue	15.2327	5.099	0.105701
System size	−.0186259	−2.3	14.9416
Combination company variable	.248229	1.039	.431579

500 Kw.-hr. BILL REGRESSION RESULTS—COST AND OVERLAP VARIABLES

[$\bar{R}^2$=0.296; standard error of estimate=1.07875; d.f.=91]

Constant term	8.93963	24.446	
State and local taxes per dollar of total electric revenue	15.5337	5.107	0.105701
System size	−.0200192	−2.487	14.9416
Overlap variable	.16609	.47	.245851

500 Kw.-hr. BILL REGRESSION RESULTS WITH EXTREMES DELETED [3]—COST VARIABLES

[$\bar{R}^2$=0.345; standard error of estimate=0.984992; d.f.=90]

Constant term	8.9888	26.982	
State and local taxes per dollar of total electric revenue	16.0989	6.021	0.105637
System size	−.0202045	−2.806	14.9002

500 Kw.-hr. BILL REGRESSION RESULTS WITH EXTREMES DELETED [3]—COST AND COMBINATION COMPANY VARIABLES

[$\bar{R}^2$=0.340; standard error of estimate=0.98887; d.f.=89]

Constant term	8.95521	26.33	
State and local taxes per dollar of total electric revenue	15.7569	5.715	0.105637
System size	−.0190992	−2.543	14.9002
Combination company variable	.120797	.544	.44086

500 Kw.-hr. BILL REGRESSION RESULTS WITH EXTREMES DELETED [3]—COST AND OVERLAP VARIABLES

[$\bar{R}^2$=0.338; standard error of estimate=0.990509; d.f.=89]

Variable	Regression coefficient	T-ratio	Mean
Constant term	8.98848	26.754	
State and local taxes per dollar of total electric revenue	16.0893	5.748	0.105637
System size	−.0201833	−2.712	14.9002
Overlap variable	.00404835	.012	.251138

750 Kw.-hr. BILL REGRESSION RESULTS—COST VARIABLES

[$\bar{R}^2$=0.372; standard error of estimate=1.26849; d.f.=91]

Constant term	13.1308	29.678	
State and local taxes per dollar of total electric revenue	16.4491	4.713	0.105701
Oil or gas generation variable	−.795551	−2.478	.2315
System size	−.0336688	−3.58	14.941679

750 Kw.-hr. BILL REGRESSION RESULTS—COST AND COMBINATION COMPANY VARIABLES

[$\bar{R}^2$=0.382; standard error of estimate=1.25793; d.f.=90]

Constant term	12.9837	28.957	
State and local taxes per dollar of total electric revenue	15.3271	4.339	0.105701
Oil or gas generation variable	−.72369	−2.251	.231579
System size	−.0299975	−3.123	14.9416
Combination company variable	.449943	1.592	.431579

750 Kw.-hr. BILL REGRESSION RESULTS—COST AND OVERLAP VARIABLES

[$\bar{R}^2$=0.375; standard error of estimate=1.26466; d.f.=90]

Constant term	13.0832	29.549	
State and local taxes per dollar of total electric revenue	15.2808	4.24	.105701
Oil or gas generation variable	−.769067	−2.398	.231579
System size	−.031138	−3.246	14.9416
Overlap variable	.517354	1.245	.245851

1,000 Kw.-hr. BILL REGRESSION RESULTS—COST VARIABLES

[$\bar{R}^2$=0.300; standard error of estimate=1.76555; d.f.=92]

Constant term	17.0871	28.624	
State and local taxes per dollar of total electric revenue	20.0355	4.184	0.105701
System size	−.054619	−4.257	14.9416

1,000 Kw.-hr. BILL REGRESSION RESULTS—COST AND COMBINATION COMPANY VARIABLES

[$\bar{R}^2$=0.318; standard error of estimate=1.74297; d.f.=91]

Constant term	16.892	28.213	
State and local taxes per dollar of total electric revenue	18.0435	3.721	0.105701
System size	−.0481239	−3.661	14.9416
Conbination company variable	.714965	1.844	.431579

1,000 Kw.-hr. BILL REGRESSION RESULTS—COST AND OVERLAP VARIABLES

[$\bar{R}^2$=0.310; standard error of estimate=1.75232; d.f.=91]

Constant term	17.0206	28.653	
State and local taxes per dollar of total electric revenue	17.945	3.632	0.105701
System size	−.0500074	−3.824	14.9416
Overlap variable	.888835	1.548	.245851

1,000 Kw.-hr. BILL REGRESSION RESULTS WITH EXTREMES DELETED [1]—COST VARIABLES

[R^2=0.329; standard error of estimate=1.69044; d.f.=91]

Variable	Regression coefficient	T-ratio	Mean
Constant term	17.1578	29.995	
State and local taxes per dollar of total electric revenue	20.1047	4.385	0.105655
System size	−.0561794	−4.569	15.0047

1,000 Kw.-hr. BILL REGRESSION RESULTS WITH EXTREMES DELETED [1]—COST AND COMBINATION COMPANY VARIABLES

[R^2=0.340; standard error of estimate=1.67661; d.f.=90]

Constant term	16.9917	29.45	
State and local taxes per dollar of total electric revenue	18.4451	3.952	0.105655
System size	−.0506914	−3.999	15.0047
Combination company variable	.59422	1.583	.43617

1,000 Kw.-hr. BILL REGRESSION RESULTS WITH EXTREMES DELETED [1]—COST AND OVERLAP VARIABLES

[R^2=0.334; standard error of estimate=1.68343; d.f.=90]

Constant term	17.1	29.931	
State and local taxes per dollar of total electric revenue	18.3729	3.869	.105655
System size	−.0523014	−4.155	15.0047
Overlap variable	.73511	1.326	.248466

[1] Cambridge Electric Light Co., Madison Gas & Electric Co.
[2] Kansas Gas & Electric Co.
[3] Detroit Edison Co., Kansas Gas & Electric Co.
[4] Oklahoma Gas & Electric Co.

Mr. CHUMBRIS. Included therein was the answer of the Chairman of the FPC to the chairman's request for that information, is that right?

Mr. O'LEARY. That is correct.

Senator HART. As we recess these hearings, I want on the record to thank Senator Hruska for chairing the set of hearings this week as well as the earlier set a month ago. Anyone who is a member of the Appropriations Committee has the strongest reason of all to avoid chairing any other committees, and I am especially grateful that he has done this.

The Antitrust Division of the Department of Justice at their request has been excused from testifying. We will determine whether we will hear from them at a later date or whether they will file a statement. In any event, the record would include their position.

We will recess at the call of the chair.

(Whereupon, at 2 p.m., the hearing was adjourned, subject to the call of the Chair.)

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The electric side of combination gas-electric utilities

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This paper assesses the effects of combination gas-electric utilities on income redistribution and economic efficiency. It finds that such combinations appear to exercise greater market power than straight electric utilities. A series of regression equations shows that they earn higher rates of return than straight electric companies in spite of regulation. Promotional expenditures are strikingly lower, and consumption of electricity by customers is also lower. $70 to $80 million per year is estimated to be redistributed from combinations' customers to their owners. The economic loss from the monopoly power of combinations may be on the order of $300 million per year.

1. Introduction

■ Some utilities ("combination utilities") provide both electric and gas service to a given area, while others provide only gas ("straight gas utilities") or only electricity ("straight electric utilities"). This paper studies, both analytically and empirically, the economic behavior of the electric operations of combination utilities compared with those of straight electric utilities. The paper's two purposes are to establish whether gas-electric combinations are beneficial or detrimental from an economic efficiency standpoint and to find the effects of such combinations on the distribution of income. The dimensions of the comparison are rates of return, securities market valuation, promotional expenditures, average cost, prices or utilities' average revenues, and consumption of energy per customer. The firms are assumed to be profit maximizers.

2. The market

■ The typical structure of the energy market in a particular area (exclusive of energy for transportation) is two large sellers—a gas utility and an electric utility—with what is assumed to be a monopolistically competitive fringe of numerous other sellers of imperfect substitutes for gas and electricity; the products of the sellers are differentiated, and barriers to entry into the sale of either gas or electricity are very high. Gas and electricity should be substitutes for each other in uses such as cooking, clothes drying, water heating, central air conditioning, space heating, and industrial heating. There then should be an appreciable cross-elasticity of demand between gas and electricity.[1] Their substitutability, together with the fact that gas and electric utilities occupy a large part of the market for energy, implies that combining the electric and gas utilities that serve an area probably restrains competition in the energy market of that area. If

[1] Evidence of the cross-elasticity of demand in England is provided by Houthakker [3].

there were no regulation of gas and electric utilities, such a combination should result in greater profits and profitability. Two firms without a completely common interest should find it difficult to arrive at an agreement, whether implicit or explicit, which unites them in maximizing joint profits as much as does actual consolidation.

3. Regulation, rate of return, and income redistribution

■ But might not the regulators prevent the exercise of the potentially greater market power of such a combination? Possibly not. Regulatory commissions are neither omniscient nor omnipotent. Without speculating on the mechanisms by which the regulators are influenced, for the purposes of this paper it is sufficient to say that regulators may be just frosting on the cake, altering its flavor somewhat but in no way turning a devil's food cake into an angel food cake.

In order to see whether this is so, the rate of return for the electric divisions of combinations can be compared with that of straight electric companies by cross-section regression. The specification chosen for this paper is

$$\mathrm{ROR}_i = a_0 + a_1 X_{1i} + \sum_s a_s D_{si} + \alpha i, \qquad (1)$$

where ROR_i is the accounting rate of return on rate base for each electric utility as defined by the Federal Power Commission; X_{1i} is a dummy variable indicating whether an electric utility is part of a combination or is a straight electric; the D_{si} are dummy variables for each state represented in the sample, where each utility is assigned to the state from which it obtains the largest part of its revenue; and the αi are error terms.

While a similar equation was not run for the gas side, another approach to the question of whether combination utilities earn a higher rate of return is to use the accounting rate of return for *all* of each firm's net assets[2]—gas and electric (and, in some cases, a little more). In this case, the cost of capital to the firm must be controlled for, since gas operations may have different risk than electric operations. Let the rate of return for the whole of each firm be represented by RORTOTAL. The specification of its equation is

$$\mathrm{RORTOTAL}_i = b_0 + b_1 X_{1i} + b_2\,\mathrm{RATE}_i + \sum_s b_s D_{si} + b_i, \qquad (2)$$

where RATE_i is the cost of capital to each firm.[3]

[2] The book value of net assets equals the average of beginning- and end-of-year values of total assets less current and accrued liabilities less deferred credits less contributions in aid of construction less accumulated deferred income taxes. It differs slightly from the Federal Power Commission's definition of rate base. Net income is before interest but after taxes.

[3] Cost of capital to the firm $= \dfrac{0.52V_d r_d + V_p r_p + V_c r_c}{V_d + V_p + V_c}$, where

0.52 = 1. − corporate income tax rate,
V_d = market value of long-term debt,
V_p = market value of preferred stock,
V_c = market value of common stock,
r_d = yield to maturity of long-term debt,
r_p = yield on preferred stock = (preferred dividends)/V_p, and
r_c = yield on common stock = (net income after taxes, interest, and preferred dividends)/V_c.
All of these variables are averaged over a year.

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A somewhat different method replaces current accounting net income by the total market value of all securities averaged over a year. The ratio of securities value to the book value of net assets (defined the same as for RORTOTAL) expresses the capital market's valuation of the expected returns of each firm. The higher the ratio, the higher is the expected rate of return. The equation for this RATIO is

$$\text{RATIO}_i = c_0 + c_1 X_{1i} + c_2\,\text{RATE}_i + \sum_s c_s D_{si} + \alpha i\,. \qquad (3)$$

Once the difference in RORTOTAL or RATIO between straight electrics and combinations is estimated, the redistribution brought about by combinations can be derived. The redistribution is

$$R_a = b_1 V_a\,(1 + b_1)\,, \qquad (4a)$$

or

$$R_s = c_1 V_s\,(1 + c_1)\,, \qquad (4b)$$

where b_1 and c_1 are the estimated regression coefficients from equations (2) and (3), V_a is the aggregate book value of net assets of all combination utilities, and V_s is the aggregate value of all their securities. R_a is an estimate of the annual income redistribution; R_s is an estimate of the redistribution of wealth, the present value to the owners of all future years' income redistributions.

4. Economic efficiency

■ Economic efficiency is important as well as income redistribution. (For this topic the data are limited to the electric side only.) For information on the efficiency of the allocation of the nation's resources, the rate of return on capital is better measured from the economy's point of view than from the firm's point of view. The measure of social rate of return chosen for this paper is net income before taxes and before interest payments divided by the average of beginning- and end-of-year values of net plant in service. The numerator must include tax payments to measure the net productivity of a firm's capital to the economy. Working capital is excluded because the data do not allocate it between the electric and gas divisions of combination utilities. Net working capital varies from about −10 percent to +10 percent of net plant, so some error may result from its omission. The specification is

$$\text{SROR}_i = d_0 + d_1 X_1 + \sum_s d_s D_s + s_i\,, \qquad (5)$$

where SROR_i represents the social rate of return for each utility.

If combinations are found to earn higher social rates of return, the finding is consistent with a misallocation of resources, where the electric divisions of combinations devote too little resources to production relative to straight electric companies. But the evidence on social rates of return is not sufficient to show a misallocation. In contrast with most other industries, a utility may charge a price for its marginal sale to a customer that is much lower than average revenue. So a combination utility may earn a higher social rate of return without affecting a consumer's marginal decision essentially by charging the consumer a lump sum tax. The study must go further in order to find whether customers' decisions are affected by combination utilities.

The details of the results of combining gas and electric utilities that serve the same area are worked out in terms of the following variables: promotional expenditures, average cost, rates, and demand. Quality of service is also dealt with, but the data do not permit its direct observation. There are four major effects of a combination:

□ **(1) Economies of consolidation.** Regardless of the behavior of the regulators as to the setting of the allowed rate of return, as long as there is at least a slight regulatory lag profits should be gained by the combination's taking advantage of economies of consolidation. Such economies might result from the ability of the combination to eliminate duplication of billing and meter reading and to exploit any economies of scale in, for instance, customer relations, maintenance, and top and middle management. The average cost curves of both the electric and the gas divisions of the combination thus may be lower than those of straight gas or straight electric utilities.

□ **(2) Exercise of greater market power.** Combining gas and electric utilities enables the managers to internalize the cross-elasticity of demand between gas and electricity with respect to rates, promotional expenditures, and quality of service. The data gathered for this paper are not sufficient to justify an exploration into a full-blown theory of duopoly, so a very simple, sketchy theory is offered: As stated above, two competing firms are unlikely to be able to come to an agreement which enables them to earn as much profit as the two combined; the customers of a combination should face a less desirable rate-quality-promotions mix.[4] A combination may charge higher rates relative to its average costs than straight gas and straight electric utilities charge. It may also alternatively expend less on promotions and/or on quality of service, which should lower both its average cost curves and its demand curves relative to straight gas and straight electric utilities. (Define the demand curve for electricity by controlling for the parameters of gas and vice versa.)

□ **(3) The normal Averch-Johnson effect.** The Averch-Johnson (A-J) effect also may come into play. (See Baumol and Klevorick [1] for the most thorough treatment of the A-J effect.) This A-J effect results when a regulator sets rates for a utility so that it will earn a rate of return higher than the rate the utility must pay to obtain capital on the money market, yet lower than the rate of return which the utility would earn if unconstrained. Under these conditions, a utility can earn more total profit by expanding its rate base beyond what would be dictated by a least-cost criterion.

The standard example of a technique by which the rate base may be expanded is the substitution of capital for labor and fuel in production. Even though such a substitution increases costs above the least-cost solution for a given output, the regulator is obligingly assumed to reset rates so that the rate of return is unchanged. Profit equals the rate base times the difference between the allowed rate of return and

[4] A more sophisticated theory might assume that some dimensions are easier to agree on than others. As a result, a combination, while making the rate-quality-promotions mix as a whole less desirable to its customers, might make the easily agreed-upon dimensions actually better to its customers.

the cost of capital, so with the rate base enlarged and the rate of return held constant, profit is larger because of the substitution. If a commission allows a combination utility a higher rate of return than it would allow straight gas or straight electric utilities, each division of the combination should then contract its rate base and (under plausible assumptions, according to Baumol and Klevorick) reduce its output from what straight gas and straight electric utilities would choose. A utility induces a drop in the quantity demanded by reducing the desirability of its rate-quality-promotions mix, but precisely how it should change the individual components of the mix is indeterminate *a priori*. What happens to average cost is also indeterminate.

□ **(4) The Averch-Johnson combination effect.** If the regulators pool the gas and electric divisions of a combination in calculating its rate of return, then another result derives from the A-J effect beyond that of inducing a combination utility to contract each division's rate base and output. Call this new result the A-J "combination" effect; call the previous case the "normal" A-J effect. An opportunity is available to the combination utility for expanding its rate base that is not available to straight gas utilities or to straight electric utilities. There is more capital per marginal BTU used in the production of electricity than is used in producing gas.[5] If this is so, a combination utility should find it worthwhile to make the rate-quality-promotions mix worse for customers of gas and better for customers of electricity. Then consumption should shift from gas to electricity, allowing the combination utility to build more of the capital-intensive electric plant and less of the not-so-capital-intensive gas plant. This procedure makes the average consumer pay more per unit for his total energy consumption, but the combination utility makes greater total profit. Note that the combination utility should expand its rate base in this way regardless of whether it gets a higher allowed rate of return from the regulators than straight gas or straight electric utilities could, as long as its allowed rate of return is higher than its cost of capital and lower than its unconstrained rate of return would be.

5. The system of equations

■ The net effect of the above four effects on promotions, average costs, rates, and consumption levels is indeterminate *a priori*, so the evidence must be examined in order to arrive at a conclusion. The evidence is structured by the simultaneous system of equations given in Table 1. The variables are defined below.

(*1*) *Endogenous variables*

PROMOTIONS/CUSTOMER: total sales expenditures divided by total number of customers.

[5] For the sample used in this paper, regressions were run of net plant against revenue, cost of capital, and, in the case of electricity, the numbers of customers of the three types. The marginal value of net plant which is used to produce a dollar's more revenue from electricity was found to be $3.30, while that for gas was $1.70. The price of electricity per BTU is unlikely to be less than $1.70/$3.30 = 0.52 that of gas. (The only places where that might be the case are Tennessee and the Pacific Northwest, but they are not represented in the sample.) Therefore, capital per marginal BTU is probably higher for electricity than for gas.

TABLE 1

SYSTEM OF EQUATIONS

$\text{PROMOTIONS/CUSTOMER}_i = e_0 + e_1 X_{1i} + \epsilon_i$	(6)
$\text{AVERAGE COST}_i = f_0\ \text{AVERAGE DEMAND (R)}_i + f_1\ \text{AVERAGE DEMAND (C)}_i + f_2\ \text{AVERAGE DEMAND (I)}_i + f_3 + f_4 X_{1i} + f_5 X_{2i} + f_6 X_{3i} + f_7 X_{4i} + f_8 X_{5i} + f_9 X_{6i} + f_{10} X_{7i} + \zeta_i$	(7)
$\text{AVERAGE REVENUE (R)}_i = g_0\ \text{AVERAGE COST} + g_1 + g_2 X_{1i} + g_3 X_{8i} + \eta_i$	(8a)
$\text{AVERAGE REVENUE (C)}_i = h_0\ \text{AVERAGE COST} + h_1 + h_2 X_{1i} + h_3 X_{8i} + \theta_i$	(8b)
$\text{AVERAGE REVENUE (I)}_i = j_0\ \text{AVERAGE COST} + j_1 + j_2 X_{1i} + j_3 X_{8i} + \iota_i$	(8c)
$\text{AVERAGE DEMAND (R)}_i = k_0\ \text{AVERAGE REVENUE (R)}_i + k_1\ \text{PROMOTIONS/CUSTOMER}_i + k_2 + k_3 X_{1i} + k_4 X_{9i} + k_5 X_{10i} + k_6 X_{11i} + \kappa_i$	(9a)
$\text{AVERAGE DEMAND (C)}_i = m_0\ \text{AVERAGE REVENUE (C)}_i + m_1\ \text{PROMOTIONS/CUSTOMER}_i + m_2 + m_3 X_{1i} + m_4 X_{5i} + m_5 X_{9i} + m_6 X_{10i} + m_7 X_{11i} + \mu_i$	(9b)
$\text{AVERAGE DEMAND (I)}_i = n_0\ \text{AVERAGE REVENUE (I)}_i + n_1\ \text{PROMOTIONS/CUSTOMER}_i + n_2 + n_3 X_{1i} + n_4 X_{5i} + n_5 X_{9i} + n_6 X_{10i} + n_7 X_{11i} + \nu_i$	(9c)

AVERAGE COST: operation and maintenance expense plus depreciation and amortization plus social cost of capital times net plant in service less revenue from resold power to other electric utilities, all divided by total number of kilowatts sold (except for resale to other electric utilities).

AVERAGE REVENUE (R), (C), (I): revenue per kilowatt-hour sold to residential, commercial, and industrial customers, respectively.

AVERAGE DEMAND (R), (C), (I): kilowatt-hour sales per residential, commercial, and industrial customer, respectively.

(2) *Exogenous variables*

X_1: dummy variable having value one for a combination utility.

X_2: number of residential customers.

X_3: number of commercial customers.

X_4: number of industrial customers.

X_5: dummy variable having value one for utilities which serve at least one city with a 1960 population greater than 100,000.

X_6: the cost of fuel per BTU.

X_7: fraction of kilowatt-hours sold that was generated by utility's own hydroelectric plants.

X_8: dummy variable having value one for utilities in states having no commission which regulates electric utility rates (in this sample, Texas and Minnesota).

X_9: number of degree-months above 65°F of area served by utility.

X_{10}: number of degree-days below 65°F of area served by utility.

X_{11}: per capita personal income of area served by utility.

PROMOTIONS/CUSTOMER measures the intensity of a utility's promotional and advertising effort. AVERAGE COST measures each utility's average cost from the point of view of the economy

but excluding the cost of working capital for the same reason it was omitted from the social rate-of-return calculations above.[6]

This social average cost is distinguished from average cost as perceived by the firm in that the social cost of capital is used rather than the cost of capital to the firm.[7] AVERAGE REVENUE (R), (C), and (I) measure average revenue per kilowatt-hour from residential, commercial, and industrial sales. AVERAGE DEMAND (R), (C), and (I) measure the average individual demands for the three categories of customers. Of the exogenous variables, the one of primary interest is X_1, the dummy variable which has value one for those electric utilities which are part of a combination. It is included in each equation.

Now follows an explanation for each of the structural equations. Equation (6) simply determines how the intensity of promotional effort differs as between combinations and straight electrics. X_1 is included in equation (7) to find how being a combination affects average cost. Note that the equation is not in the usual specification of average cost against total output. An electric utility is more complex than the simple theoretical firm. Cost is assumed to be affected differently depending upon whether a greater output goes to (1) greater consumption per residential customer, (2) greater consumption per commercial customer, (3) greater consumption per industrial customer, (4) a larger number of residential customers (X_2), (5) a larger number of commercial customers (X_3), or (6) a larger number of industrial customers (X_4).[8] X_5 controls for any difference in cost between small-town/rural utilities and those serving more urbanized areas. X_6 controls for the cost of fuel, and X_7 for any economies that may result from using hydroelectric power.

The most important variable affecting residential, commercial, and industrial average revenue should, of course, be average cost. Putting it into equations (8a) through (8c) turns them into equations of the margin of average revenue over average cost. Since the margin may vary depending on where on its cost curve a utility is—because

[6] Revenues from sales to other electric utilities are subtracted from costs, and the number of kilowatt-hours sold to other utilities are subtracted from total kilowatt-hours sold. Since a utility has several alternative buyers, the assumption is made that such inter-utility sales are made at cost.

[7] This social cost of capital includes taxes in net income:

$$\text{SOCIAL COST OF CAPITAL} = \frac{V_d r_d + V_p r_p + V_e r_e}{V_d + V_p + V_e}, \text{ where}$$

V_d = market value of long-term debt,
V_p = market value of preferred stock,
V_e = market value of common stock,
r_d = yield to maturity of long-term debt,
r_p = yield on preferred stock = (preferred dividends)/V_p, and
r_e = yield on common stock = (net income before taxes but after interest and preferred dividends)/V_e.

[8] It should be explained why the number of customers is assumed to be exogenous. A long time series might show changes in the number of customers due to a changed rate-quality-promotions mix after an electric utility merged with a gas utility. But in a cross-section for a given year, any correlation between the number of customers and the mix is likely to be small except by geographical accident. Whatever correlation exists between the present mix and past mix should be drowned out by the cross-section variance in the exogenous number of customers of the various electric utilities at their beginnings. (This might not be true a century from now, of course.)

of different capital-intensities at different outputs—average cost is left on the right-hand side of the equation. X_1 is included because the margin may vary between combinations and straight electrics, due to differing rates of return and or capital-intensities. X_5 tests whether margins may be lower where there is commission regulation than where there is none. Note that the estimation of the average revenue equations provides another opportunity to estimate the redistribution of income caused by combinations. Anticipating that the form of the structural equations will have AVERAGE REVENUE as a logarithm, the estimate of the redistribution is

$$R_r = \text{REV(R)}\frac{(\exp g_2 - 1)}{\exp g_2} + \text{REV(C)}\frac{(\exp h_2 - 1)}{\exp h_2} + \text{REV(I)}\frac{(\exp j_2 - 1)}{\exp j_2}, \quad (10)$$

where REV (R), (C), and (I) are the aggregate revenues collected by the combination utilities for the three categories of customers.

Residential, commercial, and industrial electricity demand per customer obviously should be influenced by prices or "rates;" in equations (9a) through (9c) average revenue is a proxy for rates.[9] The intensity of promotional effort may also influence demand. X_1 tests for differences in consumption levels between the customers of combinations and straight electrics beyond those explained by average revenue differences. Subsumed in this variable are several separate effects: (1) different quality of electric service, (2) any systematic difference between marginal rates relative to average revenue between combinations and straight electrics, and (3) differences in the desirability of gas which competes with electricity.

Energy consumption also may be affected by climate (X_9 and X_{10}): When the outside temperature drops below 65°F, heating is needed to keep the inside temperature at 70°, and when the outside temperature rises above 65°, air conditioning is needed. The sum by days of the amount by which each day's temperature falls short of 65° (if it falls short) is the number of degree-days. Such accurate data are not available for the warmth variable; for it, degree-months are used.

The final exogenous variable is per capita personal income (X_{11}). In the residential demand equation it is used to control directly for the effect of income on consumption of electricity. In the commercial and industrial equations, it is used more as a proxy for how commercialized and industrialized an area is.

6. The evidence

■ The sample consists of 107 of the U. S. class A and B privately-owned electric utilities. Of the operating companies for which the Federal Power Commission provides statistics, 102 are excluded

[9] Present consumption depends not only on present rates but also on present inventories of electrical appliances and equipment held by customers. These inventories are determined by past expectations of rates. If those expectations are imperfectly correlated with present rates, then the average revenue coefficients may bias toward zero the absolute values of the elasticities of demand with respect to rates. This tendency toward underestimation is reinforced by the fact that the average revenue is unlikely to be perfectly correlated with rates at the margin.

from the sample for the following reasons, where the number of firms excluded for each reason is in parentheses:[10]

(1) Less than 10 percent of revenues were from residential customers (24).

(2) More than 50 percent of energy was purchased, interchanged, or generated from hydroelectric sources (58).

(3) More than 5 percent but less than 10 percent of revenues were from gas sales.

(4) More than 10 percent of revenues were from sources other than electricity or gas (3).

(5) No fuel cost data were available (6).

(6) Insufficient data were available on market values of securities (12 besides those excluded for other reasons).

(7) The utilities were consolidated into parent utility (2).

Of the sample, 42 are what will be defined as combination utilities, deriving at least 10 percent of their revenues from gas operations that are geographically contained in their areas of electric operation. The remaining 65 are straight electric utilities, deriving less than 5 percent of their revenue from such gas operations. Primarily 1968 data are used.

The first three equations reflect on the issue of whether combinations are able to earn higher rates of return than straight gas and straight electric utilities. The first of them is for the rate of return on rate base for electric operation alone. After the omission of the state dummy variables with sample t-ratios of less than one,[11] the estimated equation, with t-ratio in parentheses, is

$$\underset{(2.59)}{\text{ROR} = 0.0045X_1} + a_0 + \sum_s a_s D_s\,, \quad R^2 = 0.62\,.$$

(The coefficients of the state dummy variables and the constant term are not shown because they are not relevant here.) This implies that straight electric utilities earn a rate of return on rate base of 7.56 percent, while the electric divisions of combination utilities earn 8.01 percent (evaluated at the means of the variables). The difference is significant at better than the 95-percent level.

Next are the regressions for the rate of return on all the operations of each utility and the ratio of the value of securities to total net assets. Their estimates, again after the omission of the state dummy variables with t-ratios less than one, are

$$\underset{(2.05)}{\text{RORTOTAL} = 0.00351X_1} + \underset{(3.15)}{0.378\ \text{RATE}} + b_0 + \sum_s b_s D_s\,, \quad R^2 = 0.54\,, \text{ and}$$

$$\underset{(1.45)}{\text{RATIO} = 0.0473X_1} - \underset{(-6.04)}{13.74\ \text{RATE}} + c_0 + \sum_s c_s D_s\,, \quad R^2 = 0.81\,.$$

[10] The number add to more than 102 because some were excluded for more than one reason.

[11] The mean square error of the coefficient of the variable of interest may be reduced by a two-stage procedure: first run an OLS regression on all the variables

They imply that combinations do indeed earn a higher rate of return than straight electrics controlling for risk. The difference in RORTOTAL is significant at better than the 95-percent level by a one-tailed t-test. The RATIO regression also contributes some support to that proposition: the coefficient of the dummy variable is significant at the 90-percent level by a one-tailed t-test.

The amount of income redistribution caused by combinations can be computed from the above coefficients and from the information that the aggregate value of net assets of the combinations is V_a = $23 billion and that the aggregate value of securities of the combinations is V_s = $30 billion. By equation (4), the RORTOTAL estimate implies that $80 million per year is redistributed from the customers of combinations to their owners (the standard deviation of this figure is $39 million). And equation (5), with the RATIO estimate, implies that combination customers are poorer and their owners wealthier by about $1.36 billion. Applying a discount rate of 5.3 percent, the average cost of capital to the combination utilities in the sample, this wealth transfer is equivalent to an income redistribution of $72 million per year in perpetuity (with standard deviation of $50 million).

There is also a highly significant difference in the social rate of return. The estimate of its equation is

$$\underset{(3.83)}{\text{SROR} = 0.0216X_1 + d_0 + \Sigma_s d_s D_s}, \quad R^2 = 0.43 .$$

Thus, the average social rate of return for the electric divisions of combination utilities is 16.44 percent, and for straight electrics is 14.28 percent. The difference is significant at better than the 95-percent level.

The system of structural equations involving promotional expenditures, average cost, average revenue, and average demand was estimated by two-stage least squares. Table 2 shows the estimated system including all variables with Normal-ratios greater than one,[12] where the omitted variables were eliminated sequentially, lowest Normal-ratio first; in any case, however, the combination variable X_1 was not omitted.

For the following discussion of the statistical results, refer to Table 3. The figures in the table show the percentages by which the endogenous variables are affected by the combination dummy variable; that is, they indicate how much higher or lower each variable is for the electric operations of combination utilities compared with straight electrics. These percentages are derived from the coefficient of the combination dummy variable in each equation.[13] The table also shows similar figures derived from the OLS estimates of the reduced-

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which theory says may enter; then omit all those whose t-ratios are less than one, and run another OLS regression. While a bias is imparted to the coefficients of the remaining variables, their variance may be reduced sufficiently to reduce their MSE. See Toro-Vizcarrondo and Wallace [4] and [5].

[12] A Normal-ratio is the ratio of the two-stage least-squares estimate of the coefficient divided by its sample standard error, what would be its t-ratio in ordinary least squares.

[13] Here is a sample calculation from the first structural equation, which is also the first reduced-form equation: Let P = PROMOTIONS/CUSTOMER and C = CONSTANT (in the other equations, C would stand for all the other

TABLE 2

ESTIMATED STRUCTURAL EQUATIONS (WITH NORMAL RATIOS)

EQUATION	DEGREES OF FREEDOM
LOG PROMOTIONS/CUSTOMER = -0.595 X_1 + CONSTANT (-6.81)	105
LOG AVERAGE COST = -0.053 X_1 - 0.469 LOG AVERAGE DEMAND (C) (-0.75) (-2.67) - 0.645 LOG AVERAGE DEMAND (I) + 0.767 LOG X_2 - 0.151 LOG X_3 - 0.584 LOG X_4 (-4.48) (3.71) (-1.16) (-4.96) + 0.153 X_5 + CONSTANT (1.76)	99
LOG AVERAGE REVENUE (R) = 0.026 X_1 + 0.493 LOG AVERAGE COST + 0.118 X_8 (0.96) (6.39) (2.91) + CONSTANT	103
LOG AVERAGE REVENUE (C) = 0.009 X_1 + 0.515 LOG AVERAGE COST + CONSTANT (0.28) (5.93)	104
LOG AVERAGE REVENUE (I) = 0.009 X_1 + 0.861 LOG AVERAGE COST + 0.104 X_8 (0.36) (12.16) (2.79) + CONSTANT	103
LOG AVERAGE DEMAND (R) = - 0.030 X_1 - 0.440 LOG AVERAGE REVENUE (R) (-0.72) (-1.69) + 0.000274 X_9 - 0.000018 X_{10} + CONSTANT (2.42) (-1.05)	102
LOG AVERAGE DEMAND (C) = - 0.054 X_1 - 1.495 LOG AVERAGE REVENUE (C) (-0.90) (-4.82) + 0.160 X_5 + 0.000273 X_9 + 0.000819 X_{10} + CONSTANT (2.48) (2.36) (4.98)	102
LOG AVERAGE DEMAND (I) = 0.111 X_1 - 3.347 LOG AVERAGE REVENUE (I) (0.48) (-3.98) - 0.001520 X_9 + 1.612 LOG X_{11} + CONSTANT (-3.19) (2.58)	102

form equations, where the exogenous variables whose t-ratios were less than one were excluded.

The first of the figures in the table shows that the intensity of promotional efforts is dramatically lower for combination utilities than for straight electrics, and the difference is significant at a high level of confidence. This difference lends credence to the theory that nonprice rivalry is reduced by a combination, and that a combination tries to contract output as it is allowed a higher rate of return.

Average cost appears to be higher for combinations according to the reduced-form estimate, but lower controlling for lower demand

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right-hand variables). From the equation,

$$\log P = -0.595X_1 + C.$$

Then

$$P = \exp(-0.595X_1 + C).$$

Then the entry in the table is

$$\begin{aligned} P(X_1 = 1)/P(X_1 = 0) - 1 &= \exp(-0.595 + C)/\exp C - 1 \\ &= \exp(-0.595) - 1 \\ &= 0.552 - 1 \\ &= -0.448, \text{ or } -44.8 \text{ percent.} \end{aligned}$$

TABLE 3

ESTIMATED PERCENTAGES BY WHICH THE ENDOGENOUS VARIABLES ARE HIGHER FOR THE ELECTRIC OPERATIONS OF COMBINATION UTILITIES THAN FOR STRAIGHT ELECTRIC UTILITIES (DERIVED FROM MULTIPLE REGRESSIONS)

ENDOGENOUS VARIABLE	REDUCED FORM EQUATIONS (WITH t-RATIOS, DEGREES OF FREEDOM AND R^2)	STRUCTURAL EQUATIONS (WITH NORMAL-RATIOS AND DEGREES OF FREEDOM)	OTHER ENDOGENOUS VARIABLES CONTROLLED FOR
PROMOTIONS/CUSTOMER	−44.8% (−6.81,105,0.31)	−44.8% (−6.81,105)	———
AVERAGE COST	4.9% (1.17,98,0.52)	−5.2% (−0.75,99)	LOWER AVERAGE DEMAND (R, C, & I)
AVERAGE REVENUE (R)	3.5% (1.12,96,0.37)	2.6% (0.96,103)	HIGHER AVERAGE COST
AVERAGE REVENUE (C)	3.9% (1.05,96,0.34)	0.9% (0.28,104)	HIGHER AVERAGE COST
AVERAGE REVENUE (I)	4.7% (1.18,96,0.47)	0.9% (0.36,103)	HIGHER AVERAGE COST
AVERAGE DEMAND (R)	−4.8% (−1.05,102,0.29)	−2.9% (−0.72,102)	HIGHER AVERAGE REVENUE (R)
AVERAGE DEMAND (C)	−13.9% (−2.06,98,0.48)	−5.2% (−0.90,102)	HIGHER AVERAGE REVENUE (C)
AVERAGE DEMAND (I)	−10.5% (−0.95,99,0.79)	11.7% (0.48,102)	HIGHER AVERAGE REVENUE (I)

according to the structural estimate. (1.2 percentage points of the structural figure are accounted for by lower promotional expenditures.) However, the figure from the structural equation is significant at only the 55-percent level by a two-tailed Normal-test, and the reduced-form figure is significant at the 75-percent level by a two-tailed t-test (all the t- and Normal-tests reported below are also two-tailed).

Average revenues and margins appear to be higher for combinations. The differences in average revenue as shown by the estimated reduced form equations are significant by a t-test at the 70-percent level for residential and commercial customers and at the 75-percent level for industrial customers. The differences in margins, from the structural equation estimates, are significant by a Normal-test at the 65-percent level for residential customers but not even at the 50-percent level for commercial and industrial customers. As explained above, the amount of income redistribution can be derived from the structural estimates. Reproducing equation (10), the redistribution is

$$R_r = \mathrm{REV(R)}\frac{(\exp g_2 - 1)}{\exp g_2} + \mathrm{REV(C)}\frac{(\exp h_2 - 1)}{\exp h_2} + \mathrm{REV(I)}\frac{(\exp j_2 - 1)}{\exp j_2}.$$

The structural figures in Table 3 equal $(\exp g_2 - 1)$, $(\exp h_2 - 1)$, and $(\exp j_2 - 1)$. The values for the aggregate revenues are REV(R) = \$2.11 billion, REV(C) = \$1.68 million, and REV(I) = \$1.27 billion. Therefore, the annual redistribution is R_r = \$80 million, which compares nicely with the previous estimates of the redistribution: \$80 million from RORTOTAL and \$72 million from

RATIO. The standard deviation by this method, however, is $334 million, so that this estimate is not significantly different from zero even at the 50-percent confidence level by a two-tailed Normal-test.

Going on to the AVERAGE DEMAND results, demand for all three categories of customers appears to be adversely affected by combinations. According to the reduced form estimates the difference in residential demand is significant at the 65-percent level, that in commercial demand at the 95-percent level, and that in industrial demand at the 65-percent level.[14] Combinations also have lower values of residential and commercial demand after average revenue is controlled for (significant at the 55-percent and 65-percent levels, respectively). These differences may be accounted for by combinations' marginal rates being higher relative to average revenue than straight electrics' or by combinations' providing poorer quality of service. The industrial demand figure from the structural estimate is not significant at even the 50-percent level.[15]

7. Loss to the economy

■ The higher average revenues reported above do not necessarily imply that the performance of combination utilities—in terms of economic efficiency—is inferior to that of straight electrics, even if those higher average revenues correspond to higher marginal rates. One cannot rule out the possibility of a combinations' providing better service for which customers are willing to pay. However, the lower consumption levels do carry such an implication of inferior performance.[16] Customers presumably purchase less electricity from combinations because the rate-quality-promotions mix is less at-

[14] Not much weight should be attached to the figures on industrial demand. There is a striking lack of homogeneity in the data on industrial customers. There are three causes: (1) the type of industry varies tremendously from one area to another, (2) the definition of "industrial" varies from utility to utility, and (3) some utilities use the distinction "large or small" rather than "commercial or industrial" to divide up their non-residential customers.

[15] A study by William Collins [2] confirms the results of the system of equations of this paper. Using non-parametric statistical techniques (Mann-Whitney U test and Wilcoxon Matched-Pairs Signed-Ranks test), Collins finds that, compared with straight electrics, in 1967 combinations had lower promotional expenditures, higher costs in most categories, higher average revenues for residential, commercial, and industrial customers, higher margins of average revenue over cost, and lower sales per residential customer and per commercial customer (sales per industrial customer were no different). Most of the differences were significant at the 95-percent level. He ran similar tests for the gas side, finding that the *straight* gas companies had higher average revenue for both residential and commercial customers, and possibly greater costs and margins and lower sales per customer. All but the last of these differences could be explained by combinations' providing poorer gas service, but it appears that if combinations have greater total market power they may not exercise it on the gas side. Collins' gas results are not strong, however. The differences in costs, margins, and sales per customer are significant only at low levels of confidence; Collins does not control for the number of feet of gas distribution main per customer, which is lower for combinations; he controls for some variables which may be endogenous; data are not as comparable between gas utilities as they are between electric utilities; and non-parametric procedures such as he uses are inefficient.

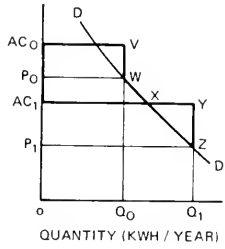
[16] If electricity generation produces pollution, then less consumption of electricity may be desirable for economic efficiency, but whether the optimal reduction is no less than the reduction brought about by a combination is problematical. Anyway, if combinations are to be justified on this ground then direct action against pollution or against the generation of electricity should be taken instead.

tractive. Customers as a whole might be served better (although they would not *necessarily* be served better) by a combination than by separate gas and electric utilities if it were to provide a better rate-quality-promotions mix in its gas operations relative to its electric operations than straight gas companies do relative to straight electric companies. There is no obvious reason, however, why a combination should make gas relatively more attractive. In fact, the A-J "combination" effect predicts that the opposite should occur.

From the information in Table 3, an estimate can be derived of the misallocation of resources which results from the lower output of the electric side of combinations. The assumption is necessary that both combinations and straight electrics operate on the same demand curve; in other words, the coefficient of the combination dummy variable is assumed to be zero in the structural demand equations. In that case, the misallocation is approximately equal to consumers' and producers' surplus if all the combination utilities were split up minus consumers' and producers' surplus for the combinations as they are in the sample, where producers' surplus includes taxes. Figure 1 portrays a demand curve DD for electricity with quantity demanded a function of marginal price. AC_0, P_0, and Q_0 correspond to combinations, and AC_1, P_1, and Q_1 correspond to straight electrics. Note that average cost is above marginal price for both the combination and the straight electric; this is to reflect the fact that while average cost may be about equal to average revenue, average revenue is above marginal price.

FIGURE 1

MARGINAL PRICE AND AVERAGE COST ($ / KWH) vs. DEMAND



The loss to the economy due to the lower output of the combination is

$$L = P_1(Q_1 - Q_0) + \tfrac{1}{2}(P_0 - P_1)(Q_1 - Q_0) + Q_0AC_0 - Q_1AC_1 . \quad (11)$$

Diagrammatically, this corresponds to the area of the irregular heavily-outlined figure in the upper left of the diagram (AC_0VWXAC_1) *minus* the area of the heavily-outlined triangle on the right (XYZ). Now let $AC_0/AC_1 = a$, $Q_0/Q_1 = q$, $P_0/P_1 = p$. Substituting these into equation (11),

$$L = \frac{P_0}{p}\left[\frac{Q_0}{q} - Q_0\right] + \tfrac{1}{2}\left[P_0 - \frac{P_0}{p}\right]\left[\frac{Q_0}{q} - Q_0\right] + AC_0Q_0 - \frac{AC_0}{a}\frac{Q_0}{q}$$

$$= \frac{(1+p)(1-q)}{2pq}P_0Q_0 + AC_0Q_0 - \frac{AC_0}{a}\frac{Q_0}{q} . \quad (12)$$

Now separate demand into residential, commercial, and industrial, assuming the three types of demand are independent. Using superscripts on P, Q, and AC, and subscripts on p, q, and a, equation (12) becomes

$$L = \frac{(1+p_R)(1-q_R)}{2p_Rq_R}P_0^RQ_0^R + \frac{(1+p_C)(1-q_C)}{2p_Cq_C}P_0^CQ_0^C + \frac{(1+p_I)(1-q_R)}{2p_Iq_I}P_0^IQ_0^I + AC_0(Q_0^R + Q_0^C + Q_0^I) - \frac{AC_0}{a}\left[\frac{Q_0^R}{q_R} + \frac{Q_0^C}{q_C} + \frac{Q_0^I}{q_I}\right]. \quad (13)$$

The estimated reduced forms give values for a, the p's, and the q's: $a = 1.049$, $p_R = 1.039$, $p_C = 1.039$, $p_I = 1.047$, $q_R = 0.952$, $q_C = 0.861$.[17] Since the data on industrial customers are so poor, assume industrial sales are unaffected by combinations, so $q_I = 1$. Aggregating the sample of 42 combination utilities, $Q_0^R = 84.7$ billion kwh, $Q_0^C = 74.9$ billion kwh, $Q_0^I = 112.7$ billion kwh, and $AC_0 = \$0.01712$/kwh. It is important to use the proper values for the P_0's. The formula for L is quite sensitive to changes in them. The marginal price times demand was summed over all the combinations in the sample, yielding $P_0^R Q_0^R = \$1.66$ billion and $P_0^C Q_0^C = \$1.68$ billion.[18] Plugging in all the figures yields an estimate of the loss to the economy in 1968 because of the electric side of the class A and B combination utilities equal to

$$L = \$330 \text{ billion.}^{19}$$

The standard deviation of this estimate is $218 million.[20] Therefore, the estimated loss is significantly different from zero at the 85-percent level of confidence by a two-tailed t-test.

8. Conclusions

■ The statistical results described in this paper all support the theory that combination utilities enjoy greater market power than separated gas and electric companies—in spite of regulation. Combinations earn higher rates of return from their electric operations than do straight electrics, they spend less on promotions, have higher average costs although possibly lower average cost curves, obtain higher average revenue from all three categories of customers, either charge higher marginal rates or provide poorer quality of service, and in-

[17] Using the average revenue coefficients for the p's involves the assumption that there is no systematic difference in average revenue relative to marginal price between combinations and straight electrics. Luckily, the formula for L is insensitive to the value of the p's.

[18] For residential customers, marginal prices were collected for the combinations from Moody's *Public Utility Manual*, 1968 and 1969; to each utility was assigned the marginal price charged at the consumption level of the average residential customer. The average marginal price calculated in this way was 1.96¢/kwh, 80 percent of average revenue. A similar procedure for commercial customers used the Federal Power Commission's *Typical Electric Bills*, 1968 and 1969, where the January 1968 and 1969 figures were averaged. The result was an average marginal price that was slightly higher than average revenue, so the procedure clearly gives biased results; the average revenue figures are therefore used instead.

[19] There are more combination utilities than the 42 in the sample. All the class A and B combinations have 9 percent more electric revenues than those in the sample. Using the assumption that economic loss is proportional to revenue, the actual calculated figure of $L = \$203$ million was raised by 9 percent to obtain the figure shown above.

[20] In order to calculate the standard deviation, the formula for L was approximated by a truncated Taylor expansion. For instance, by this method if X/Y were the ratio of two stochastic variables (such as functions of estimated regression coefficients), then its variance would be

$$E\left[\frac{X}{Y} - \left[\frac{\lambda}{Y}\right]\right]^2 \equiv E\left[\Delta\,\frac{X}{Y}\right]^2$$
$$\approx E((Y\Delta X - X\Delta Y)^2/Y^2)^2$$
$$= E((Y^2(\Delta X)^2 + X^2(\Delta Y)^2 - 2XY\Delta X\Delta Y)/Y^4)$$
$$= (Y^2 \operatorname{var} X + X^2 \operatorname{var} Y - 2XY \operatorname{cov} XY)/Y^4.$$

Its standard deviation is the square root of that.

duce less consumption of electric energy. They also redistribute an estimated $70 to $80 million a year from their customers to their owners, the payment of which is shared by residential, commercial, and industrial customers. The economic loss on the electric side from the existence of combinations is estimated at about $300 million per year.

The results on income redistribution and on promotional expenditures are very strong, but the results on "economic loss" only moderately so. What then for policy? Policy-makers might want to act on the basis of the income redistribution alone, or possibly together with considerations of concentration of power (no pun intended). While the evidence does not strongly indicate an economic loss from combinations, it certainly shows no gain. But there may be costs involved in splitting up combinations. There are also costs of the decision process itself. Still, an economic loss of $300 million per year, year in and year out, is large. That is 5 percent of the annual total costs of the combinations. Will the annual costs of the process of splitting up combinations be that large? It seems unlikely. A more definite statement can be made about one facet of policy: There clearly is no justification for allowing the formation of any *new* combination utilities. In order to make a decision on that type of issue, a decision-maker should act on the basis of even very low confidence levels.

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[21] An extensive bibliography on combination utilities is given in this dissertation; however, the empirical content of the items in the bibliography is negligible.