IMPLEMENTATION OF FCC SPECTRUM AUCTIONS

HEARING

BEFORE THE

COMMITTEE ON THE BUDGET
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

SECOND SESSION

SEPTEMBER 29, 1994

Serial No. 103–26

Printed for the use of the Committee on the Budget

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IMPLEMENTATION OF FCC SPECTRUM AUCTIONS

THURSDAY, SEPTEMBER 29, 1994

HOUSE OF REPRESENTATIVES,
COMMITTEE ON THE BUDGET,
Washington, DC.

The committee met, pursuant to call, at 10 a.m., Room 210, Cannon House Office Building, Hon. Martin Olav Sabo, Chairman, presiding.

Members present: Representatives Sabo, Berman, Mollohan, Pomeroy, Woolsey, Kasich, Herger, Cox, Allard, Franks, Smith of Michigan, and Hoke.

Chairman SABO. Good morning. Today we have with us Reed Hundt, Chairman of the Federal Communications Commission, and Susan Ness, Commissioner of the FCC. We will also hear from the Director of the Congressional Budget Office, Bob Reischauer.

It is a pleasure to have both of you with us today, and welcome.

We are poised to enter a new era in telecommunications that will revolutionize the way Americans are educated, entertained, conduct business, do their shopping, even receive health care. The public airwaves are not only an important part of this information superhighway, but are also a valuable and finite resource which the Federal Government must ensure are used to benefit all Americans.

We used to give away this resource, but the Omnibus Budget Reconciliation Act of 1993 changed that, when Congress gave the Federal Communications Commission authority to auction off licenses for portions of the communications spectrum. In that bill, we acknowledged that taxpayers should get some return for use of this valuable resource, and we estimated that FCC auctions would bring in more than $10 billion to the Federal Treasury over the next 10 years.

The FCC has moved rapidly to implement this, holding its first two auctions in late July. By any reasonable measure, the auctions have been a spectacular success, despite some problems which the FCC is trying to correct. The important point is that the first two auctions are still expected to collect more than $750 million for American taxpayers—far more than most had expected—for spectrum the FCC had previously given away.

Moreover, turning these frequencies over to the private sector in a rapid, efficient manner means that these advanced communications services soon will be available to the American people. This will increase American industry's competitiveness and help reduce

the bureaucratic hassles that American business people have to go through to obtain new licenses.

I would also like to compliment the Commission for changing its pioneer preference policy. As you know, I wrote you last December concerning this program. Originally, the FCC created the pioneer preference program to allow the Commission to grant licenses to companies that showed pioneering technology. These licenses could be granted without going through normal licensing procedures or lotteries, and the companies involved could be assured of receiving a license so both consumers and industries could benefit from technological advances.

When all licenses were free, the reward for pioneering was assurance of receiving a license. Now, since licenses are being purchased at auction, the system is different and we need to evaluate the treatment of pioneers in a new light.

Last December, you were planning to give four companies free licenses to use large portions of the spectrum in some very large metropolitan areas as part of the pioneer preference program. I was concerned that we would lose significant amounts of revenue.

The three most valuable licenses involved were for the New York-New Jersey metropolitan area, 26 million population; the Los Angeles-San Diego metropolitan area, 19 million population; and the Baltimore-Washington metropolitan area, 8 million population. These licenses together could be worth at least $500 million, and perhaps more than $2 billion.

In April, at the House Appropriations Committee hearing on the FCC—and its Chairman, Mr. Mollohan, is here—I asked Chairman Hundt about this plan. Even though I knew he had recused himself from the pioneer preference proceedings, I asked him to relay my concerns to his colleagues on the Commission.

I am pleased that in August the FCC changed its policy on pioneer preferences, by deciding to charge the pioneers 90 percent of their license's comparable market value. This decision still leaves the pioneers with a substantial reward, but also gives the taxpayer some return for the use of this resource.

The committee wanted to hold these hearings to get a status report on the FCC's efforts to date, to understand better the challenges it faces, and to hear the lessons we should learn from this experience.

I want to compliment Chairman Hundt and Commissioner Ness for a job well done, and encourage you to continue making the hard decisions as you implement this law.

We will start with the FCC, and then hear from the CBO. Before I call on you, let me call on my friend and colleague, Mr. Kasich.

Mr. KASICH. Thank you, Mr. Chairman.

As we all know, it is a very complicated issue, and frankly the decisions we are making now are going to have tremendous impact on the future. This whole explosion of activity in the area of telecommunications and the superhighway obviously make these kind of hearings critically important. And I want to welcome our witnesses today.

I want to again compliment the Chairman for this hearing. I look forward to this testimony and the testimony from CBO.

Thank you, Mr. Chairman.

Chairman SABO. Thank you, Mr. Kasich.

Before I call on the Commissioners, we will put in the record the statements of the three FCC Commissioners who are not present today but have forwarded their testimony.

[The prepared statements follow:]

FEDERAL COMMUNICATIONS COMMISSION,
WASHINGTON, DC,
September 23, 1994.

The Honorable MARTIN OLAV SABO,
Chairman, Committee on the Budget,
U.S. House of Representatives, Washington, DC.

Re: Hearing—September 29, 1994

DEAR MR. CHAIRMAN: This letter confirms my previous notice to your staff through the FCC's Office of Congressional Affairs that I am unable to attend the above-referenced hearing. I have a long-standing commitment to participate in INTELEVENT, a global conference of communications officials. The venue for INTELEVENT this year is Ireland during the last week of September.

I am submitting, therefore, the following statement in lieu of appearing personally. I have also attached copies of my previous statements on the Commission's Pioneer's Preference program and on our adoption of PCS auction rules designed to carry out the statutory requirement that we enhance the opportunities of those traditionally underrepresented among the ranks of telecommunications industry licensees.

I agree with the sentiment expressed in your letter of invitation: that requiring pioneer's preference recipients to pay in part for their licenses is a sound fiscal and regulatory policy. The Pioneer's Preference program was implemented at a time when the FCC issued licenses through random selection, that is, by lottery. Because innovators who had invested time and money in developing new communications technologies stood no better chance of attaining a license under such licensing scheme than any other applicant, it was appropriate to provide an incentive to correct such imbalance or disincentive.

The underlying licensing procedure changed, however, when Congress authorized the FCC to employ a licensing scheme based on competitive bidding, *i.e.*, auctions, in the Omnibus Budget Reconciliation Act of 1993. The transition from random chance to auctions tempered the rationale for free licenses for pioneers. Under a competitive bidding licensing scenario, those bidders that value the licenses most highly will bid most aggressively for the license. In effect, the incentives are parallel. According to auction theory, an innovator (or pioneer) will value a license most highly—and consequently bid most aggressively—because of the potential to exploit his or her advanced communications service or device. Nevertheless, the Commission observed that an innovator/pioneer had already expended fiscal and other resources to develop the product; therefore, a percentage discount off the bid price might be warranted.

Based on the significant changed circumstances brought about by a revision of the licensing procedures from lotteries to auctions, the Commission sought public comment on whether and how the Pioneer's Preference program should be modified. After a review of the public comments, the FCC revised the rules governing pioneer's preferences in an auction environment so that pioneer's preference holders would pay for 90% of the winning bid. This balanced the objectives of revenue enhancement and incentives for developing new technologies.

With respect to the issue of the treatment of "designated entities" in an auction environment, I note that Congress mandated that the Commission make efforts to include entities that were traditionally underrepresented in the provision of communications services and products. Specifically, small businesses, woman-owned, minority-owned, and rural telephone companies were to be given enhanced opportunity to participate in the auctions. In establishing the rules to include discounts, installment payments and relaxed build-out requirements, where appropriate, the Commission took its guidance from Congress. The success of the auctions held thus far is indisputable. The revenues have far exceeded even the most optimistic fiscal projections. I look forward to working with you on these issues now and in the future.

Respectfully submitted,

JAMES H. QUELLO,
Commissioner.

Enclosures

Separate Statement of Commissioner James H. Quello

IN THE MATTER OF AMENDMENT OF THE COMMISSION'S RULES TO ESTABLISH NEW PERSONAL COMMUNICATIONS SERVICES

I support the decision to award a pioneer's preference to American Personal Communications (APC), Cox Enterprises, Inc. (Cox), and Omnipoint Communications, Inc. (Omnipoint). Each of these entities have contributed significantly to the development of Personal Communications Service (PCS) technology. Awarding these pioneer's preferences will facilitate the deployment of PCS services to the public.

Since the initiation of the personal communication service docket, Congress has changed the rules on the procedures the Commission may use to award licenses. In addition to comparative hearings and lotteries, Congress gave the Commission the authority to license PCS and other services through competitive bidding (auctions) and the Commission has determined that competitive bidding will be used to award PCS licenses. Additionally, the Commission sought comment on how the issue of pioneer's preference should be addressed in a competitive bidding environment.

Today's decision to award three pioneer's preferences in the personal communications service is one of several options the Commission could have taken. For example, the Commission could have awarded the 20 MHz Basic Trading Area (BTA) to the tentative selectees; however, such action would have limited rural telephone companies, small businesses and businesses owned by women and minorities from participating in the offering of PCS services in the New York, Washington, D.C., and Los Angeles areas. Another approach would have had the Commission divide one of the Major Trading Areas (MTA) into BTAs and award the BTAs to the tentative selectees. Such an approach would have been inconsistent with the Commission's PCS allocation scheme and would likely have required another rulemaking. Alternatively, the Commission could have determined that under the competitive bidding scenario the tentative selectees pay a discounted price for spectrum, an option that the Commission may want to consider prospectively. Finally, the Commission could have determined that with competitive bidding, there is no longer a need for pioneer's preferences in the PCS proceeding.

Today's decision is one of fairness and equity. The tentative selectees have invested significant sums of money to further the development of PCS. Furthermore, the tentative selectees were caught in the middle of rule changes that allow the Commission to award licenses by competitive bidding. Congress gave the Commission authority to continue to use Pioneer's Preference even under the competitive bidding authority. Some will argue that today's decision is nothing more than a give-away of valuable spectrum. In part, these critics are correct. The Commission is granting access to spectrum in selected areas without being subject to competitive bidding. The decision to award pioneer's preferences is based on an existing Commission policy designed to provide incentives to bring new or spectrum efficient technologies to market. Here we may have two policies coming into conflict—auctions (generating revenues) and pioneer's preferences (incentives to develop new technology and spectrum efficiencies). The Commission in this proceeding is clearly voting to bring new, innovative technologies to market. Needless to say, all licensees will have obligations according to the service rules adopted by the Commission.

With the decision to award pioneer's preferences, the Commission must weigh the consequences with other Commission objectives articulated in the Commission's PCS decision, such as interoperability, roaming, and development of regional and national services. Furthermore, the decision to award these pioneer's preferences should not be construed as prejudging the decision the Commission must make on the future role of pioneer's preferences in those services that are licensed by competitive bidding.

Concurring Statement of Commissioner James H. Quello

RE: NATIONWIDE WIRELESS NETWORK CORP. MTEL NARROWBAND PCS LICENSE

Because I have consistently contended that pioneer's preference grantees were never intended to take their spectrum for free in a post-auction world, it may seem curious that I am not giving my unqualified support to a Commission decision that endorses that principle. Two aspects of today's decision, however, trouble me.

The first is the prospect that, as the decision candidly admits, Mtel could in fact wind up paying nothing for its spectrum if the spectrum's auction value turns out to be $3 million or less. To me, this result is inconsistent with the basic reason for having auctions, which is to capture the value of spectrum for the public. Even at an unexpectedly low auction price, no one could plausibly argue that narrowband PCS spectrum would have no value for Mtel. For this reason, I cannot endorse a

payment plan that could allow Mtel, or any pioneer's preference holder, to take its spectrum for free. I do believe, however, that the current preauction estimates of the value of narrowband PCS spectrum are more likely to be too low rather than too high, and therefore Mtel will ultimately make a substantial payment for its spectrum. On this basis, and this basis alone, I can concur with this aspect of the Commission's decision.

The other facet of today's decision that I find problematic is our statutory basis for imposing this payment requirement on Mtel. Our legal analysis, although plausible, certainly entails what may best be described as an aggressive interpretation of Section 4(i) of the Communications Act. Should this decision be appealed, I trust that the reviewing court will agree with our interpretation in light of the case law we cite—but it would be unrealistic to suggest that reviewing courts are lately in the habit of extending us this sort of benefit of the doubt. And if for any reason today's decision does not stand, with the result that we are unable to require payment from pioneer's preference holders, I for one would seriously question whether we should grant such preferences in the future.

STATEMENT OF COMMISSIONER JAMES H. QUELLO

RE: BROADBAND PCS AUCTION PROCEDURES PP DOCKET NO. 93-253

Today the Commission puts in place the procedures that will govern perhaps our most eagerly-awaited new spectrum auctions: the auctions for broadband PCS frequencies.

This Report and Order embodies our best collective effort to meet our Congressionally-imposed objectives in a responsible and fair way consistent with the record before us. In this process we have been particularly sensitive to the need to provide increased opportunity to small businesses, minorities, women, and rural telephone companies commensurate with the varying degrees of difficulty each faces in attracting capital. In the building of broadband PCS systems there is not only room for, but *need* for, players large and small, with different outlooks, different strategies, and different strengths. Our action today attempts to make that room and to meet that need.

Is every piece and part of this Report and Order perfect? No—but then, nothing is. Might each of us have drawn somewhat different lines had each been the sole author? Of course. But, not unlike the benefits we envision flowing from the policy of entrepreneurial inclusion in licensing PCS, I believe this Report and Order is sounder for having drawn from my colleagues' distinctive strengths and outlooks. And if the decisions we make today require further refinement, I am completely open to the presentation of facts and arguments in favor of any such changes. In the meantime, I support this Report and Order as the penultimate administrative precursor to moving broadband PCS from the drawing board to the launch pad.

PREPARED STATEMENT OF ANDREW C. BARRETT, COMMISSIONER

Mr. Chairman and members of the House Budget Committee, thank you for the opportunity to address matters pertaining to the Federal Communications Commission's ("FCC" or the "Commission") spectrum auction proceedings. In recent months, the Commission has made decisions in complex economic, spectrum and competitive infrastructure matters. In doing so, we have begun to implement rules for services that could eventually offer consumers a choice among competing wireline and wireless network infrastructures.

Congress, while granting the Commission competitive bidding authority for new spectrum, established policy objectives for its regulatory framework as well. The Commission was directed to disseminate the licenses among a variety of applicants including small businesses, rural telephone companies and businesses owned by members of minority groups and women. It further mandated that these businesses be given the opportunity to participate in the provision of spectrum-based services.

To that end, I have based my decisions regarding the development of an auction scheme for personal communications services and spectrum for other technologies on the furtherance of several goals. These goals include, but are not limited to, the development of flexible spectrum aggregation schemes; the ability of the investment community to evaluate incentives for investing in new wireless technologies as well as minority and women-owned businesses; and the advancement of small, competitive market goals.

In certain respects, the Commission's first auction for narrowband PCS was successful. Auction revenue was generated by the Commission and the perceived value of the spectrum by the marketplace has become readily apparent. We must continue

to balance the various policy goals of Section 309(j) as we implement the auction process.

The Commission is able to gather pertinent information about the impact of our regulations from companies that are willing to serve as pioneers for emerging technologies. Therefore, I recently supported the modification of the Commission's policy on pioneer efforts in the context of spectrum auctions. As always, in the future, I will consider any proposed modifications to this policy on a case-by case basis.

The FCC must continue to balance its Communications Act policy and statutory objectives with the goals of Section 309(j) with regard to licensing its wireless services. In all cases, a balancing of various factors must be considered including, administrative delay, the number of pending applications for services, and the extent to which new entrants can inject more competition into the existing market structure.

PREPARED STATEMENT OF COMMISSIONER RACHELLE B. CHONG

Mr. Chairman and Members of the Committee, I greatly appreciate the invitation to testify at this morning's hearing before the House Budget Committee. I regret that I am unable to participate in person. I am in Kyoto, Japan representing the United States at the International Telecommunications Union Plenipotentiary Conference along with many Ministers of Telecommunications from around the world.

It is interesting to note that the topic you are discussing in Washington, D.C. this morning—competitive bidding—is also a topic of discussion here at the ITU Conference in Japan. One of the top three questions I have been asked by the Ministers and Deputy Ministers of Telecommunications with whom I have been meeting involves the success of our new auction process of licensing. Other countries want to know how the auctions are going, what our experience has been so far, and what we expect in the future. It is clear from these questions that the United States is perceived as a leader in this area, and that other countries are watching our progress closely.

Since I know your Committee is also interested in the issue of Pioneer's Preference, I note that I have recused myself from certain aspects of this issue and have not participated in the Commission's decisions in this area. For this reason, my statement does not address this issue.

On the topic of competitive bidding, the Omnibus Budget Reconciliation Act of 1993 authorized the Commission to award licenses by this process. Congress instructed the Commission, in developing auction procedures, to:

1. encourage the rapid deployment of new technologies and products;
2. promote competition and avoid excessive concentration of licenses;
3. ensure new technologies are accessible to all sectors of the public;
4. recover for the public a portion of the value of the spectrum; and
5. ensure the efficient and intensive use of the spectrum.

Congress also instructed the Commission to ensure that businesses owned by minorities and women, small business and rural telephone companies have an opportunity to participate in the provision of telecommunications services. In developing competitive bidding procedures, the Commission's job has been to balance these sometimes conflicting goals.

I became an FCC Commissioner just four months ago. At that time, the Commission was developing the service and auction rules for broadband Personal Communications Services, or "PCS." It became clear to me immediately that the Commission took its mandate from Congress very seriously. We reviewed many options to make sure our decision fulfilled this mandate to the greatest degree possible. With respect to the so-called "designated entities," the Commission adopted a broad array of special provisions aimed at helping these groups overcome traditional barriers to entry into the telecommunications industry. These provisions include bidding credits, installment payments and tax certificates. These were provisions Congress itself recognized in the Budget Reconciliation Act as possible ways to ensure participation by designated entities.

In July, the Commission conducted its first two auctions—for nationwide narrowband PCS and for Interactive Video Data Services (IVDS). These auctions were a great success, both in terms of their smooth operation and in terms of the revenue they generated. However, we also learned things from these auctions that we didn't know before. As a result, we continue to adjust the rules for future auctions. I expect this process will continue as we hold more auctions and learn more about how they work.

I attended the auctions in July and was very excited by what I saw. There is no question that auctions hold great promise for a more efficient and effective licensing

process. I am committed to ensuring the Commission fulfill the congressional mandate laid out in the 1993 Budget Reconciliation Act and look forward to working with this Committee and other Members of Congress on this important matter.

Thank you very much for giving me the opportunity to present my views to the Committee.

Chairman SABO. I am not sure how you want to proceed. I will turn the program over to the two of you for the time being.

STATEMENTS OF HON. REED E. HUNDT, CHAIRMAN, FEDERAL COMMUNICATIONS COMMISSION; AND HON. SUSAN NESS, COMMISSIONER, FEDERAL COMMUNICATIONS COMMISSION

Mr. HUNDT. If you wouldn't mind, Mr. Chairman, I would like to make a very, very brief opening statement, and then turn it over to you, unless you also wanted to make a statement.

Ms. NESS. All right.

Mr. HUNDT. If I may, Mr. Chairman, let me thank you for inviting me and Commissioner Ness to see you. It is an honor to appear before your committee. Your committee includes in its ranks many familiar and friendly faces, including a friend of mine for almost 20 years, probably a little longer than Congressman Cox and I would actually like to admit, in many contexts. But it is a pleasure to be here.

I would also in my statement like to focus on one single point, and that is to thank and congratulate Congress for giving the Federal Communications Commission the ability to conduct these auctions that you referred to, Mr. Chairman.

We obtained this power from Congress, of course, in the 1993 Omnibus Budget Reconciliation Act. I think it was an extremely wise step by Congress. To go back in history a little bit, the Commission for many, many years had as its sole means of awarding licenses to use the airwaves, the spectrum, the public property of radio frequencies, the only way to grant the use of it was to award licenses through comparative hearings.

These hearings were typically very, very time consuming, involved many lawyers, many lobbyists, were the opposite of expeditious, the opposite of efficient. They were very difficult processes. It was hard to be fair, and the Commission struggled with mounds of paper and generated volumes of decisions, trying to be fair. But it was a cumbersome process.

This process was supplemented in the early 1980's by a lottery process. The lottery process was used for awarding all cellular licenses starting with the fourth round, sort of modest-sized cities, and this process was expeditious, it was quick, and it certainly achieved a wide dissemination of licenses, but it did not obtain any money for the public, for the gift of public property, and it also did not put the licenses necessarily in the hands of people who had business plans that they could use to exploit the spectrum. It did not necessarily put the licenses in the hands of those people who most desired them.

Not surprisingly, about 85 percent of the lottery licenses that went to non-telephone companies actually were sold by the lottery winners; some very soon, some a little bit later, but 85 percent ultimately were sold, which is indicative of the fact that the lottery did not put the licenses in the hands of those people who had the best business plans, who most desired to exploit the spectrum.

The auctions give us a technique that virtually ensures that the licenses will go to those people who are going to use them to add the most investment to our economy, who are going to use them most aggressively to generate jobs, who are going to use those licenses to increase the different ways that technology can exploit the spectrum.

It is also the case that the auctions give the public a chance to be compensated for the use of the spectrum, and that is another great advantage of the auctions.

So let me bring these remarks to a very quick conclusion by simply saying that I think it was an extremely wise act that our Congress took, and we are doing our best to make the most of the promotion of the public interest pursuant to the powers that you have delegated to us.

[The prepared statement of Hon. Reed E. Hundt follows:]

PREPARED STATEMENT OF HON. REED E. HUNDT, CHAIRMAN, FEDERAL COMMUNICATIONS COMMISSION

Mr. Chairman and Members of the Committee: It is a privilege to appear today to discuss the implementation of section 6002 of the Omnibus Budget Reconciliation Act of 1993 (OBRA), Pub. L. 103-66(1993). This provision added section 309(j) to the Communications Act of 1934 and committed to the Federal Communications Commission, for a period of five years, the responsibility to structure a competitive bidding process for awarding licenses for use of the electromagnetic spectrum in particular circumstances. The provision was included in OBRA to improve the spectrum assignment process, with an emphasis on promoting economic opportunity and rapidly deploying new technologies, while affording the federal government an ability to recoup a portion of the value of the spectrum. Congress' foresight in enacting this important provision at this critical time in telecommunications should be commended.

The Commission has regulated the use of the spectrum for 60 years. During that time, technological advances have provided substantial efficiencies in spectrum use. Frequencies in some services are now being authorized that are twice as high as those of just 20 years ago. The increased usage of the spectrum has not only brought innovative services to the market, but competition to areas once thought to be the domain of a monopoly.

Following enactment of OBRA in August 1993, the Commission adopted a *Notice of Proposed Rulemaking* (NPRM) on September 23, 1994. In the NPRM, the Commission outlined the issues to be addressed in the rules that would govern the competitive bidding process. These included: 1) the circumstances where competitive bidding could be used to award licenses; 2) the spectrum blocks and geographic areas that would be licensed; 3) the possible auction designs; and 4) the incentives to ensure participation by small business, rural telephone companies, and businesses owned by minorities and women. In March 1994, the Commission adopted generic rules for all auctions. In April, it adopted specific rules for the conduct of auctions for narrowband personal communications services. In June, the service specific rules for broadband personal communications services were adopted. On July 25, 1994, the first auctions for nationwide narrowband and interactive video data services began. Regional narrowband auctions will commence on October 26, 1994 and broadband personal communications services auctions will commence on December 5, 1994.

The auctions held in July resulted in winning bids of $830 million. The great promise telecommunications has in enriching the lives of all the Nation's citizens was demonstrated. The law enacted in August 1993 foresaw these opportunities. This important beginning reflects not simply Congress' vision as to how vital a competitive telecommunications industry is, but the considerable efforts that must be undertaken to ensure the most optimal use of the spectrum.

SECTION 309(J) OF THE COMMUNICATIONS ACT OF 1934

Structuring a competitive bidding process has involved issues as complex and significant as any the Commission has faced. The Commission's goal has been to allow market forces to promote the objectives of the law. In this regard, the Commission has had to balance an array of sometimes seemingly conflicting, but individually im-

portant factors. Section 309(j)(2)(B), in addition to referencing section 1 of the Communications Act's mandate that the Commission "make available, so far as possible, to all the people of the United States, a rapid, efficient, Nation-wide, and world-wide wire and radio communications service with adequate facilities at a reasonable charge...", also sets forth specific objectives:

(A) the development and rapid deployment of new technologies, products, and services for the benefit of the public, including those residing in rural areas, without administrative or judicial delays;
(B) promoting economic opportunity and competition and ensuring that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses and by dissecting licenses among a wide variety of applicants, including small businesses, rural telephone companies, and businesses owned by members of minority groups and women;
(C) recovery for the public of a portion of the value of the public spectrum made available for commercial use and avoidance of unjust enrichment through the methods employed to award uses of that resource; and
(D) efficient and intensive use of the electromagnetic spectrum.

The Commission had to formulate competitive bidding and spectrum allocation structures to carry out these goals. In promulgating the auction rules, the Commission was driven by fundamental public policy objectives of: promoting economic growth and enhancing access to telecommunications services for consumers, producers, and new entrants. The Commission has pursued a structure that advances competition among a diverse group of service providers who will use the spectrum to provide service by the most efficient and expeditious means. Awarding licenses to those who value them most highly, yet ensuring against anticompetitive concentration, will encourage the growth, competition and rapid deployment of the new technologies that continue to flow from the telecommunications industry.

The Commission's actions also seek to widen the range of those providing telecommunications services, as well as increasing access to these services. Broad participation among those providing services will meet Congress' mandate of ensuring diversity in the ownership and management of telecommunications facilities. Importantly, it will also increase the variety of service offerings and the number of consumers who can benefit.

WHERE COMPETITIVE PROCEDURES MAY BE USED

The law comes the situations where competitive procedures can be invoked. Section 309(j)(1) permits competitive bidding only if "mutual exclusivity" exists among applications that have been accepted for filing. Generally, "mutual exclusivity" is present when the conflicts between two or more applications are such that the grant of one application would effectively preclude, by reason of harmful electrical interference, the grant of one or more of the other applications. When channels can be shared by multiple licensees, such as in shared dispatch services, there is no mutual exclusivity.

Additionally, section 309(j)(2) requires that to be subject to competitive bidding procedures, the principal use must likely involve the licensee receiving compensation from subscribers. The law states that the principal use of the spectrum by a prospective licensee must involve the transmission or reception of communications signals to subscribers for hire. As a result, traditional over-the-air television broadcast services, VHF, UHF, and LPTV, as well as AM and FM broadcast radio, are excluded from the competitive bidding process. *See* H.R. Rep. No. 103-111 at 253. Amateur radio service is another example. Additionally, private services, frequencies allocated as Public Safety Services, and Broadcast Auxiliary Services, where the signal is indivisible from the main channel signal, are excepted.

The law also reflects a bias that applications to modify or renew existing licenses not be subject to competitive bidding. Specifically, section 30(j)(1) refers to an "initial license or construction permit" indicating that renewal licenses or permits are to be excluded from the competitive bidding process. *See* H.R. Rep. No. 103-111 at 253. There are limits to this exception. Modifications that are so different in kind or large in scope and scale as compared to the original license warrant careful review. The Commission will examine each matter to determine if it is actually an initial application.

The Commission has identified certain services and classes of services that it believes are most likely to be effectively and efficiently deployed on a broad basis through the competitive bidding process. These include interactive video data service (IVDS), where licensees may provide information, products, or services to individual subscribers at fixed locations and the subscriber may respond. Service offerings contemplated include home banking, home shopping and pay-per-view program-

ming. Additionally, the emerging wireless service known as personal communications service (PCS) was deemed suitable for auction. Narrowband PCS encompasses mobile and portable radio communications that can be used to provide a range of advanced and two-way paging and messaging services. Broadband PCS includes small lightweight multi-function portable phones, portable facsimile and other imaging devices, multi-channel cordless phones, and paging services with two-way capability.

SPECTRUM ALLOCATION AND SERVICE AREAS

In allocating the portions of the spectrum that would be subject to competitive bidding procedures, the Commission was similarly guided by the goal of maximizing opportunities for new competitors, not simply within the spectrum allocated, but more importantly, within the broad range of telecommunication services. The convergence of the various means of communications pervades the Commission's proceedings to implement section 309(j). The endeavor to provide viable competitive blocks of spectrum while at the same time maximizing the number of competitors is tempered and made difficult because the spectrum, while now more efficiently used, continues to be limited. Moreover, new entrants must have sufficient spectrum to begin service quickly and with reasonable upfront capital costs. The Commission has had to determine what part of the spectrum, as well as the amount, to allocate to each licensee.

In establishing the amount and geographic coverage to be awarded, the Commission evaluated technical factors beyond the ability to operate without interference and the minimizing of radio frequency exposure risks. The nature of the technology, such as digital or analog, makes a significant difference. The availability and costs of the equipment needed to operate from the assigned frequency must be determined. The needs of present and future services, particularly those in the satellite area, must also be considered. Additionally, the ability of those entities presently using the spectrum to relocate enters into the balance. The competitive advantage or disadvantage that would accrue with particular assignments must be weighed. Determining the service areas to be delineated required analyzing options that would attract the greatest flow of commerce.

In broadband PCS, the Commission modified its initial proposal so that all blocks of spectrum to be auctioned would be in a single contiguous band of 120 MHz. The Commission amended the plan to provide six blocks: three MHz blocks (Blocks A, B, and C), and three 10 MHz blocks (Blocks D, E, and F). See Attachment A. The changes sought to increase the competitiveness of the services because in the contiguous band, equipment will be more readily available and obtained at a lower costs. Additionally, the plan avoids significant expense and delay of relocating those who were using the spectrum originally proposed to be allocated. The Commission also provided that the A and B blocks be licensed within 51 service based areas, based on the Major Trading Areas (MTAs) set forth in the Rand McNally Commercial Atlas & Marketing Guide ("Guide"). The C, D, E, and F blocks will be licensed within 493 smaller service areas based on the Basic Trading Areas (BTA) set forth in the Guide. A total of 2,071 licenses will be auctioned.

Three megahertz of spectrum were allocated to narrowband PCS in three one megahertz bands. Two megahertz were divided into specific channels and made available for immediate licensing. The remaining one megahertz of narrowband PCS spectrum will be channelized and licensed in the future as the service develops. The two megahertz is divided into 50 kHz and 12.5 kHz channels. The channels are paired in various configurations for individual licensing. Four different service areas have been defined: 492 BTAs, 51 MTAs, 5 regional areas (made up of MTAs), which together comprise the nation and a nationwide service area. There are a total of 3,554 narrowband licenses to be issued.

THE COMPETITIVE BIDDING DESIGN

Beyond designating those services subject to the competitive process, the Commission was obligated to structure the auction mechanisms. Congress directed the Commission to "design and test multiple alternative methodologies." Section 309(j)(3). The two most important design elements are 1) the number of auction rounds (single or multiple) and 2) the order in which licenses are auctioned (sequentially or simultaneously).

In a single round auction, a single bid is submitted and the license is awarded to the high bidder. Single round auctions are often referred to as sealed bid auctions. The administrative costs of single round auctions are minimal. In multiple round auctions, bidders have an opportunity to top the high bid from the previous round. Such auctions end when no bidders are willing to top the bids from the pre-

vious round. A typical example is the open outcry or English auction. The principal advantage of a multiple round auction is the information it provides bidders regarding the value other bidders place on a license and that it allows those who value the license most highly to win the award.

In a pure sequential auction, licenses are auctioned one at a time. Bidding ends on one item before bids are accepted for another item, as in the open outcry auction. In a pure simultaneous auction, all licenses are put up for auction at the same time. Bidding is open on all licenses until no more bids are received on any license. There are intermediate designs between pure sequential and pure simultaneous auctions.

The Commission's decisions reflect that simultaneous multiple round bidding has a number of advantages over sequential auctions for awarding interdependent licenses. Interdependent licenses are those that are either substitutes for one another or can complement one another. First, simultaneous multiple round bidding is more likely to award interdependent licenses efficiently to those who value them the most and can aggregate licenses in a way that is most valuable. This increased efficiency stems from the information provided to bidders during the auction and the ability to use that information until the bidding is complete. Simultaneous auctions, however, are complex for the bidder because all the licenses must be monitored during the auction. Moreover, the bidder is not sure of what licenses have been won until the end of the auction.

The best method to advance the goals for the competitive bidding process for service such as PCS is through a sequence of simultaneous multiple round auctions. Compared to other mechanisms, simultaneous multiple round auctions for interdependent licenses generate the most information about license values during the course of the auctions and provide the greatest flexibility to bidders in pursuing a number of business plans. They also facilitate efficient aggregation across spectrum bands and geographic areas, enhancing competition among those who can introduce services rapidly. In its March 8, 1994, order, the Commission noted, however, that these informational and bidding flexibility advantages must be balanced against the greater cost and complexity of the auction. This is particularly true where the value of the licenses are low relative to others and are considered separate from the others being auctioned.

The Commission determined that most narrowband PCS licenses would be awarded in a sequential series of simultaneous multiple round auctions. That the value of most narrowband PCS licenses is high relative to the costs of conducting simultaneous auctions among interdependent licenses was a crucial factor. A similar determination was made with regard to broadband PCS. In the less valuable and more discrete IVDS, the Commission adopted two auction methods, oral bidding and single round sealed bidding. Generally, oral bidding will be used for licenses in the higher population areas, while in the less populated areas the method may be either oral bidding or single round sealed bidding.

REVENUES TO THE UNITED STATES TREASURY

Congress did not compel the Commission to maximize revenues to the Treasury in pursuing an auction design, in allocating the spectrum, or in formulating the overall competitive process that will award a license. While charged to recover a portion of the value of the spectrum, Congress stated that the Commission should not render decisions "solely or predominantly on the expectation of Federal revenues from the use of the system of competitive bidding..." Section 309(j)(7)(B). The objective of recovering a portion of the value of the spectrum must be read with the law's other goals of encouraging rapid deployment of services, the efficient use of spectrum, and avoiding excess concentration of licenses. The Commission's proceedings seek to reflect a balance of what can be competing, if not at times inconsistent, objectives.

REGULATORY SAFEGUARDS

Section 309(j)(4)(E) directed the Commission to "require such transfer disclosures and anti-trafficking restrictions and payment schedules as may be necessary to prevent unjust enrichment...". To deter unjust enrichment, the Commission imposed transfer disclosure requirements on all licenses obtained through the process. Particular scrutiny will be placed on winners who have not begun commercial service and who seek approval of transfer of control within three years of the initial grant. Similarly, the Commission has imposed performance requirements, with deadlines and penalties for failure to adhere to the standards.

In order to avoid excessive concentration, the Commission restricted cellular participation and the overall spectrum that can be aggregated. Balancing the expertise, economies of scope, and existing infrastructures of cellular providers against a legiti-

mate goal of maximizing the number of viable new entrants in the market, cellular licensees may obtain 30 MHs PCS broadband licenses outside of their cellular services areas, but are restricted to one 10 MHz PCS license within their respective service area. Parties who do not have attributable interests in cellular companies operating in a PCS service area, may acquire attributable interests in a maximum of 40 MHz of licensed broadband PCS spectrum.

OPPORTUNITIES FOR SMALL BUSINESS, RURAL TELEPHONE COMPANIES AND BUSINESSES OWNED BY SMALL BUSINESS AND WOMEN

In several provisions, the law seeks to ensure the participation in the competitive bidding process, as well as in the provision of spectrum based services, of small businesses, rural telephone companies, and businesses owned by women and minorities. The principal provision, section 309(j)(4)(D), states that the Commission shall:

> ensure that small businesses, rural telephone companies, and businesses owned by members of minority groups and women are given an opportunity to participate in the provision of spectrum based services, and for such purposes consider the use of tax certificates, bidding preferences, and other procedures...

The objective is to ensure that the entities the Congress has enumerated not only have genuine opportunities initially when licenses are competitively awarded, but also that they remain viable and pervasive participants in providing telecommunications services to the industry and public. Congress intended a lasting environment of competition, opportunity and participation, and not a return to the status quo. The opportunities structured by the Commission should enable a range of entrepreneurs to make a long term commitment to provide telecommunications services and reflect a diversity of offerings that increase consumer choice.

The Commission has adopted general and service specific guidelines. In its "Competitive Opportunity Plan" for broadband PCS services, the Commission established Entrepreneurs' Blocks to meet the law's mandate. A similar proposal is under consideration in narrowband services. Moreover, a broad menu of provisions such as installment payments, bidding credits, and tax certificates has been established. In deciding which, if any, provision to accord a particular service, the Commission has examined the range of factors that impact participation. These factors include the extent of competition, license size, the scope of services that can be offered, construction and equipment costs, and the level of capital required.

A preference in a particular service must be narrowly tailored to address a specific barrier and not merely used to circumvent the other objectives of the law. For example, installment payments are a means to address an inability to obtain financing and enable an entity to compete more effectively. Their use should be limited, however, to situations where financing is a barrier. See H. Rept. 103-111 at 225. The Commission has sought to provide incentives without favoring the entities in markets where there is no compelling reason to do so.

The opportunities Congress envisioned, and which the Commission has sought to implement, seek to provide a long term viable presence on the part of small businesses, rural telephone companies, and businesses owned by minorities and women. The objective of overcoming the historical barriers to entry that has characterized the telecommunications industry correspond well to the goals of fostering the rapid deployment of technology and avoiding excessive concentration of licenses.

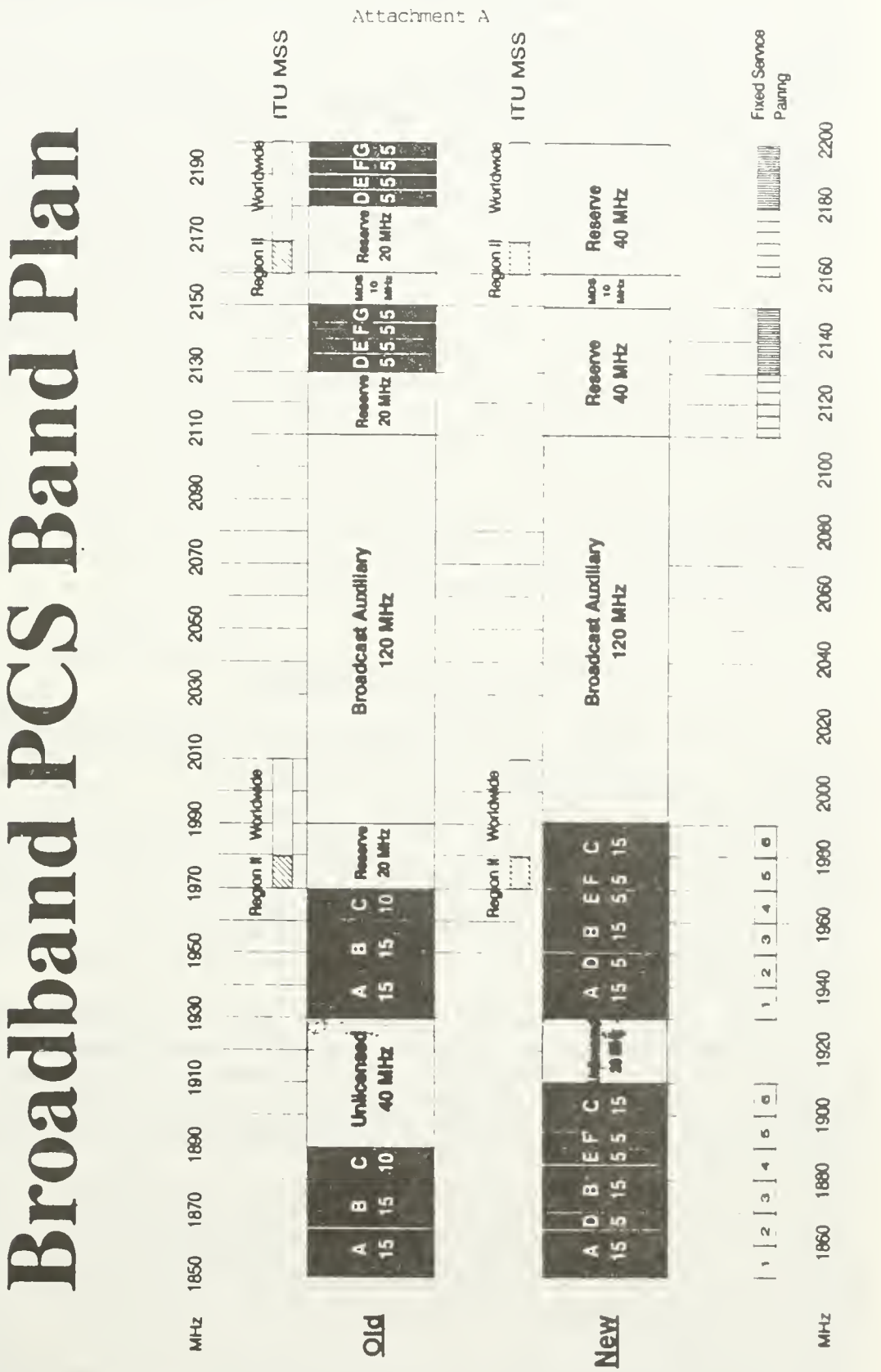
SUMMARY

The Commission commenced the implementation of section 309(j) immediately upon its enactment. That effort has required all the resources of the Commission's competent and dedicated staff. Enactment came at a critical juncture of fostering the emerging wireless technologies in a manner that would bring forward the greatest benefit to the consumer and industry. The responsibilities of section 309(j) highlight the Commission's overriding charge of establishing policies that allow market forces to be the predominant element, where technological advances flourish, where deployment is expedited and access broadened, while precluding unjust enrichment and concentration, including affording meaningful and longlasting opportunities for those historically barred from participating.

In balancing the competing objectives of the law and promulgating rules, the Commission does not rely on a particular rule's intended effect coming about merely because of its existence. Instead, a careful review of how entities will react in particular circumstances under specific rules is made. The impact that policies have on private investment, planning, and research must be considered. The Commission's pursuit of the public interest, convenience and necessity, as compelled by the Com-

munications Act, requires a comprehension that government should shape a regulatory environment that allows private parties to pursue their interests in a fair and competitive environment. It is a tribute to those who drafted section 309(j) that it has allowed the Commission to pursue implementation in a manner that affords the greatest potential for economic growth and broader access to telecommunications.

Attachment A



Chairman SABO. Ms. Ness.

Ms. NESS. Thank you, Mr. Chairman and members of the committee. It is indeed a pleasure for me to be with you today.

I have been a member of the Federal Communications Commission for just over 4 months, and during this time I would say the bulk of my time has been spent on Personal Communications Services and the auction process.

We have been endeavoring to ensure that our rules are carefully tailored to fulfill the obligations set forth in the OBRA, and we believe we have come a long way toward achieving those goals.

I have had many conversations with the financial community, having been in my prior life a lender to communications companies. And we think we are going to be on the verge of seeing a lot of very exciting opportunities in personal communications, new and different services offered by a wide variety of participants.

I would add that the results of our first two auctions have been carefully assessed, both by the FCC and also by potential bidders in future auctions, and all seem to agree that the auctions were conducted fairly, professionally and efficiently. And we also sent a very clear signal that we will enforce our auction rules.

As we fine-tune, going forward, we recognize and understand the importance of making sure that participants can draw up their business plans well in advance, and we are mindful of the need not to be forever changing our rules, but proceeding with widely disseminated information, and that is what we are doing.

We would be happy to answer any questions.

[The prepared statement of Hon. Susan Ness follows:]

PREPARED STATEMENT OF HON. SUSAN NESS, COMMISSIONER, FEDERAL COMMUNICATIONS COMMISSION

Mr. Chairman and Members of the Committee: It is a privilege to appear before you today. This is my first appearance before the Budget Committee, and I welcome this opportunity to discuss with you the FCC's implementation of our congressional directive to auction radio spectrum.

I have been a member of the Federal Communications Commission for only four months, and I can tell you that it has been an exciting time. Much of the excitement results from the legislation with which you were very much involved, the Omnibus Budget Reconciliation Act of 1993. During my brief tenure, no issue has consumed more of my time and attention than the implementation of spectrum auctions.

Chairman Hundt has provided a full account of the agency's actions in the short time since the legislation was enacted. The Commission has moved rapidly toward its full implementation.

We created an agency auction task force and hired auction consultants to assist us. We formulated general rules and procedures to govern the competitive bidding process and established rules governing the types of services and licenses that may be subject to auctions. We established a range of competitive bidding methods and auction procedures from which to choose for auctionable services, in compliance with the Congressional directive "to design and test multiple alternative technologies under appropriate circumstances." Finally, as the Chairman has reported, we have successfully conducted two auctions.

We are as pleased as you are with the results of the initial auctions, and we share your excitement about the broadband PCS auctions to come later this year and next.

Having just returned earlier this week from a wireless industry convention, I can report that PCS is attracting considerable interest. Entrepreneurial spirit is flourishing and the prospects for innovative new services are very promising. The creation of broadband PCS spectrum blocks specifically for entrepreneurs, small businesses, and woman and minority-owned businesses has been greeted with great enthusiasm by the industry.

My discussions with the financial community have been extremely helpful in our efforts to craft workable auction and service rules. Wall Street analysts predict that

the successful bidders in the entrepreneurial spectrum blocks created by the FCC offer the best prospects for new competition in the wireless industry and promise to offer a broad variety of innovative services using PCS technology.

The results of our first two auctions have been carefully assessed—both by the FCC and by potential bidders in future auctions. The seriousness with which we have pursued those few bidders who defaulted in the IVDS auctions has sent a strong signal to the wireless industry and will provide an important assurance to potential bidders and their investors of the integrity of future FCC auctions.

As Congress directed, we have adopted a number of measures to ensure "economic opportunity for a wide variety of applicants" in the PCS and IVDS auctions. Those measures produced some success in the IVDS auctions, but the highest bidders for the national narrowband PCS licenses were well-established players in the wireless industry. There will be ample opportunity for the designated entities to succeed in narrowband PCS as we auction the licenses in smaller geographic segments later this fall. We will continue to monitor how well our rules are tailored to facilitate wide participation. As a former lender, I know that in order to draw up their business plans, potential auction participants, above all, need to know what the rules are and that the rules will not change. We will seek to provide that certainty well in advance of future auction dates.

Thank you for this opportunity.

Chairman SABO. While the first auctions clearly provided substantially more money than people had assumed, there was also some focus on bids where payments were not made. My understanding is that those are rebid. Why don't you tell us what happens with those bids and what people are supposed to do and what happens if they don't pay.

Mr. HUNDT. I will be happy to do that.

We have had two auctions so far. One is for a spectrum that we call narrowband PCS. That is for messaging and paging. There were six winners in the first round of those auctions, and all of those companies so far have paid all the monies due. They totaled more than $600 million.

The second auction was for IVDS. This is a wireless service that basically will permit you to talk to your TV, that will permit to you send a message back while you are watching television, and make the experience of watching television interactive.

There were 178 winners; 151 have to date paid all the money due. But the difference there, I think, is 27 of the bidders have defaulted, as far as we now know. It is certainly possible for them to aspire to prove to us that they really did pay and somehow there was a flaw.

I am not making a judgment yet as to any claim that they may assert that our facts are wrong. But our current facts are those that I am representing to you. If the facts that I have just mentioned remain true, after we listen to any protests, then those particular bidders, that 27, of course, will not get licenses, and instead those licenses will be reauctioned to the public in the near future.

The previous bidders face the potential of liability in the following amount. If we re-auction the license and we don't get the same price, but, rather, get a lower price, they are liable for the difference between their bid and the lower price plus a penalty of, I believe, 3 percent.

However, a point that I would like to emphasize is that one of the merits of auctioning spectrum is that it is never exhausted. It is never depleted. It is never used. It is always there to be used again the next day. So that it is not the case that any defaulters will make use of public property in any way before having paid, but rather it is the case that the public will sooner or later get a fair

price in an auction for that property, and then the property will be used by someone for commercial purposes.

Chairman SABO. There was also clearly within the Congress a concern that small businessmen or women, minorities, may not be able to participate in this process. What is your process at this point for dealing with that issue?

Mr. HUNDT. We have a number of different techniques that we have employed. In fact, we have used I believe all the techniques that Congress specifically gave us, which were bidding credits, installment payments, and tax certificates.

Chairman SABO. By bidding credits, what exactly do you mean?

Mr. HUNDT. Yes, sir. What we have done with respect to a number of the licenses that are to be auctioned is this. We have reserved them for bidding by the groups that Congress designated as entities worthy of special concern.

The term that is commonly used is "designated entities." These include small businesswomen, minorities, and rural telephone companies. These will be bid on by all members of these groups, so that men and women will bid against each other, people of all races will bid against each other.

And within those bids—maybe what I should emphasize is the negative—those people who will be excluded will be big business, basically. And within this category of small business, including small businesswomen and small business minorities, we have given certain bidding credits to the women and the minorities so as to permit them an advantage in raising capital.

And the reason we have done that is that our record reflects that they come to an auction with a disadvantage in terms of raising capital. The record reflects they face higher costs of capital when attempting to borrow for a new enterprise.

So we have tried to adjust for that disadvantage and create a level playing field as they go into that auction for these licenses reserved for fundamentally small business.

Chairman SABO. What is the definition of small business for the purpose of your program?

Mr. HUNDT. I believe that it may vary according to the different licenses. I think, for example, for PCS, which is the mobile telephony spectrum, I believe that the cap is $40 million a year.

May I check for a second to make sure I am right about that? Is that correct?

That is correct.

Chairman SABO. I have some other questions but I will wait.

Mr. Berman.

Mr. BERMAN. Thank you, Mr. Chairman.

It has come to my attention, both from newspaper articles and one affected company, that the GATT provisions include a formula for new technology cellular communications, spectrum fees, and the auction rules that is different than the FCC's proposed formula. This formula would apparently produce substantially less revenue for the Treasury. It would give these pioneer preferences a much lower cost than the FCC had decided they were worth, given the advantages they had as the movers of the technology.

A company has approached me, a potential competitor of the pioneers, both in terms of bidding and in terms of competing in the

same market with the companies having the pioneer preferences. My interest, however, is not theirs. It stems from the realization that we are not producing as much revenue as the market would bear, even accepting with the philosophical premise of giving the movers of technology a certain competitive advantage.

And I am wondering if the FCC was involved in the negotiations with the preference awardees to arrive at the payment formula that is currently in the GATT draft, because it is different than what the FCC proposed, as I understand it.

Mr. HUNDT. This is the matter mentioned by the Chairman on which I am recused, so I will turn your question over to Commissioner Ness.

Mr. BERMAN. I am sorry, Mr. Chairman. Did we have an answer to this question?

Chairman SABO. In my opening statement I made reference that Mr. Hundt had recused himself from this issue.

Mr. BERMAN. All right. I missed that.

Ms. NESS. I am not aware that the Commission participated in any of those discussions. I certainly, as one of three Commissioners who was not recused, and therefore was able to vote most recently on the item which in fact required pioneers in the broadband proceeding to pay, in that proceeding we felt that it was important that there was a balancing of considerations, and in sum that the balance shifted in favor of the public and required that they pay.

But I am not aware—certainly I did not participate in any of the discussions with the pioneers and did not meet with the pioneers prior to making my determination in those two proceedings, both the broadband and the narrowband. And I have not had subsequent discussions with any of them with regard to the GATT.

Mr. BERMAN. But am I correct in the information that has been given to me, that the formula in the GATT legislation gives relief to the pioneers beyond that which was given to them from the FCC proceedings?

Ms. NESS. I have heard rumors in terms of what is in the GATT legislation. I can tell you what we did, and perhaps my information is correct about the GATT legislation.

What we did in the broadband item was to require them to pay effectively 90 percent of the license, and I think it was averaging out the top 10 cities. If my understanding is correct of what is in the GATT legislation, the number of cities is increased such that the dollar amount per population, and that is oftentimes a shorthand for computing this, ends up being much lower than it would have been if you just take the top cities, because of the value of those very heavily populated areas.

And so from what I understand, the price probably would be substantially lower than that which we did in our decision in the broadband PCS.

Mr. BERMAN. In your opinion, or in your counsel's opinion, would the provision in the GATT draft, the GATT link that would cut off judicial review of the preference awards, withstand a constitutional challenge?

Ms. NESS. I have not had discussions with counsel to determine whether that language would in fact be constitutional or not. Again, I have not been involved at all in any of the GATT proceed-

ings. That certainly has been a congressional endeavor, and we have been working on things that were directly before us.

Mr. BERMAN. But the GATT provision supplants and replaces what the FCC proposed; isn't that correct?

Ms. NESS. That is my understanding.

Mr. BERMAN. My final question on this is: one of the arguments given by the proponents of the GATT provision is that the FCC decision requiring the higher payment is vulnerable on appeal. Are you aware of any contacts with the Commission or its staff seeking your opinion as to whether or not you felt there is vulnerability on appeal to your earlier decision?

Ms. NESS. No one has sought my opinion to determine whether I believe that it is vulnerable or not. We certainly arrived at our decision very carefully weighing the options, and doing what we felt was consistent, both consistent with the law and certainly consistent with our obligation to decide in the public interest, convenience and necessity, which is the underlying theme of the Communications Act.

Mr. BERMAN. I gather implicit in your answer is your assumption that your decision will be upheld?

Ms. NESS. Will it withstand judicial scrutiny? I certainly hope that it would and I expect that it would.

Mr. BERMAN. Thank you, Mr. Chairman.

Chairman SABO. Are there any suits currently pending against the FCC either as it relates to the auction process or as it relates to pioneer preference?

Ms. NESS. There are always suits pending against the FCC. Yes, I do believe that there are some with respect to both pioneers' preference and the auction process as well—no, just pioneers' preference.

Chairman SABO. Which side?

Ms. NESS. Both sides.

Chairman SABO. The gentleman from California, Mr. Herger.

Mr. BERMAN. Could I just ask—if you might yield for 1 second—about this litigation. Will it be rendered moot by virtue of the new language in GATT, should it pass?

Ms. NESS. That seems to be the opinion of our general counsel's office.

Mr. BERMAN. Then you may have a formula which, because there is no avenue for judicial review, will not cause new litigation. That is just a comment.

Ms. NESS. I believe that is correct.

Chairman SABO. And lawyers will always figure out a way to sue.

Mr. Herger.

Mr. HERGER. Thank you very much, Mr. Chairman.

Just to follow up on this line of questioning, is it correct that we did have a change in the formula, as it sounds like you are indicating, from what the FCC came up with on August 9? It has been changed to what was put into the GATT; is that correct?

Ms. NESS. The formula, as I understand it, for GATT, is not the formula which the Commission adopted in its broadband proceedings.

Mr. HERGER. Could you tell me what the difference between those formulas was? What was the formula in August and what is it now? What was it changed to?

Ms. NESS. The formula that the FCC adopted took the top 10 markets. We set, I believe it was, an average of the top 10 markets and we took 90 percent of that amount.

My understanding of the GATT results were the top 20 markets less the results in Los Angeles, New York and Washington. And the amount was 85 percent of that average.

Now, again, the difference being primarily, as I understand it, the top 10 markets, particularly the markets under consideration, Los Angeles, New York, and Washington, are among the most coveted markets, presumably those will generate among the highest amount of revenue.

If one were to average down to the top 20 markets, you are talking substantially smaller populations, thus presumably the attractiveness of those markets is substantially reduced and the average will come down, and then it has 85 percent—85 versus our 90 percent.

Mr. HERGER. So then——

Ms. NESS. Again, with ours there is judicial review.

Mr. HERGER. Now it is 85 percent of the top 20 markets. I am curious, what was the reasoning for the administration to do this?

It would sound like you were talking about a difference of large sums of money if we did this. Again, I am looking for what the reasoning was for doing so.

Ms. NESS. I can't speak for the administration. I can speak for my decision as one of three members of the FCC who voted on the broadband. I do not know and did not participate in any way in the GATT discussions, other than to catch information after the fact that was over the wires.

But certainly with respect to our decision, we felt that it was a fair decision, balancing out the underlying purpose of pioneers' preference, the expectations of the parties that had participated in that proceeding over a period of time with what we perceived to be the important public interest of returning to the public the value or at least a substantial portion of the value of the public spectrum.

Chairman SABO. Will the gentleman yield?

If I might ask a question that I think relates to Mr. Herger's question, I would be curious, and I agree with the decision very much, but I am just curious as to the rationale of the FCC in moving to requiring payments by the pioneers and away from what was a situation for a long time where the pioneers were going to get the license without any payment. Frankly I thought that was very wrong.

Ms. NESS. As I understand it, now, again, I have only been on the Commission for 4 months, so my first substantive vote was in conjunction with the requirement of the pioneers, first the narrowband pioneer and then the three broadband pioneers, to pay.

And my understanding is the rationale behind pioneers' preference is when the Commission went to a lottery system, you could have a company which had spent a substantial amount of funds developing a new technology, which was now going to be widely used, and yet not derive any benefit of it by happenstance, because a

ping-pong ball came up with somebody else's number. And it was felt that that was inherently unfair, and it was felt that, to encourage additional scientific development of technology, we ought to give some benefit by ensuring that a pioneer would get a license.

With the auction process, however, intervening during this period of time, it is now possible for anyone who values a license highly and is willing to pay for that license to be able to win by virtue of simply bidding and paying the most for the license.

However, having said that, we still felt it fair and important, since this process has been under way and all of the work on the part of these parties had been done, to provide them with some discount, some benefit. And we weighed those factors, and that is how we came up with the result that we announced in the narrowband and then the broadband PCS auctions.

Mr. HERGER. Mr. Chairman, as I was yielding to you, can I regain the time that I lost please?

Chairman SABO. Absolutely.

Mr. HERGER. Thank you very much, Mr. Chairman.

I have to agree with you. I also would have felt it would have been very unfair to the American taxpayer if we had allowed this to have gone, again, just by random choice of a ping-pong ball, as you say. So I commend you for doing that.

But I want to get back to, again, the amount that we are actually receiving for this. Again, we are talking about going from 90 percent of value down to 85 percent of value, and a change of the markets used in the formula.

Was there some discussion of how much value we are talking about for the pioneers in exchange for this technology that was developed? And I commend the companies for doing that.

But was there a discussion of what the dollar amount would amount to at the 85 percent level of value?

Ms. NESS. We did not——

Mr. HERGER. There must have been some numbers discussed.

Ms. NESS. We did not really—our deliberations did not really set a number value. I am a little hesitant to even go through the deliberation, because should the GATT legislation not prevail, should we be back with the lawsuits currently pending, the issue may in fact come back to me, and I really am a little bit hesitant to be prejudging or commenting on pending litigation.

Mr. HERGER. I can appreciate that.

Let me just mention this. I do have a letter in front of me that was written by a Dr. Jerry Hausman, who is an economist at MIT. This letter suggests that the discount given the three companies would be worth approximately $1 billion. That was an estimate he came up with.

I guess my question, would that tend to be the value that you felt that this technology was worth, and was there some type of discussion of this type?

Ms. NESS. I am sorry. Are you suggesting that the discount, our—we are requiring them to pay 90 percent of the total value. Are you asking if that 10 percent discount equals $1 billion?

Mr. HERGER. That is what——

Ms. NESS. That doesn't sound right to me.

Mr. HERGER. The change in the new formula—excuse me, the change in the new formula would amount to about $1 billion. I guess the question would be, do you feel an additional billion dollars for this technology is worth moving down from the 90 percent to the 85 percent.

Ms. NESS. Sir, that would require me to go back and really do an assessment of each of the players that is a recipient of a pioneers' preference, and that gets back to the litigation, which I would be very uncomfortable commenting on at this point by virtue of the fact that I may have to rule on it.

Mr. HERGER. Thank you, Mr. Chairman.

Chairman SABO. Before I yield to Mr. Mollohan, I want to ask about an issue that has confused all of us at all times. We deal with widely varying estimates of the revenue that we may or may not get from the spectrum sale. The estimates that we have gotten, I take it, come originally from OMB, and then eventually from CBO, that we dealt with. I do not know the degree that FCC staff participated with OMB or CBO in arriving at those numbers.

My understanding is that FCC itself is not heavily involved in that process of making estimates.

Mr. HUNDT. We have tried to make a policy not to be generating estimates. Our view is that our role under the statute passed by Congress is to conduct the auctions, but not in any way attempt directly or indirectly to promote them.

And so consequently we have aspired to make no estimates, make no projections, engage in no speculation. And I would like to point out that any newspaper articles that anyone has read that say that auctions have generated proceeds that exceed expectations, refer to the private market expectation, not to any FCC expectations.

Chairman SABO. Or CBO. It may exceed CBO estimates.

Mr. HUNDT. I actually know of no government estimates specifically relating to the discreet auctions that we have conducted.

Chairman SABO. Okay. Mr. Mollohan.

Mr. MOLLOHAN. Thank you, Mr. Chairman.

Mr. Hundt, the last full paragraph of the Chairman's opening statement says, "Moreover, turning these frequencies over to the private sector in a rapid and efficient manner," et cetera.

What kind of ownership interest is conveyed with the issuance of a license?

Mr. HUNDT. These licenses for use of the spectrum are licenses that will run for 10 years. At the end of that time there is an expectancy of renewal. This is similar to the situation——

Mr. MOLLOHAN. On option?

Mr. HUNDT. The parties expect that it will be renewed. And this is similar to the situation with broadcast TV licenses. For example, the Chairman knows of the Hubbard family in Minneapolis, which I guess 50 years ago was urged to take a license to explore the strange new technology of TV, and now they very much prize that expectancy of renewal and indeed it has been renewed repeatedly.

And that is a history that I think it is fair to say that the private market expects to have recur here as well.

Mr. MOLLOHAN. If they performed to certain standards they can expect to have their licenses renewed; is that correct?

Mr. HUNDT. That is generally right, and also analogous to the cellular licenses.

Mr. MOLLOHAN. Is there any fee charged upon renewal of that license?

Mr. HUNDT. There is no statutory mandate to charge any fee, and we are not aware of any statutory authority to charge a fee. We are not aware of any authority we would have to impose a fee at the time of renewal for the fact of renewal.

Mr. MOLLOHAN. The purchase of initial spectrum and the issuance of the license gives the licensee a 10-year ownership interest in that with a likelihood of renewal without paying any additional fee?

Mr. HUNDT. I don't mean to be too lawyerly, but the term "expectancy" is an important one for me to stick to, because I wouldn't want to prejudge any filings that may be made against them. That is why I wouldn't embrace the term "likelihood."

But otherwise I would totally agree with you.

Mr. MOLLOHAN. So if you are a good performer paying this initial fee, it is a virtual indefinite ownership interest in this spectrum.

Mr. HUNDT. As a matter of history, that is what has happened in broadcast and cellular and everyone would probably think that history would repeat itself.

Mr. MOLLOHAN. What do you think about the future? Do you think we ought to consider some sort of renewal fee for the subsequent 10 years? Just as a matter of philosophy, I would like to hear you comment on that.

Mr. HUNDT. I think it is very important that the parties going into these very, very historic and important auctions understand that they will be able to exploit that spectrum for the full decade without any concern that Congress would come in and ask them to pay again.

Mr. MOLLOHAN. Granted. What about after that 10-year period?

Mr. HUNDT. After that I think it is very much within Congress' discretion to revisit the issue. The kinds of fees that we can impose now, the sort of filing fees, are not at all of the magnitude of the auction fees. And there is an issue there that Congress certainly could investigate.

But I think—I just have to emphasize, and excuse me for doing this, that the prospects in these auctions coming up from the Treasury's perspective are so exciting that it would be very, very important not to cast any cloud over them by suggesting that the FCC might think that they won't get all that they are paying for. I am aspiring to make it crystal clear that we are not harboring those thoughts, because I know you would like us to collect as much revenue as we can through these techniques.

Mr. MOLLOHAN. I don't want you to send any signals out. Would you care to comment on the subsequent issuance after 10 years, and whether it would be appropriate to consider an initial fee?

Mr. HUNDT. In the sort of post-10-year future, I would suggest to you, Congressman, that the issue probably ought to be determined in light of the marketplace condition in question.

If you are looking at a PCS industry that is thriving and there are capacity constraints and we haven't auctioned enough spectrum and people need more spectrum, that is one thing. If you are look-

ing at an industry that has not met expectations and has had a disappointing performance, that is a very different situation.

I think that it is really very, very difficult to make a sensible projection that is more than a decade out.

Mr. MOLLOHAN. You are not thinking about that?

Mr. HUNDT. I am aspiring not to.

Mr. MOLLOHAN. Are your cost estimates for administering the spectrum auctions in 1995 on target?

Mr. HUNDT. Our expenses have put a tremendous drain on our resources. We want to thank your Appropriations Committee for recognizing that and giving us the funds. We hope we will prove to you that is a good investment of public money because we have the prospect of obtaining so much in return. I do believe we are on target with all the internal estimates you referred to. So please let me thank you for your other role here.

Mr. MOLLOHAN. Oh, you are welcome. Are your 1996 budget requests going to be more or less to administer the auctions than they were in 1995?

Mr. HUNDT. Congress has in another act of wisdom permitted us actually to take specific funds out of the auction proceeds that are necessary for administration purposes. So that is already a statutory power that you have given us. So therefore that particular activity wouldn't generate additional budget requests.

Mr. MOLLOHAN. I understand. But the question was, do you anticipate any additional requirements in order to administer the actions?

Mr. HUNDT. Not for the auctions per se.

Mr. MOLLOHAN. Thank you, Mr. Chairman.

Chairman SABO. Mr. Cox.

Mr. COX. Thank you very much, Mr. Chairman.

It is a pleasure to have both of our witnesses here today. When you mentioned we have known each other for 20 years, I was taken aback. And it turns out you are wrong: It is only 18.

Mr. HUNDT. I sit corrected.

Mr. COX. As you know from our conversation just before the hearing, my principal budget concern is with the application of the proceeds of auction sales within our congressional budget system. Specifically, when the Federal Government privatizes or liquidates an asset—in this case, a 10-year property right—the proceeds ought to be used to pay down a balance sheet liability. Because we have liquidated a balance sheet asset, we should apply the proceeds to reduction of a balance sheet liability, such as long-term debt, rather than running the proceeds through the current year's income statement, and pretending that our annual results are better than they really are.

In short, the proceeds of auction sales ought not to be treated like current year revenues from income taxes. I will have a chance to talk about this specifically with our next witness, so I won't belabor the point with you.

Instead, I will pick up on what our other two California Congressmen have discussed with you. One of the reasons I think they asked these questions is that California is where one of the three pioneer preference awards was made. That award was for the most lucrative market in the country. And the size of the award, I note,

covers the territory from San Luis Obispo to East Las Vegas to the Mexican border. It includes all of San Diego and Los Angeles. It is a huge market.

I will direct this question to Commissioner Ness, because I know this is your responsibility. What I heard in response to their questions about the formula that is now embedded in the GATT implementing legislation confused me. I think I understand the FCC's policy on this, but I also know that there are many players. The administration has been a big player as well in negotiating the GATT legislation provisions. And Congress of course is involved. So there was really a three-cornered negotiation on the GATT formula that makes it difficult to know who was responsible for what.

In your testimony, you said something with which I agree totally: "Auction participants above all need to know what the rules are and that the rules will not change." But the rules have been changing dramatically since August 9.

The FCC's statement of decision on August 9 said, "We conclude that the proper application of the pioneers' preference policy, in the auction environment where tentative decisions were made prior to the auction statute, is to guarantee the pioneers receive licenses but on roughly the same terms as other licensees."

That is, of course, not what we are doing in the GATT implementing legislation.

The FCC also stated that leaving big metropolitan areas out of the formula would result in significantly undervaluing the licenses at issue here. That is obvious because the licenses themselves cover big metropolitan areas.

I mentioned that the L.A. license covers territory from the Mexican border to Las Vegas to San Luis Obispo and includes both San Diego and Los Angeles. The New York license and the DC license are also much more valuable than all the others included in the 20-city average. But the formula in GATT uses a national average, which undervalues the license. And the latest fillip is that rather than use 20 cities, the formula actually subtracts three of the most populous markets, including the very ones that are actually at stake here.

So that is how we come up with some estimates such as were in yesterday's newspapers of a $1 billion revenue shortfall. I know you speak only for the FCC—or perhaps you speak only for yourself as a Commissioner—but I wonder if you could at least clarify for me whether the FCC's statement of policy on August 9 is something by which you still stand.

Ms. NESS. Yes, I do.

Mr. COX. May I infer from that that the GATT implementing legislation, which is dramatically different, is something different than what you consider to be sound FCC policy?

Ms. NESS. We made our decision based on the record in front of us. The Congress has the opportunity and certainly the authority to do what it sees to be best under the circumstances. And I would not question that.

Mr. COX. Having read the Constitution I know that under Article I, Congress can do a whole lot, good or bad, and has the power to do so. I am just asking you about the wisdom of the policy and whether it is something that the FCC considers to be sound.

Ms. NESS. I have no opinion on what Congress is considering in terms of the pioneers' preference provisions of the GATT legislation.

Mr. COX. Okay. Well, I can see that I have pushed this about as far as I can get. Thank you.

Chairman SABO. Mrs. Woolsey.

Ms. WOOLSEY. Thank you, Mr. Chairman.

I am delighted that we have moved from the lottery to the auction process. That is a wiser way to go. But I am not sure that we have done it in the totally wisest way we could.

And in looking at this, I think the wisest way would be to make sure we get a level playing field. I don't think we have quite done that, and I don't think we are actually going to be compensating the government to the extent we could.

In looking at the GATT formula and taking out the L.A., New York and Washington, DC market, I am curious, because the three companies that won the pioneer preference licenses are from those three markets.

So I would ask you, Ms. Ness, you weren't part of any of the deliberations with them——

Ms. NESS. No.

Ms. WOOLSEY. Would they have been part of any negotiations and deliberations with putting this formula together? I mean, is it possible?

Ms. NESS. Could the pioneers?

Ms. WOOLSEY. The pioneers, did they play a role in this formula discussion?

Ms. NESS. In coming up with the GATT formula? I haven't a clue.

Ms. WOOLSEY. Is it possible that they could have? It seems like they won so much. They really did gain a lot, and we took out their markets in coming up with the formula. That is a question I have. If anybody has an answer, I would sure appreciate it.

I would also like to know if you believe that the provision which takes away the right to challenge the pioneer preference decisions from administratively being challenged in court is good public policy?

Ms. NESS. I am sorry, say this again, please.

Ms. WOOLSEY. The decision to take away the pioneer preferences ability to challenge these decisions in court, is this good public policy to take away the ability to challenge these decisions in court?

Ms. NESS. Once again, that is part of a determination that is reflected in legislation pending before the Congress. I don't have an opinion on that. That would entail my assessing all of the pieces of the puzzle and putting them together, including possibly information and arguments that were not considered by the Commission.

Again, both as a Commissioner and, as far as I know, as the Commission, we have not been party to any of the discussions with Congress or the administration on the subject of the GATT negotiations with regard to pioneers' preference. And I personally certainly know nothing about either those negotiations or the relative benefits involved.

Ms. WOOLSEY. But then the FCC actually doesn't have an opinion on whether this is better public policy, the administration's reversal of your FCC decision? You mean, you don't have an opinion on it?

Ms. NESS. I do not have an opinion. I have not studied—in fact, I don't know all of the details regarding what was determined within the GATT legislation. And once again, my opinions relate to those decisions that I made, which were based on the record. And I am very mindful of my obligation and my duty to do just that. I don't want to prejudge or prejudice a record before me on a matter that might come back to me.

And thus it is not really within my purview to be analyzing and opining on legislation that Congress may or may not enact.

Ms. WOOLSEY. I am sure you are right and I know you have to do this, but if we are here for testimony so that we can make better policy decision, what are we getting from you? I mean, we can't carry on a conversation. This is difficult for me.

Ms. NESS. You are talking about something that is under litigation, and it originates in part from a restricted proceeding. And we have the Administrative Procedure Act, and also the pending litigation, which make it very difficult to comment. I have not been privy to or involved in any of the discussions with respect to GATT. I can tell you that which I decided, and I am perfectly willing to do that within the constraints of what may be coming before me yet again.

But apart from that, I have not been involved in those decisions, and it would be both shooting from the hip and perhaps irresponsible for me to opine on something that I am not totally familiar with.

Ms. WOOLSEY. Mr. Hundt, do you have any opinions on how these licenses are valued and whether we have made the right decision to go with taking out the three markets, the top three markets?

Mr. HUNDT. This is a subject that the Chairman mentioned in his opening statement I am recused from being involved in, and consequently haven't participated in the Commission deliberations either.

Ms. WOOLSEY. Okay. Thank you.

Chairman SABO. Mr. Smith.

Mr. SMITH OF MICHIGAN. It is a concern that we are not utilizing some of your knowledge to help gain some insight on how we as Members of Congress should act. So I am somewhat disappointed in your reluctance to help us answer some of these questions.

Let me ask a question in a different area. How does the FCC develop policies to prevent monopolies from controlling a larger and larger portion of the airwaves as we auction off these spectrums?

Mr. HUNDT. That is an extremely important and interesting question. The most important fact from that perspective about the auction of the airwaves is that we are auctioning enough licenses to jump start vigorous competition in wireless telephony from the very beginning. Previously in the cellular telephone area, the Commission created only two licenses. It created a duopoly.

And it is my judgment that that was not enough to give consumers the benefits of vigorous competition. It did not deliver enough choice in terms of kinds of services, quality of services, and price.

We are already seeing, in my opinion, increased benefits of competition in cellular telephony simply because of the anticipation of new competitors entering the market after they buy the PCS licenses.

Already in the last 12 months, the number of cellular subscribers in this country has gone up by 40 percent. And the prices for cellular telephone service are dropping all around the country. And one of the reasons is that the duopolies are interested, in my judgment, in increasing their market penetration, because they sense the new competition coming in from PCS, which will provide similar services and products.

So already we are seeing the benefits of competition. And so we have taken special steps to make sure that the licenses that we are offering here cannot all be purchased by the incumbent cellular holders in their markets, but rather that we will end up at the end of the auctions with a distribution of licenses among enough people to maximize the chances for real vigorous, robust competition.

Mr. SMITH OF MICHIGAN. Just give me a thumbnail sketch of how you do this.

Mr. HUNDT. For example, if you are the cellular licensee in Chicago, you cannot buy one of the 30 megahertz blocks of spectrum being sold in Chicago, because you don't need it. You already have 25 megahertz as the cellular licensee. And we want that 30 megahertz to go to somebody new who will provide competition to you.

Mr. SMITH OF MICHIGAN. Help me understand how much is left out there that is available for auction. Help a layman understand what the parameters are of where we are going and how new technology and satellite fees, et cetera, are going to affect what is available to come under the jurisdiction of FCC.

Mr. HUNDT. We are not mandated by the statute to auction any particular spectrum. It is a technique for distribution of licenses that Congress gave us. It is a technique that we have already used for nationwide narrowband PCS, 10 licenses, proceeds more than $600 million. And we have already used it for IVDS, about 594 licenses, proceeds so far more than $100 million.

In the near future, we are auctioning regional narrowband PCS, 30 more licenses starting October 26. We are auctioning these large 30 megahertz blocks that I mentioned that are almost certainly going to be used for mobile telephony—wireless, portable hand-held telephone devices. We are auctioning 99 of these licenses starting December 5 of this year. I think it will be one of the most exciting events of its kind in history, and will probably last for 4 to 6 weeks, just as an auction process.

That will be followed by another auction of broadband PCS, second phase, for the so-called designated entities, and then it will be followed by a third phase. So in the end, in three phases or three auctions, stretching over a number of months, we will auction a total of 120 megahertz, which is a lot of spectrum. To give you an example, a TV station uses about six megahertz, which is also a lot of spectrum. So 120 is a very large block.

To give you a comparison point, each cellular licensee has 25. So we have 25 megahertz right now for one cellular licensee and 25 for the second cellular licensee for a total of 50, and we are adding

another 120 that may well be used by competitors of cellular licensees.

We also are going to auction still more narrowband licenses. Narrowband means it is not really usable for mobile telephony for telephone calls. It is used for paging and beeping. We will be having three more auctions of that kind. We hope also it will be completed in 1995.

We have other possibilities of auctions on the drawing boards: 900 megahertz SMR-wide-area license, 800-wide-area SMR licenses, et cetera.

Mr. SMITH OF MICHIGAN. Give me—under current technology, what percentage is now owned or in the process and planned to be auctioned out, of the whole spectrum? Just give me a rough idea. Usable probably is the key word, under current technology.

Mr. HUNDT. That is not a number that I have in my head. The main point I would like to make to you, sir, about auctions is that there are many different slices of the spectrum that right now are available. I have given you the examples. There are also other slices of spectrum that will be made available in the future that could be auctioned.

For example, we are in the process now of freeing up areas of spectrum that might previously have been used by government. Fifty megahertz is sort of coming through the pipeline. Government users are evacuating it or willing to concede that it can be used for private purposes.

The Department of Commerce makes that decision. And then, so to speak, sends the spectrum over to us for auctioning.

Mr. SMITH OF MICHIGAN. Does new technology increase the usability of being able to receive and——

Mr. HUNDT. Yes. This is a very good question. New technology permits the use of places in the radio frequency chart that might not have been exploitable for commercial purposes until the new technology was developed. And so as the spectrum is made available, we are also seeing that the inventors of America are finding new ways to use it. And sometimes it appears desirable for their ideas to be translated into action by having them go out and raise money to buy the spectrum.

In other situations, it may be better not to auction the spectrum, and then there are situations where reasonable men may differ. Cellular unserved is a batch of frequencies where people differ. I and two of the Commissioners differed on that. I thought it should be auctioned and they did not.

Congress thought that the spectrum that may be given to broadcasters should not be auctioned but rather should be assigned to broadcasters. So it is not a guarantee or certainty that we should always auction. But I do think it is a certainty that there will be chances to consider auctioning spectrum on a continuing basis over time.

Mr. SMITH OF MICHIGAN. Thank you.

Chairman SABO. Let's see if we can finish this before the votes and then we will excuse the FCC and have Dr. Reischauer after the vote.

Mr. Hoke.

Mr. HOKE. Thank you, Mr. Chairman.

It is a pleasure to actually be able to ask questions, being at the end of the line. All of which is to say that if Marconi had preceded Bell, we might have a very different set of circumstances with respect to both personal as well as commercial telephony today.

Mr. HUNDT. It would be called the Baby Marconis.

Mr. HOKE. The time differences in this are very close. It is not idle speculation to say that.

I have a couple of questions. Mr. Hundt, what was the basis for your requesting recusal on the pioneer preference issue?

Mr. HUNDT. It was an opinion of the general counsel's office of the FCC, based on the fact that the law firm that I worked in before I went to the FCC was involved on behalf of a client in the proceeding. They actually represented one of the losers, and I guess protestors. I am not sure. I wasn't personally involved in it.

Mr. HOKE. So then you can't answer any of the questions that I am going to bring on pioneer preferences.

Mr. HUNDT. Without hearing your questions, I am not 100 percent sure, but I imagine that is right.

Mr. HOKE. Omni Point, is that owned by another company, or is that publicly traded by itself? Do we know?

Ms. NESS. I am told it is privately held.

Mr. HOKE. American Personal Communications in DC is owned largely by Washington Post Company; is that correct?

Ms. NESS. That is my understanding.

Mr. HOKE. In the course of time over which somehow they were under the impression that at some point they were going to get a free license, and then ultimately you changed that and made them pay 90 percent of a bid amount, had any representations ever been made to any of these three companies that they would be given free licenses, either expressly or implicitly, either in writing or verbally?

Ms. NESS. Certainly the Commission decisions that preceded our decision said that they could have the license for free.

Mr. HOKE. That was expressed, that was a written——

Ms. NESS. That was a written decision.

Mr. HOKE. That was based on their, "innovative advancements in PCS technology?""

Chairman SABO. Mr. Hoke, I might just add so that we are clear on this, that decision that they will get free licenses, that was made at the point of time at which all licenses would have been free through the lottery system and predated the congressional decision to have an auction for the balance of the licenses. Is that not accurate?

Ms. NESS. Yes. And that was part of the original pioneers' preference rulemaking.

Mr. HOKE. So the preference was to get the license, and at that point in time there was no question of what the consideration should have been, because there was no consideration at that time. All right.

It seems to me that—I mean, what was the consideration for the preference?

Ms. NESS. The original consideration for pioneers' preference is premised, as we discussed previously, that originally licenses were determined via lottery, and in the lottery scenario, a company that had in fact contributed technologically to the advancement of the

particular service might by virtue of the ping-pong ball that happened to pop up, not get a license.

And it was felt that that was inherently unfair, and probably——

Mr. HOKE. I think you misunderstood my question. I am using the word consideration in the legal sense. What was the money? What was the consideration for the preference? You are saying that the consideration was the innovative——

Ms. NESS. Was the—presumably the determination of innovative——

Mr. HOKE. How did it happen that those innovative advancements came from those three companies that—was it just coincidental that they were in the three largest markets in the United States?

Ms. NESS. I was not part of that original proceeding. My understanding is they had selected those markets and that that is what they specifically had applied for their——

Mr. HOKE. The Washington Post Company has cellular licenses, and I think they have made application for other——

Ms. NESS. I have been advised by counsel that this is an adjudicatory matter.

Mr. HOKE. Mr. Chairman, these are tough questions, important matters. It would be helpful to have people from the FCC who can actually testify directly to them in a way that is candid and forthcoming and puts it all in the record so that we know. I don't know how else we are going to be able to get to the right answers.

What I would like to suggest—is that something we can do in the future?

Chairman SABO. Let me just ask this question. This frustrated me at times too, earlier in the year. But a significant number of the Commission is new. And as I understand it, all the decisions made on whether the pioneer preference should be granted—and I believe would be granted—were made before the majority of the existing Commissioners were Commissioners.

Ms. NESS. That is correct.

Chairman SABO. How many Commissioners were there? Five?

Ms. NESS. There are five of us. Three of us were not recused from deciding the broadband matter, and of those, Commissioner Barrett and Commissioner Quello and myself. Commissioner Barrett, Commissioner Quello were both here during those prior determinations.

Mr. HOKE. I guess maybe the suggestion would be there has got to be some institutional memory there with counsel, whoever has been around longer. Maybe we should subpoena the earlier Commissioners. I don't know.

I just want to——

Chairman SABO. We will explore it. I am not sure to what degree they are complicated by the fact that suits are pending.

Ms. NESS. It is still an ex parte matter. Under our rules, we are not permitted to have discussions on those matters, plus with litigation pending, it makes it even more difficult.

Mr. HOKE. Maybe we have to do it in a closed hearing. I think that our responsibility constitutionally is to get to the bottom of this. The lawsuits that may or may not be pending I think are not as important as the obligations and responsibilities that are given us by the people to oversee these things.

The only other observation that I would like to make with respect to this generally is that there are two things going on here that ought to be seen separately. One is, the preference that is given in exchange for specific research or development by these companies, and that there ought to be consideration paid for that preference. That is one set.

And the other is the value of the spectrum itself. Getting at the value of the spectrum itself in an auction, where the other bidders know that they cannot purchase, is a very difficult thing to do, because you have already distorted the actual process. But, in fact, these bidders that have been given this pioneer preference should be paying, is not 100 percent or 90 percent or 85 percent. They should be paying 100 percent of a fair auction price that would probably have to be determined by taking an average of population in other parts of the country as opposed to—because of the distortion issue that I just raised—plus a premium, because in fact the preference they are receiving has a value. And they should pay for the receipt of that preference. Giving them a discount actually goes in the wrong direction.

You appear not to understand that. Let me repeat it.

Ms. NESS. Any pioneer can come in and bid in the auction and go that route and perhaps, for example, if a pioneer met the eligibility criteria for our entrepreneurial block and could participate in that auction, or alternatively, if they were a minority, small business, female-owned firm, they might be entitled to larger discounts than we provided for in our decision for pioneer preference participants paying, or alternatively, whatever might be available under the GATT provisions.

Chairman SABO. We have less than—we have 4 minutes.

Mr. HOKE. I am really finished. Did you have any other——

Chairman SABO. I had a couple of other things. Let me ask a question to follow up on Mr. Hoke's question.

In the FCC record, is there a defined process by which the original pioneers were chosen?

Ms. NESS. Yes, there was. There was a proceeding——

Chairman SABO. Would you forward that to Mr. Hoke, myself, so we can make that part of the record?

Ms. NESS. Sure.

[The response follows.]

The pioneer preference rules are codified at 47 C.F.R. sections 1.402, 1.403, and 5.207 (1993). These rules have been the premise of the pioneer preference awards that have been made. A copy of the rules is attached. [The copy appears at pg. 65 of this hearing.] The rules provide a means by which an applicant that demonstrates that it has developed a new communications service or technology may obtain a license without being subject to mutually exclusive applications. Under the pioneer's preference rules, an applicant may be granted a preference for a license if it demonstrates that it has developed the capabilities or possibilities of a new technology or service, or has brought the technology or service to a more advanced or effective state. The applicant for a preference must also demonstrate that the new service or technology is technically feasible by submitting either the results of the experiment or a technical showing. The preference will be granted only if the final service rules adopted by the Commission are a reasonable outgrowth of the applicant's proposal and the new technology can be used to provide the service. An applicant who meets these standards is not subject to competing applications, and if otherwise qualified will receive a license.

In the Third Report and Order in the Personal Communications Services (PCS) proceeding, the Commission discussed at length how the three recipients of

broadband PCS preferences met this standard. A copy of that portion of the Third Report and Order is attached. [The attachment appears at pg. 68 of this hearing.] Chairman Hundt was recused from this proceeding.

Chairman SABO. The mechanism by which—I assume you had numerous applications to be a pioneer.

Ms. NESS. That is correct.

Chairman SABO. And through some process the FCC chose.

Ms. NESS. Yes. And in fact that proceeding is still in reconsideration.

Chairman SABO. And there is a formal process for doing that?

Ms. NESS. That is correct.

Chairman SABO. And those selections were made by the prior FCC, at which only two members are currently serving?

Ms. NESS. That is correct.

Chairman SABO. But we should know that formal process. I think that goes in part to your question.

Mr. HOKE. Yes.

Chairman SABO. I will forward—I have got to run to vote, too—I had questions on the rationale for what I understand was the decision on unserved areas in the cellular area, to simply go by lottery rather than by auction, and I would like a written response to that.

I also have had people express concern over the freeze that is on changes for specialized mobile radio. People are saying that because of freezes on, they can't make up dates and it is hampering that industry. I will put that in writing also. Thank you very much.

I have about 2 minutes to get there to vote, on a conference report from a committee on which I serve. But thank you very much. We will come back and hear from Dr. Reischauer.

[Recess.]

Chairman SABO. Dr. Reischauer, welcome. We thought we should invite you so you would have a chance to appear before a committee on something other than health care.

STATEMENT OF HON. ROBERT D. REISCHAUER, DIRECTOR, CONGRESSIONAL BUDGET OFFICE, ACCOMPANIED BY DAVID H. MOORE, PRINCIPAL ANALYST, NATURAL RESOURCES AND COMMERCE DIVISION, CONGRESSIONAL BUDGET OFFICE

Dr. REISCHAUER. This is like a vacation.

Chairman SABO. We are in the middle of a Journal vote. It will get approved without my vote. Whether other members will be back, I am not sure, so we will proceed.

I am just curious about your current estimates on spectrum receipts. It doesn't have any impact on the working of our budget for this year, but it does have impact on what will happen with the governmental receipts over the next several years.

Last year CBO did have an estimate of what the auctions would bring. My understanding is, you have adjusted the baseline a few times this year.

But we are just curious where you are on estimates from where you were a year ago. What do you think is happening now? The recent auctions have produced significantly more revenues than

what some people were estimating. I am not sure if your estimate showed this portion of the spectrum as a separate category or not.

So we are just interested in hearing what you have to say at this point in time.

Dr. REISCHAUER. Mr. Chairman, it is a pleasure to be here before this committee. And not to be talking about either the budget or health care makes it doubly pleasurable.

Let me introduce David Moore, the analyst of the Congressional Budget Office (CBO), who has done most of the significant work on spectrum auctioning over the years, including the report we did a couple of years ago.

With your permission, I would like to submit my prepared statement for the record. What I will do here is summarize that statement.

Chairman SABO. The entire statement will be put in the record.

Dr. REISCHAUER. I will focus on three of the topics covered in that statement. The first is what we have learned from the first two Federal Communications Commission (FCC) auctions. The second is the problems that can arise when public policies designed to encourage license ownership by small businesses, underrepresented groups, or those who have contributed to technological development are combined with a competitive bidding regime like the one the FCC has now. The third topic is the one you just raised in your opening comments, namely, the difficulties and uncertainties that are inherent in estimating the receipts that will result from these auctions and where CBO's numbers are right now.

In the Omnibus Budget Reconciliation Act of 1993 (OBRA–93), the Congress directed the FCC to begin using competitive bidding to assign licenses. In so doing it was recognizing what markets had long appreciated: that the radio spectrum has significant value. Moreover, by requiring the FCC to assign licenses through an auction, the Congress was directing that the public share in this value. It was also acknowledging that this resource could be assigned more efficiently and more rapidly through competitive bidding rather than through lotteries or a hearing process.

The FCC has achieved considerable success in carrying out the Congress's will in the first two auctions. The auction designs chosen by the Commission seem to have achieved a good balance between effective administration, revenue generation, and economic efficiency. And the auctions, as you noted, raised considerably more money than most observers expected, including the Congressional Budget Office. This suggests that the prices bid were consistent with the spectrum's true economic value.

The success on the economic front I think in no small part was due to the specific auction designs that were selected by the FCC. The Commission went through a rather complex process involving substantial academic input from the university research community and technical input from various firms to arrive at those designs.

For the first auction, which covered 10 narrowband personal communications services (PCS) licenses, the Commission chose a simultaneous open format that allowed bidders to compete for all of the licenses over a number of rounds. In fact, there were 47 rounds of bidding in that auction. For the second auction involving inter-

active video and data services, the FCC chose a sequential open format, which also seems to have been quite successful.

The FCC's early success in these efforts is a good sign, but it does not guarantee success in future auctions, which are going to be larger and more complex. Rather than covering a handful of licenses, these future auctions will involve tens of narrowband licenses and hundreds of broadband ones. The auctions constitute a different level of challenge for the FCC, although the Commission seems to be going about its preparations in a thoughtful manner.

The future spectrum auctions will have to confront the difficulties associated with meshing the new competitive bidding regime with the need to provide adequate incentives to encourage innovation. Such objectives can be pursued in several different ways. First, the favored groups can be provided with bidders' credits, discounts, or favorable payment terms and then allowed to participate with those advantages in the auctions along with the other bidders. In other words, the FCC would "mainstream" them but give them a leg up in terms of providing more powerful dollars or special terms.

That approach was chosen for the first narrowband auction to fulfill the Congress's directive that small businesses and businesses owned by women and minorities and the rural telephone companies not be excluded from the competitive bidding process because they lacked the wherewithal to play in the big leagues.

But these advantages proved to be no guarantee of success, because no designated entity, as such firms are called, was successful in bidding for any of the licenses that were offered in that auction. The FCC has said that it intends to increase the incentives in later narrowband auctions until the goals of diversity are met. I think this is a prudent way of achieving those objectives.

A second approach is to limit participation in some auctions to the designated entities. For the most important PCS licenses, and those are the broadband licenses that are coming up for auction in the first half of 1995, the Commission has taken this approach by setting aside two opportunities to win licenses in so-called entrepreneurs' blocks. The licenses will be awarded in an auction that is restricted to designated entities, thereby guaranteeing that members of these groups will be among the licensees.

The third approach is to award licenses to achieve an objective through nonmarket mechanisms. Before the passage of OBRA–1993, the Commission had announced such an approach to reward so-called pioneers. Three broadband licenses were to be awarded to firms that provided significant innovations and new communication services or technologies.

When some licenses are allocated by competitive bidding and others by nonmarket assignment mechanisms, the costs of achieving the particular objectives of the nonmarket allocation mechanism are quantified and made public. The forgone receipts associated with providing preferential treatment to certain entities can then be weighed against the benefits provided by those entities or the value placed on the social goals that are being pursued.

The revelation—by you Mr. Chairman, and by other Members of Congress—of this trade-off and the magnitude of the receipts involved with respect to the pioneer preferences played an important

role in causing the Commission to rethink its original approach. It subsequently scaled back the generosity of the pioneer preferences when it came out with its decision to ask the pioneers to pay 90 percent of the average winning bid in the top 10 markets.

This policy, of course, will be superseded if the General Agreement on Tariffs and Trade (GATT) passes because the legislation calls for a different mechanism for reducing the generosity of these incentives. The GATT legislation, as discussed in the testimony of previous witnesses, would require the broadband pioneers to pay 85 percent of the average per-person value of comparable licenses in the top 20 markets after excluding the three markets in which preferences are to be awarded. There are good arguments for doing that, which I can go into if you would like to discuss them following my statement.

What all this means is that rather than being given a benefit that might have been worth somewhere between $0.5 billion and $1.3 billion, the pioneers will be given a benefit that will be worth considerably less. And I think this all came about because we saw—through the operation of the market—what these preferences really were worth, and that was a terribly important step forward.

Let me move on now to talk about the last issue, which is, of course, the difficulties inherent in estimating auction receipts. Although everybody would agree that the radio spectrum has economic value, the precise value of new licenses is difficult to estimate because it depends on technological, regulatory, and economic factors.

New technologies can increase the spectrum's value by creating demand for new services. We have seen a great deal of that over the course of the last few years. Or new technologies could decrease the value of the spectrum by allowing more frequencies to be used and parts of the spectrum that are already in use to be used more intensively.

In other words, what technology could do is effectively expand the supply of spectrum, and that would reduce the value of it. Regulatory decisions can create market power, as was also discussed before, thereby increasing the value of licenses. Or they could undermine the foundations for monopoly profit and reduce the spectrum's value by allocating more spectrum for use. Economic factors, including the overall strength of the economy and the cost of capital, can raise or lower the value to final users, thereby altering the value of licenses as well.

The disparate estimates of auction receipts that various government entities have produced over the past few years reflect these uncertainties. For its 1994 budget submission, the Office of Management and Budget (OMB) estimated that these receipts over the 1994–1998 period would total about $3.7 billion, a figure that it then raised 1 year later to $12.6 billion.

For CBO's February 1994 baseline, we estimated that auction receipts would be $7.6 billion. We then raised this figure to $8.1 billion in the August update that we released just a month ago to reflect the higher-than-expected receipts from the narrowband and the interactive video and data services auctions.

CBO's next baseline will be produced in January or February 1995, and that baseline, of course, will be informed by the results

of the October regional narrowband auctions and the receipts from the December auctions for broadband licenses. If the receipts from these auctions are as large as some observers have suggested, CBO's new estimates, which will be included in our February baseline, could surpass the $10.2 billion that the House Budget Committee developed for the reconciliation bill in 1993. They could even surpass the estimate that OMB has now of $12.6 billion. In other words, there is a lot of uncertainty.

Most of the signs in the wind right now seem to suggest that the number we have is probably too low. We will wait and see how these auctions come out, and then early in the new year we will produce a new estimate.

To conclude, let me reiterate that the Congress's decision to have the FCC assign some of the radio spectrum through auctions, while preserving other societal goals, represents a significant step in the direction of economic rationality and equity. The FCC to date has carried out this new policy directive in a prudent, responsible, and balanced manner. I think this is one of the significant policy successes of the last few years.

That concludes my summary statement. David and I will be glad to answer any questions that you might have.

[The prepared statement of Hon. Robert D. Reischauer follows:]

PREPARED STATEMENT OF HON. ROBERT D. REISCHAUER, DIRECTOR, CONGRESSIONAL BUDGET OFFICE

Mr. Chairman and Members of the Committee, I appreciate the opportunity to appear here to discuss the Federal Communication Commission's (FCC's) use of competitive bidding to assign licenses to use the radio spectrum.

The FCC's method of assigning licenses to use the spectrum is in transition. In the past, licenses were assigned by comparative hearing or lottery. However, the Omnibus Budget Reconciliation Act of 1993 (OBRA-93) directed the FCC to use competitive bidding—auctioning—to assign certain licenses to private applicants.

Assigning licenses by auctioning should achieve an economically efficient distribution of licenses more quickly and at a lower cost to society than would alternative methods. In addition, auctions should generate substantial federal receipts.

My testimony today will review the results of the first two FCC auctions, the problems that public auctions create for the commission's rules that exempt specific parties or licenses from the general rules governing competitive bidding, and the Congressional Budget Office's (CBO's) estimate of the receipts from auctioning licenses that permit the holder to provide broadband personal communications services (PCS).

THE FIRST FCC AUCTIONS

Private markets have long recognized the economic value of the radio spectrum. An active market exists in which private license holders sell licenses to use the spectrum to other parties. A part of each dollar that a buyer pays for a television or radio station or a cellular telephone company is for the right to use the radio spectrum. The Congress fully recognized the value of the spectrum when it directed the FCC to begin using competitive bidding in assigning licenses. Assigning licenses by auction rather than by hearings or lotteries allows the public a share of the value of the spectrum.

A measure of the FCC's success in conducting the first two auctions was that the process forced bidders to offer prices consistent with their valuation of the spectrum. A poorly structured or badly run auction might have permitted winning bidders to pay far less than "market value" to obtain a license or awarded licenses to bidders that did not place the highest value on them.

In achieving its success to date, the commission has carefully blended internal resources, the process of receiving comments from the public, and the expertise of outside consultants in designing and operating the auction procedures. Future auctions will be far more complex, however, than the two completed this summer, and a continuing effort will be necessary to ensure similar success in the future.

In the first auction, one of several in the "narrowband PCS" group, the commission offered 10 licenses that allowed the holder to provide enhanced paging services on a nationwide basis. That auction, held in mid-July, raised $617 million—substantially more than most observers, including CBO, anticipated. Receipts from the second auction, which offered interactive video and data services (IVDS) licenses—so-called interactive television—amounted to $214 million, also exceeding most estimates. That auction was also notable because in its aftermath 27 successful bidders, whose payments would have accounted for $96 million, defaulted on their bids, triggering the penalty provisions in the FCC's auction rules.

Issues Surrounding the Auction Process

In the narrowband auction, the commission chose to offer all of the licenses at once—a simultaneous auction—and to allow bidders to compete over many rounds under a complicated set of auction rules. The choice was not without risk. Complicated procedures carry with them a greater chance of breakdown in the auction process caused by misunderstanding of the rules by bidders, miscommunication of the rules by the commission to bidders, or the failure of supporting software to reflect the commission's auction rules accurately. In the extreme, a breakdown of the auction could throw the entire licensing process into court, thereby significantly delaying new services and increasing administrative costs.

A simple sealed-bid procedure or a traditional offering of each license in sequence in an ascending-bid auction would have left more room for error and less chance for political embarrassment. Simpler procedures, however, would probably have produced lower receipts and, more important, a less efficient distribution of licenses among bidders.

The multiple-round simultaneous auction used to assign the 10 nationwide narrowband licenses increased the prospect that a bidder could win multiple licenses and exploit the lower costs in developing and marketing technology that might be offered by holding more than one license. In the IVDS auction, however, the commission chose to offer the licenses available in each service area sequentially because the efficiencies of gaining many licenses were judged to be small. In each case, the commission apparently made the appropriate choice in balancing its ability to raise receipts with a workable auction process.

The commission chose an open rather than a closed auction process in offering both the narrowband and IVDS licenses. Economists prefer an open process to a closed process—for example, a sealed-bid auction limited to a single round—in circumstances where bidders are uncertain about the value of the item being sold. When uncertainty is high, bidders may restrain themselves for fear of bidding too much and suffering what auction experts call the "winner's curse." By choosing openness, the commission encouraged bidders to disclose information. More information decreased the uncertainty about the value of the licenses being sold and the fear of bidders that they would pay too much.

Issues Raised by the Interactive Video and Data Services Auction

The major defaults that occurred in the IVDS auction illustrate the importance of auction rules and the difficulties the commission encounters in extending special standing to small businesses or ones that are owned by women or minorities.

The auction rules anticipated the possibility of defaults. Under the rules adopted by the FCC, the licenses that were defaulted on in the IVDS auction will be reauctioned. If the receipts raised in the second auction fall short of the original winning bids, the defaulting bidder is required to pay the difference plus a 3 percent penalty.

The importance of default rules in an auction is illustrated by the Australian experience in auctioning satellite-television licenses, in which the failure to include default penalties led to disappointing results. The winning bidder in one Australian auction submitted a set of bids that ranged from the sublimely high to the ridiculously low. When notified of winning the auction, the bidder promptly defaulted on high bid after high bid until his standing high bid lay just above that submitted by a competing bidder. After defaults, the receipts to the government were reduced from A$212 million (A$1 = US$0.68) to A$117 million.

The defaults in the IVDS auction highlight the difficulties the commission encounters in determining which bidders are eligible for special "designated entity" status as a small business or one owned by a women or minority. In response to the Congress's direction, the commission has taken steps to ensure that designated entities have an opportunity to provide new telecommunications services. In the first two auctions, bidders' credits—essentially discounts of 25 percent—were offered to qualifying designated entities. But no designated entity was successful in winning a narrowband license. In the IVDS auction, however, designated entities were suc-

cessful, and bidders' credits reduced the sum of winning bids from $248 million to the final total of $214 million in receipts (before accounting for defaults).

Questions have arisen in the IVDS auction as to the special status of the most successful bidder as a small business owned by a woman. Regardless of the disposition of the specific case, the commission will be hard pressed to certify the claims of bidders with special status in future auctions when hundreds of licenses will be offered to hundreds of bidders. Yet the full integrity of the auction process can only be preserved if all bidders claiming special status are truly entitled to it. Practicality and resource constraints dictate, however, that the commission will have to settle for self-certification of bidders, perhaps using spot checks and more extensive reviews of actual winners. Accordingly, controversy about claims to special status could be a continuing and disruptive factor as the FCC conducts future spectrum auctions.

Future Issues

The forthcoming regional narrowband auctions will offer 30 licenses to possibly hundreds of bidders in a multiple-round simultaneous process. In one of the broadband PCS auctions likely to take place in the first half of 1995, hundreds of bidders are apt to seek hundreds of licenses. The commission's auction rules, procedures, and software have yet to prove themselves in circumstances as demanding as those they will face over the next year.

REGARDING SPECIAL INCENTIVES AND COMPETITIVE BIDDING

When the Congress directed the FCC to assign new licenses by competitive bidding, it made it clear that receipts were not to be the driving force in spectrum management policy. Most significant, decisions about allocating the spectrum—that is, deciding how much spectrum should be set aside for specific uses—were to be made without considering their implications for receipts. In addition, many types of licenses were exempted from competitive bidding—for example, broadcast licenses. The Congress also directed the FCC to explore ways to ensure that competitive bidding did not exclude businesses that are small, owned by women or minorities, or serve rural areas from providing new personal communications services. The "pioneer's preference policy" that was adopted before the competitive bidding law was enacted is another nonmarket assignment mechanism.

The practice of granting special status, as in the pioneer's preference policy, can be justified as a means to achieve a specific goal. However, when those practices are grafted to a process of assigning licenses by competitive bidding, the benefits bestowed on favored parties are made public. That public revelation of a benefit and its value places pressure on the FCC to be certain that the costs—forgone receipts—of any preferential treatment are effective in reaching the desired goal.

The commission is moving in the right direction on these issues. The license awards granted to encourage technological innovation will be less generous then originally proposed. Moreover, the commission is attempting to achieve the goal of diversity in providing personal communications services in a practical way. It is using a strategy of starting with relatively small incentives in early auctions and increasing those incentives in later ones if the goals of diversity are not met.

The Pioneer's Preference Policy

The FCC's now-defunct plan to award three free licenses to provide broadband PCS under the pioneer's preference program illustrates the difficulty of using license assignments as an incentive in an auction.

The purpose of the preference policy is to encourage and reward innovators of new communications services or technologies. In the 1991 FCC order that established the pioneer's preference program, the commission argued that the program was necessary to overcome the depressing effects of regulatory uncertainties on investments in research and development directed toward new wireless services and technologies. The policy was justified under the public interest standard as a way to ensure that consumers would benefit from the early introduction of new technologies and services.

In October 1992, as part of its allocation of spectrum for broadband PCS, the commission issued a tentative decision to award three applicants licenses under the pioneer's preference policy in recognition of their contribution to improved telecommunications services and technology. After the auction law was passed in August 1993, the FCC reconsidered those awards. In December 1993, the commission announced it would stay the course, removing from the auction block one of two prime licenses that would permit the holder to provide broadband PCS services in three very strong markets—one covering the New York City area and points north,

a second covering both Los Angeles and San Diego, and a third covering service in the Washington/Baltimore market.

Since then, the FCC has partially reversed its policy, in part because the generosity of the commission's award to the pioneers became the focus of public attention. The Chairman of this Committee was among those taking the lead in suggesting that the commission needed to rethink its position yet again. Last July, the commission announced that it still planned to award licenses to the three broadband pioneers, but sought and won permission from the court to change its rules and collect substantial payments for the licenses—90 percent of the winning bid for comparable licenses.

Legislation that has been introduced before the Congress on implementing the Uruguay Round trade agreements would supersede the FCC's action. The broadband pioneers would be charged 85 percent of the average per-person value of comparable licenses in the top 20 markets, exclusive of the markets where preference awards have been made. If the formula results in receipts lower than $400 million, the pioneers would be required to make payments totaling that amount.

When licenses were assigned by comparative hearing or lottery, the size of the economic benefit bestowed on a pioneer by the commission was not necessarily directly and publicly revealed (although secondary-market sales of licenses assigned by lottery eventually revealed the value of the license). The cost of encouraging the pioneer's technical progress was also not immediately evident when comparable licenses were given away.

Auctioning licenses changes that situation. In the case of the broadband preferences, one must ask whether the commission's long-held position that the licenses should be granted without charge was justifiable on cost-benefit grounds. According to CBO's February 1994 estimate, the licenses the commission proposed to award under the preferences program could bring $500 million at auction. Other estimates place the value well above $1 billion.

Did the pioneers provide society with benefits of comparable value? The commission never addressed that question. Its public discussion of the reasons to go forward or not was largely restricted to legalities and the details of regulatory policy. Indeed, the commission never prepared an estimate of the value of the benefit it was awarding (the value of the licenses) or of the pioneers' contributions.

Designated Entities

Similar problems arise from the Congress's direction to the commission to grant special standing to small businesses, businesses owned by women or minorities, and rural telephone companies when licenses are auctioned. The desired result is clear—those businesses will provide new telecommunications services—but not costless. Federal receipts are decreased by incentives that limit participation in some auctions to designated entities or that grant credits, discounts, and favorable payment terms to bidders. In short, when offering incentives, the commission imposes a cost—forgone receipts—on taxpayers. For that reason alone, the FCC needs to have a clear understanding that the incentives offered are the most cost-effective in achieving a desired result.

To handle such cases, the commission has adopted a practical strategy from the beginning. For the most important PCS licenses—those with enough frequency to permit cellular telephone-like service—to be offered in the first half of 1995, the commission has set aside two opportunities to win licenses in so-called entrepreneurs' blocks. The licenses will be awarded in an auction restricted to designated entity participants. The restriction ensures that designated entities will participate in the most significant type of PCS—the next generation of cellular telephone service.

In the case of narrowband PCS, the commission began with an apparently reasonable level of incentives, but has announced that it will increase the value of those incentives in the October auction for regional licenses. The reason for doing so is that the designated entities were unsuccessful in winning any of the nationwide licenses sold in July. With the large number of future PCS auctions available to meet the Congress's direction, that strategy of starting with moderate incentives and increasing them is prudent and reflects an awareness of the cost to taxpayers of offering incentives.

ESTIMATING AUCTION RECEIPTS

Although everyone would agree the radio spectrum has economic value, the exact value of new licenses to use the radio spectrum is highly uncertain. Estimates by government agencies of auction receipts through fiscal year 1999 have ranged from about $8 billion to about $13 billion.

Currently, CBO estimates spectrum auction receipts of $8.1 billion for 1994 through 1999. That estimate, prepared in late July, is $500 million above CBO's February baseline budget for the same period. CBO's estimate is still below the five-year total of $12.6 billion that the Office of Management and Budget (OMB) estimated for the 1995 budget. But it is substantially above OMB's estimate of $3.7 billion included in the 1994 budget estimate. In the middle is the House Budget Committee's estimate for OBRA-93 of $10.2 billion for the first five years of spectrum auctions.

CBO increased its estimate this summer because the narrowband and IVDS auctions raised more receipts than anticipated. When CBO's baseline budget is prepared in early 1995, our estimate could increase again and could even reach the five-year total of $10.2 billion agreed to as a part of OBRA-93. If the receipts generated by the December auction of broadband licenses are as large as some observers suggest, even OMB's estimate of $12.6 billion might prove to be low.

The value of the radio spectrum is difficult to estimate because of technological, regulatory, and economic factors. New technologies create demand for new services and increase the value of the right to use the spectrum. But technical change also can expand the supply of radio spectrum by allowing both more frequencies to be used and parts of the spectrum already in use to be used more intensively. Accordingly, increased supply may lead to lower prices.

In addition, regulatory decisions can create market power, the prospect of high profits, and soaring license values, as was the case for cellular telephone licenses. Alternatively, such decisions can undermine the foundations of monopoly profit. Consider, for example, the FCC's decision to allow radio dispatch services to offer cellular telephone services and compete with the cellular duopolists. Regulators can further decrease the part of the spectrum's value arising from artificial scarcity by allocating new frequencies for services when strong demand is evident. In doing so, the regulators create competitive pressures that drive down prices, profits, and license values.

Most observers of telecommunications markets agree that the broadband PCS licenses—those that will allow the holder to provide cellular telephone services—are by far the most valuable the FCC is likely to offer over the next five years. Opinions differ widely, however, about how much these licenses will bring at auction. CBO examined the value of broadband PCS licenses in a 1992 study prepared for this Committee and in estimates of auction receipts prepared for the budgetary baseline projections in 1993 and 1994.

Our 1992 study estimated that bidders would pay between $3.50 and $15 for each person in a service area (commonly referred to as the "per pop value") for a license of 25 MHz to provide personal communications services similar to existing cellular telephone services. The low end of the range of estimates—$3.50—was based on the prices that specialized mobile radio license holders had accepted when selling their licenses to Nextel (at the time named Fleet Call). CBO viewed the Nextel transactions as an indicator of where spectrum prices might settle if values were not forced up by scarcity from too small an allocation of spectrum. The benchmark was a less than a perfect one, since the purchases were for relatively small amounts of frequency that were geographically scattered.

The high end of the range—$15—was based on a financial simulation developed by Morgan Stanley & Co. of a new entrant into the market for land-mobile telephone services. That simulation showed that a firm entering the market and willing to accept a return of 15 percent after taxes could afford to pay $15 per person for a license after covering the cost of capital investment and initial operating losses. The results of the simulation were used as an upper bound because they reflected optimism that competition would be less than cutthroat and were modeled on better-than-average markets.

In preparing estimates of spectrum receipts for prime broadband licenses for the budgetary baselines in 1993 and 1994, CBO used values near the midpoint of the $3.50-$15 range developed in the 1992 study. However, receipts should probably be estimated using the higher end of our range or even figures above that range, if recent developments are a guide—namely, the results of the first two auctions and the unprecedented consolidation among telecommunications providers. Concerning the latter, consolidation through mergers and strategic alliances—for example, Air Touch and U.S. West, Bell Atlantic and NYNEX, and AT&T and McCaw—will ensure that many bidders with substantial financial resources will participate in the broadband auctions. If those trends hold, our estimate could be significantly increased.

CONCLUSION

Clearly, the right to use the radio spectrum has substantial economic value. Well-designed auctions will publicly demonstrate that value, and they will also allow taxpayers a share of the benefits of using the spectrum.

Chairman SABO. Have you officially scored the GATT bill yet?

Dr. REISCHAUER. Yes, we have.

Chairman SABO. Why don't you tell us how you have scored the pioneer preference provisions of it.

Dr. REISCHAUER. The provisions of that bill basically say that the FCC should ensure that $400 million is paid for these preferences by the preferees, if that is a word, and that the preferees are allowed to provide these payments over a number of years. As a result, there are interest payments associated with them. Over the course of the 5-year period, I believe we have scored this as $534 million.

Chairman SABO. And that is over a baseline that assumed no payments for preference at one point——

Dr. REISCHAUER. That is correct. We scored it over the February baseline, for which the broadband licenses were counted as being given away free.

Chairman SABO. And that was the assumption of your February baseline?

Dr. REISCHAUER. Yes. That was the announced policy of the FCC at the time.

Chairman SABO. As I understand it, the bill has that $400 million plus interest as a minimum payment.

Dr. REISCHAUER. Yes.

Chairman SABO. And that is what you are estimating that change to be.

Dr. REISCHAUER. Yes.

Chairman SABO. So it is a minimum. It might be more, but that is a minimum.

Dr. REISCHAUER. It could be more. As was discussed earlier, the actual formula calls for calculating a per-population average for the 20 largest markets—excluding the three in which pioneer preferences are going to be provided. That per-population value will then be applied to the populations of those markets and multiplied by 85 percent, and that will be the minimum payment or bid.

Chairman SABO. Had you at any point estimated the potential revenue from the new FCC policy of August of 90 percent preference of top 10 markets?

Dr. REISCHAUER. No, we had not.

Mr. MOORE. There are really two separate estimates that are relevant here, sir. The first is the estimate for scoring purposes, which would involve how we might have valued the three licenses in February 1994. That was somewhere in excess of $500 million.

The second might be a current estimate—not valid for scorekeeping purposes—of how we would value the licenses today. And consistent with Dr. Reischauer's testimony, we would probably increase that value.

My communications with analysts at the Office of Management and Budget over the past several months have indicated that the OMB valuation of the three licenses is roughly $1.3 billion. That

would be the full price, not the discounted price. CBO's valuation at this point might approach that.

Chairman SABO. You have not made an estimate of what you think they will bring under the provision of the GATT legislation other than what the minimum required would be?

Mr. MOORE. No, we have not.

Dr. REISCHAUER. The estimates we have been asked to provide at this time are ones that are useful for scorekeeping purposes. That is really all we have done.

Chairman SABO. You could, I assume, have a higher number if that was your judgment, also.

Dr. REISCHAUER. Higher than the scorekeeping number?

Chairman SABO. Higher than the minimum.

Dr. REISCHAUER. Oh, yes.

Chairman SABO. But your judgment has been not to go higher than the minimum?

Dr. REISCHAUER. We operate in an artificial world in which there is a set of numbers which are consistent with the budget resolution, which is, I believe, consistent with our February baseline. And that is, for better or for worse, the relevant number for the process. But if we were out making a bet on this, we would come up with a different number.

Chairman SABO. Let me ask this question that relates not to the FCC, but clearly this has been a very successful process. I am not asking you to make judgments, but I assume that the success of this process will lead Congress to look at it to be used in other areas.

Clearly in some places it may fit and in some places it may not fit. And I am not sure how much it has been used in the past.

What are some of the things that we should think about as we make judgments on whether other areas where we license or set fees should be subject to the auction process?

I am thinking about mining permits, mining rights and things like that.

Dr. REISCHAUER. A major advantage of the auction is that it provides new supply. Consequently, much of the political contention that might be associated with changing the rules for an existing supply just is not there.

One might apply this approach to landing rights at congested airports. They certainly have a value, and that value in a sense is created by the Federal Aviation Administration as well as by certain limitations on airports' capacities.

We could also think about applying this approach to pollution. If we are going to set pollution limits within geographic bounds, we could auction off that right. We have done some of that already in that we have allowed firms to trade those permits.

One innovative idea that comes from the fact that David Moore not only wears the spectrum hat at CBO but is also our NASA expert is auctioning the use of the space station's capabilities for research, manufacturing, or other purposes. Then there is that group of rights that, as you say, we already give out in some way—timber rights, mineral rights, grazing rights. Those would also be possibilities.

One could also be politically more ambitious and suggest that maybe some of the broadcast rights that traditionally have been given out could be auctioned off in one way or another. There is a broad spectrum, I think, of possibilities here.

Chairman SABO. Thank you.

I understand Mr. Cox had some questions, and we will let him submit those and keep the record open.

Dr. REISCHAUER. We will be glad to answer any questions in the record.

Chairman SABO. With or without them being in the record, but we will put these in the record.

Thank you very much.

[Whereupon, at 12:05 p.m., the committee was adjourned.]

[Additional material submitted for the record follows.]

BACKGROUND INFORMATION MEMORANDUM ON FCC SPECTRUM AUCTIONS

The 1993 Omnibus Budget Reconciliation Act (OBRA) authorized the Federal Communications Commission (FCC) to use competitive bidding procedures to assign licenses for the right to use electromagnetic spectrum frequencies for certain communications purposes. Prior to the 1993 OBRA, the FCC generally used lotteries to assign these spectrum licenses to individual companies. Since these companies could then immediately sell their licenses to others, it meant that the value of these licenses was captured by these intermediaries, rather than returned to the public at large. The HBC estimated that spectrum auction receipts would total $10.2 billion from fiscal year 1994 to fiscal year 1998.

The FCC has moved rapidly to implement this auction authority, designing a bidding process that should allow the government to obtain fair market value for this public resource. On July 25-29, the FCC held *two different* auctions to assign so-called *"narrowband" nationwide personal communications services (PCS) spectrum licenses*. These are relatively small blocks of electromagnetic spectrum that are used primarily for paging, message and data transmission purposes.[1] The FCC also held auctions to assign *local Interactive Video Data Services (IVDS) licenses*. The IVDS licenses are expected to be used through TV-top receivers for limited two-way communications purposes. A summary of those auctions' results is included below.

It will take the FCC some time to hold several auctions for different frequencies, for different services, covering nationwide, regional or local markets. In fact, the next auction is scheduled for October 26 when 30 regional narrowband licenses (six in each of five regions) will be auctioned. The next one will start on December 5, when the FCC will begin its auctions for "broadband" PCS spectrum licenses, by auctioning 99 licenses, for 30 megahertz (MHZ) each, in 51 regions (MTAs, or Major Trading Areas). These are larger blocks of spectrum that are expected to be used for personal communications services (PCS) involving a new generation of smaller cellular telephones. It is these latter auctions that should yield the bulk of the $10.2 billion in anticipated revenues.

Next year, the FCC will auction one 30 MHZ license, and one 10 MHZ license, in each of 483 Basic Trading Areas (BTAs), and two 10 MHZ licenses in each of the 483 BTAs. In all, 2071 broadband licenses will be auctioned.

RESULTS OF THE JULY 25-29 AUCTIONS

During the week of July 25-29, the FCC held two extremely successful auctions for spectrum. *One involved narrowband spectrum*, that collected a total of $617 million for a total of ten *nationwide* licenses. The FCC auctioned five 100 kilohertz licenses for $80 million each, three 62.5 kilohertz licenses for about $47.5 million each, and two 50 kilohertz licenses for $37 million and $38 million each. On average, the FCC collected around nine times what it had estimated for this kind of spectrum. No "designated entities" (firms that are small, rural, or owned by women and/or minorities) won any of these nationwide licenses.

The other auction involved 594 licenses on an individual urban area basis for so-called *Interactive Video Data Services (IVDS)*. These collected $214 million ($249

[1] The narrowband blocks range between 50 and 100 kilohertz, while the broadband blocks range between ten and 30 megahertz. One megahertz is 1,000 kilohertz; one kilohertz is 1,000 hertz or cycles per second.

million on a gross basis, before women and/or minority bidding credits of 25 percent are factored in). Of these 594 licenses, 195 (33 percent) went to minority firms, 227 (38 percent) went to non-minority women, and 172 (29 percent) went to others. Therefore, 71 percent of these licenses went to designated entity companies.

The receipts for these licenses were far above expectations, even though licenses for the largest nine metropolitan areas had already been awarded without charge. After the auction, one winner of the IVDS licenses asked other winning bidders to refuse to pay the downpayments that were due one week after the auction. This company, Commercial Realty St. Pete, subsequently reneged on its required payment, and is now being investigated by the FCC. In all, 27 bidders, out of 178 successful ones, appear to have reneged, reducing expected auction receipts by $82 million.

FCC policy requires that the reneging companies make up to the FCC whatever differences there may be between their bids and what the licenses went for when reauctioned, *plus a penalty of three percent* of this latter amount. Thus, the auctions are still expected to raise more than $750 million in total, far above the CBO and FCC's expectations, as well as the HBC's.

What do these auctions tell us about the value of broadband spectrum? It probably means that broadband spectrum is worth much more than has been estimated, although probably not proportionally as much as the narrowband auction produced. This year's CBO receipts estimate for *broadband* auctions totaled $6 billion, while OMB's totaled $10.6 billion. Receipts of $15 to $25 billion could materialize, given what we now know.

There are two FCC policies in different stages of development that will affect auction receipts. One involves the FCC's policy for its so-called pioneer preference program. The other involves the FCC's policies for so-called "designated entities," basically small, rural, and woman and/or minority-owned businesses.

PIONEER PREFERENCE PROGRAM

The FCC began its pioneer preference program in 1991. Its goal was to reward firms that devised innovative technologies for using spectrum. The FCC's rationale for this program appears to have been that it could only practically assign spectrum through lotteries, so it had no way to get spectrum assigned to the innovative use it wished to foster. Therefore, the pioneer preference program was created to give the FCC a way to assign the spectrum to the "pioneer" to provide an incentive for the development of new technologies.

In June 1993, the FCC granted a pioneer preference to the Mtel Corp. for a narrowband PCS use involving a nationwide 50 kilohertz license. On December 23, 1993, the FCC also granted three pioneer preferences for broadband PCS uses. These involved separate 30 megahertz licenses for: the entire New York metropolitan area to Omnipoint, Inc. (26.4 million population); the entire LA-San Diego metropolitan area to Cox Enterprises (19.1 million population); and the entire Baltimore-Washington, D.C. metropolitan area to American Personal Communications, Inc., which is 70 percent owned by the Washington Post Co. (7.8 million population).

As of early July 1994, the FCC had not yet issued any of these licenses, and its position was that it did not have the legal authority to charge for them. While the narrowband license award might only have been worth tens of millions of dollars, the broadband awards could be worth over $1.5 billion.

However, in mid-July the FCC changed its position on whether it could charge for these pioneer preference licenses. On July 8, the FCC asked the D.C. Circuit Court of Appeals to remand to the FCC its tentative decision on the *broadband* pioneer preferences to "reconsider the substance of the decision not to charge these pioneer preference winners for licenses in circumstances where other licensees in the same service would have to pay substantial amounts." On July 13, the FCC issued its *narrowband* pioneer preference license, *but changed its previous policy* by requiring that the recipient of the license pay 90 percent of, or $3 million below, the lowest successful bid for comparable spectrum, whichever was lower. The lowest comparable successful bid at the July 25-29 auctions was $37 million, which meant that the pioneer (Mtel) would be charged $33.3 million for its license.

Before the FCC could change its policy for the broadband pioneers, the FCC had to wait for the Court to respond favorably to its remand request, which it did on July 26. In early August the FCC decided to charge the recipients of *broadband* pioneer preference licenses 90 percent of the value of "comparable" spectrum.

DESIGNATED ENTITIES

The other FCC policy that will reduce auction receipts involves its program for "designated entities," defined in the auction statute as "small businesses, rural tele-

phone companies, and businesses owned by members of minority groups and women." To promote the participation of these groups in the upcoming broadband auctions **(the FCC has provided different incentives for its narrowband and broadband auctions and is still adjusting them)**:

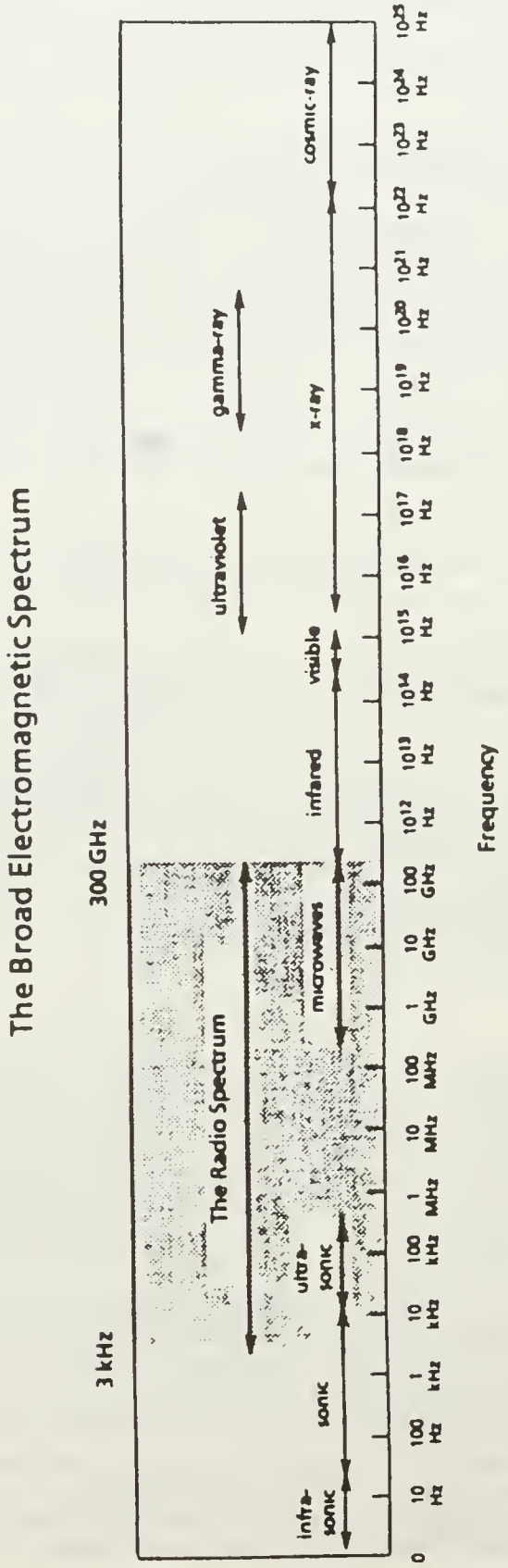
- The FCC *created a set-aside auction*, where only businesses with revenues below $125 million, and assets below $500 million could participate.
- In this set-aside auction, *bidding credits* would be used to reduce the cost to certain bidders. For example, a 15 percent bidding credit means that the bidder could bid $100 million, but only actually have to pay $85 million. The FCC would grant the following bidding credits: ten percent for small businesses (less than $40 million in revenues); 15 percent for large businesses owned by women and/or minorities; and 25 percent for small businesses owned by women and/or minorities.
- In addition, the FCC would grant *tax certificates* allowing the deferral of capital gains taxes to whomever sold a spectrum license to women and/or minority-owned firms, as well as to initial non-controlling investors (up to one year after license issuance) in women and/or minority-owned firms, when they sold their shares to these designated entity firms.
- The FCC would also *ease qualification criteria for firms owned by women and/or minorities that are below the size cut-off*, by relaxing the rules it uses to attribute the revenues and assets of larger firms that would be participating in the woman and/or minority consortia. If this were not done, many of these consortia would not qualify for participation in the set-aside auction. The FCC would assume that: (1) any such firm where women and/or minorities owned at least 50.1 percent of the equity and voting stock of the company, would qualify regardless of the gross revenues, total assets, and personal net worth of any other non-qualifying investor, as long as no investor held more than 49.9 percent of the applicant's passive equity; or (2) any such firm where the designated entities owned at least 50.1 percent of the voting stock, and no less than 25 percent of the equity, would qualify as long as no other investor owned more than 25 percent of the passive equity, and no more than five percent of the voting stock.
- Finally, the FCC would *ease payment terms* by charging interest-only for a number of years on the amounts otherwise due (two years for small businesses, three years for women and/or minority large firms, and five years for women and/or minority small firms) for the winning designated entities.

While the 1993 OBRA required the FCC to "...ensure that small businesses, rural telephone companies, and businesses owned by members of minority groups and women are given the opportunity to participate in the provision of spectrum-based services," there are a number of ways this could be done. For example, if a smaller number of actors were allowed to bid in a different set-aside auction for a smaller number of licenses, there might not be a need for using bidding credits. Alternatively, there might not be a need for a set-aside auction if the bidding credits were larger. The FCC continues to experiment with a variety of approaches toward these issues.

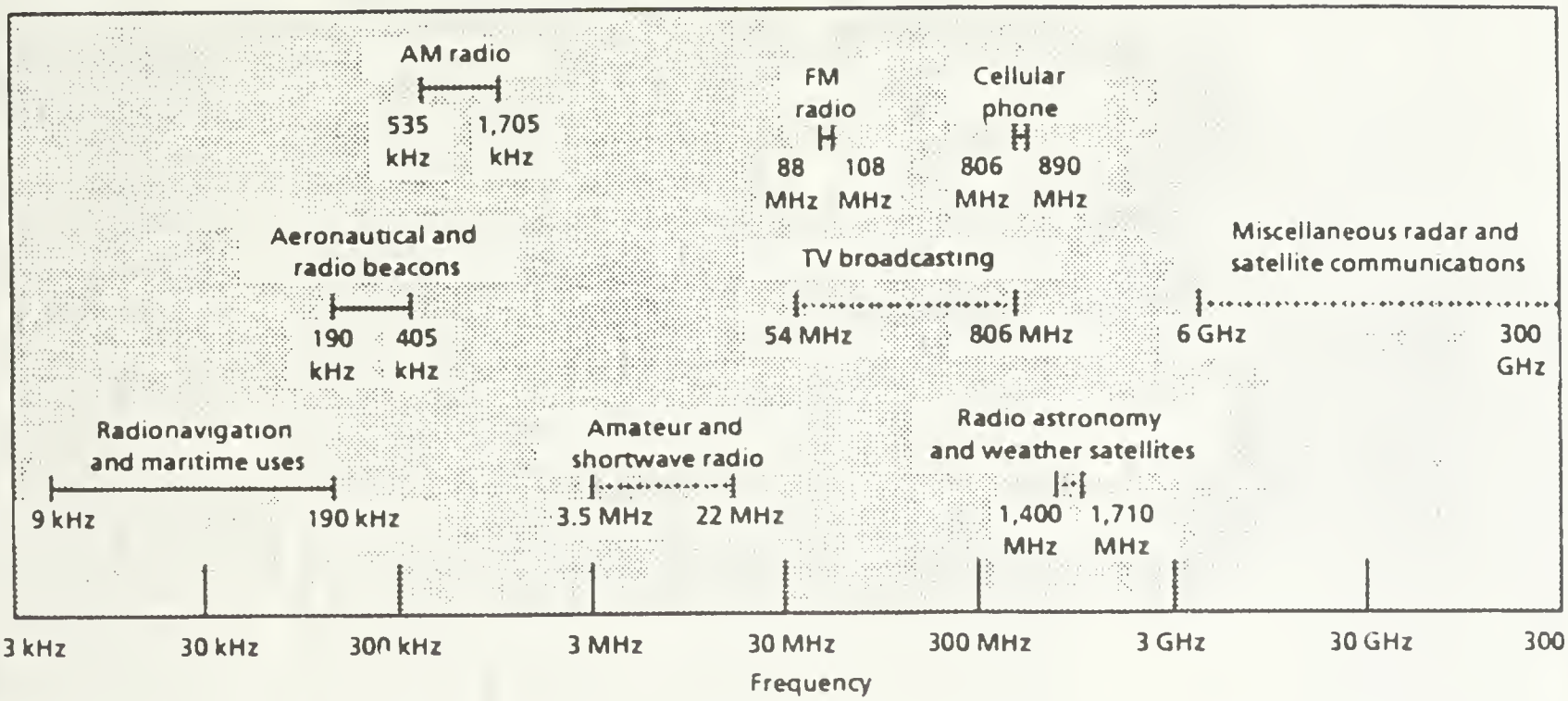
FCC Spectrum Auction Timeline

- **August 1993:** The Omnibus Budget Reconciliation Act of 1993 authorizes the FCC to auction spectrum licenses. Previously, the FCC generally had used lotteries to assign these spectrum licenses to companies free of charge. The HBC estimates that these auctions will raise $10.2 billion over five years.
- **December 1993:** The FCC grants pioneer preference awards to three companies for "broadband" Personal Communications Services (PCS) licenses. The FCC had granted (in June 1993) a "narrowband" PCS pioneer preference award to another firm prior to enactment of auction authority. (The FCC did not issue the actual licenses at this time.)
- **July 1994:** The FCC changes its policy on pioneer preference awards, and now requires both "narrowband" and "broadband" pioneers to pay 90 percent of the auction price of comparable spectrum licenses. The FCC issues the "narrowband" PCS pioneer preference license.
- **July 25-29 1994:** The FCC holds the first two spectrum auctions. One is for ten nationwide, "narrowband" PCS licenses, and the other is for 594 Interactive Video Data Services (IVDS) licenses. Winning bids for the ten PCS license total $617 million, significantly more than most had expected. Winning bids for the 594 IVDS licenses raise a total of $214 million (after $35 million in bidding credits for women and/or minority firms are deducted).

- **August 1994:** The four pioneer preference recipients contest the FCC's authority to charge for their licenses. Of the 178 IVDS auction winners, 27 firms do not make the required downpayment on their licenses. These firms renege on a total of $82 million in bids.
- **Future Actions:** The FCC will hold regional "narrowband" PCS auctions beginning on October 26, and will start to auction the more valuable "broadband" PCS licenses on December 5. The FCC will hold several more spectrum auctions next year.



The Radio Spectrum in Detail



SOURCE: Department of Commerce, National Telecommunications and Information Administration, Office of Spectrum Management, March 1987.

NOTES: Frequency scales are logarithmic. Hz = hertz; kHz = kilohertz (1,000 Hz); MHz = megahertz (1 million Hz); GHz = gigahertz (1 billion Hz).

In the radio spectrum, only the largest blocks of usage are shown; frequencies not shown are allocated to various other fixed and mobile communications services. Dotted lines indicate that usage does not occur on all frequencies within that range.

The FCC narrowband auctions include frequencies in the 900-950 MHz range, while the broadband auctions include frequencies in the 1.85-1.99 GHz range.

Responses for the Record from Hon. Reed E. Hundt, Chairman, Federal Communications Commission

SPECIALIZED MOBILE RADIO (SMR) LICENSES

Question: I understand the Commission has suspended acceptance of all applications for specialized mobile radio (SMR) licenses, as well as stopped processing the more than 50,000 applications presently pending before the Commission.

As I am sure you know, this is causing a real problem for people in this industry who are trying to run their existing businesses and meet their customers' needs. I am told that SMR operators have been prevented from implementing routine modifications to their station licenses, such as relocation of tower facilities. Why is this occurring?

I have heard you are trying to respond to recent developments which have indicated that some SMR licenses are being used for PCS services, akin to those which spectrum has been auctioned, rather than for typical long-standing SMR uses. Is this correct? What steps are you taking to resolve these problems? How are you taking into account the needs of existing SMR operators? When can we expect you to resolve this? I would expect the Commission to move expeditiously to resolve these problems.

Response: Pursuant to section 6002(b) of the Omnibus Budget Reconciliation Act of 1994 (OBRA), the Commission was required to undertake a review of various services to establish a regulatory framework that provided a consistent, symmetrical structure to govern similar commercial mobile radio services. The goal is to enhance competition among mobile service providers, promote the development and implementation of new and technologically innovative service offerings, and ensure that economic forces, not regulatory decree, dictate the marketplace. Specialized Mobile Radio service is one aspect of this review and evaluation. Under the law, the Commission was obligated to complete its work by August 9, 1994. On this date, the Commission adopted its Third Report and Order in the Commercial Mobile Radio Services proceedings to satisfy this Congressional directive.

SMR service was established in 1974. It was viewed primarily as providing local radio dispatch service to customers, although the Commission's regulations never so restricted SMR frequencies. In recent years, the SMR industry has grown and diversified dramatically. SMR systems now provide a wide array of services raging from local dispatch to wide-area voice and data services that resemble cellular and personal communications services (PCS). The evolution of similar services under different regulatory schemes was one of the premises behind section 6002(b) of OBRA.

In the decision of August 9, 1994 and in its recent Further Notice of Proposed Rulemaking, adopted on October 20, 1994, the Commission proposed to assign a portion of the SMR spectrum to providers of technologically innovative wide-area services comparable to cellular and broadband PCS. If adopted, the proposal would modify existing channel assignment rules and service area definitions. Future licensing of these wide-area systems would be done through competitive bidding procedures similar to those employed for personal communications services (PCS). The Commission also proposed to designate another portion of SMR spectrum primarily for use on a local basis by smaller SMR operators. This approach seeks to ensure consistent regulation of services that are capable of competing against each other. Significantly, in its recent actions, the Commission conveyed the importance of ensuring that any rule changes not disrupt other segments of the SMR industry and the services they provide.

When the Third Report and Order was adopted, there were in excess of 40,000 pending applications for 800 MHz SMR category channels. Current rules provide that each SMR station location is licensed separately. Under this practice, an application to modify a license to relocate a facility is treated as the equivalent of an application for a new facility. The Commission's proposals relating to service areas and channel blocks represent fundamental changes to how future licenses will be awarded and it is for this reason that acceptance of 800 MHz applications was suspended. The Commission has stated that it will consider requests for waiver of the application freeze for new station licenses for permanent facilities, provided that operation of such proposed stations affects coverage solely within a geographic area and on a frequency channel that is already licensed permanently to the applicant, i.e., there is no infringement of new spectrum or previously uncovered geographic areas. Under this standard, routine changes to facilities, such as tower relocation, would be processed.

The Commission is seeking to resolve expeditiously the substantial application backlog. The process must be able to assess the availability or unavailability of frequencies, and delineate those applications competing for the available frequencies.

It must distinguish those applications that merely seek to modify a license. Most significantly, resolution must be in a manner that is more efficient and effective than that utilized previously. On October 28, 1994, the Commission issued a Public Notice requesting comment by November 12, 1994, on a proposal that would allow an industry coalition to provide the software and services necessary to perform the frequency coordination function done by the private sector in other service areas. On November 22, 1994, the Commission announced that it had accepted the proposal. We expect implementation of the proposal to decrease substantially the processing time for the pending applications. At the time the offer of assistance was made (October 31, 1994), the industry coalition committed to completing its portion of the frequency coordination process by February 28, 1995. Because of the intervening public notice and comment process, we now expect the industry coalition to complete this process by early spring 1995. The substantial interests of both large and small SMR operators, and the opportunities that these services hold, make expeditious resolution imperative.

CELLULAR UNSERVED LICENSES

Question: I understand that the Commission recently decided to use lotteries, rather than auctions, to assign licenses for so-called "cellular-unserved" areas. These are licenses for areas that reverted back to the FCC when the original licensees failed to meet their license requirements to build their systems within a certain time period.

What was the Commission's rationale for using lotteries rather than auctions for assigning these licenses? Is there any public policy objective that can be better served by using lotteries rather than auctions?

How many "pops" are contained in the areas served by those licenses? What kind of auction value is the FCC forgoing by refusing to auction them? What areas are covered by these licenses?

Response: In its *Memorandum Opinion and Order* in PP Docket 93-253 (FCC 94-123, released July 14, 1994), the Commission determined that lottery procedures would be utilized for unserved cellular area applications filed prior to July 26, 1993. The Commission found that (i) if auctions were employed, the application process for the cellular unserved areas would have to commence anew at considerable expense to the applicants and the Commission, therefore delaying the provision of service even further; (ii) the commercial value of cellular unserved areas is questionable, raising questions about the applicability of the auction procedure; and (iii) using auctions for cellular unserved area applications would be inconsistent with the Commission's decision to use lotteries for IVDS applications that were filed prior to July 26, 1993. The decision reflects the view that service to the public would be expedited by the use of lotteries as the Commission would be able to proceed expeditiously to issue authorizations for cellular services. The Memorandum Opinion and Order noted that the decision comported with legislative history that recognized the equities involved in applications on file with the Commission prior to July 26, 1993.

Chairman Hundt dissented. In his dissent, be disagreed that the auction process would cause any significant cost or delay in the provision of services. Additionally, he stated that the lottery process is full of examples of winners unable to build and operate systems, and that in most circumstances, cellular licenses changed subsequent to the lottery. The auction process provides a more effective means to ensure that licenses would be awarded to those who value the spectrum the most.

A copy of the Commission's Memorandum Opinion and Order, and the dissenting opinion, is attached.

With regard to the population of the unserved areas, in each Metropolitan Statistical Area (MSA) and Rural Service Area (RSA), the Commission licensed two carriers to provide cellular service within a defined geographic area. Each licensee then defined a Cellular Geographic Service Area (CGSA) within which they would provide cellular service. Carriers had up to five years in which to serve 75% of the population or area of their CGSA. Carriers also had the right of exclusivity to provide cellular service on their frequency block within the CGSA. During this five year period, each carrier could build out their system to its full potential within the MSA or RSA by expanding their CGSA's to be coterminous with the boundaries of the MSA or RSA.

Any area of the MSA or RSA not included within a carrier's CGSA at the end of the initial five years can be considered an unserved area if it meets the minimum criteria established by the Commission's rules. Applicants wishing to serve these areas must first define them by a review of the system maps for each carrier on file with the Commission. Since the unserved areas are identified and defined by the applicant, and cross county, state, or other census measures, the Commission

is not in a position to provide any precise population information beyond the RSAs. RSAs that have no licenses in the A block have populations of: Idaho 3- 41,700; Minnesota 4- 16,600; Montana 3- 17,100; Tennessee 8- 14,500; Wyoming 5- 15,700 and Puerto Rico 5 (pending reconsideration)- 35,919.

FCC 94-123

Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In the Matter of	)	
	)	
Implementation of Section 309(j)	)	PP Docket No. 93-253
of the Communications Act -	)	
Competitive Bidding	)	

Memorandum Opinion and Order

Adopted: May 27, 1994 Released: July 14, 1994

By the Commission: Chairman Hundt dissenting and issuing a statement; Commissioners Ness and Chong not participating.

I. INTRODUCTION

1. On August 10, 1993, the Omnibus Budget Reconciliation Act 1993 (the "Budget Act") added a new Section 309(j) to the Communications Act, as amended, 47 U.S.C. §§ 151-713 (the Communications Act). This amendment to the Communications Act gives the Commission express authority to employ competitive bidding procedures to choose from among two or more mutually exclusive applications for initial licenses. The *Second Report and Order* in this proceeding established general rules and procedures to govern the competitive bidding process.[1] We indicated in the *Second Report and Order* that unless specifically excluded, mutually exclusive applications in the Public Mobile Services filed after July 26, 1993, including cellular service, would be subject to competitive bidding.[2] We also indicated that we would address in a separate action the applicability of competitive bidding or lottery procedures to certain cellular radio applications filed before July 26, 1993.[3]

2. In this Order, we state our intention to use lotteries to award licenses for all cellular unserved areas in which applications were filed prior to July 26, 1993. We conclude for the reasons set forth below that use of random selection instead of competitive bidding to award licenses among these competing applicants would serve the public interest.

II. BACKGROUND

A. *Lotteries for Cellular Unserved Areas*

3. In February 1990, the Commission initiated a proceeding to adopt rules to govern the acceptance, processing, and selection of applications for authority to operate initial cellular systems[4] in unserved areas of cellular markets.[5] Subsequently, in 1991 the Commission adopted lottery procedures for selecting applications for unserved areas.[6] In so doing, however, we stated that we would revisit our decision to use lotteries for unserved area applications if we received Congressional authority to conduct competitive bidding.[7]

4. As of April 11, 1994, we have received 10,900 unserved area applications for approximately 146 markets/blocks. Of these applications, all but two were filed prior to July 26, 1993. The Commission had scheduled two lotteries for these applications, but subsequently postponed the lotteries pending evaluation of the provisions of the Budget Act and possible implementation of competitive bidding procedures.[8]

B. Budget Act Authority to License by Auctions and Lotteries

5. Section 309(j)(1) of the Communications Act permits use of competitive bidding procedures only for mutually exclusive applications for initial licenses or construction permits. Section 309(j)(2) provides that competitive bidding may apply to a particular use of the electromagnetic spectrum if the Commission determines that the principal use of the spectrum will involve, or is reasonably likely to involve, the receipt of compensation by the licensee from subscribers in return for enabling those subscribers to receive or transmit communications signals.

6. The Budget Act also amended Section 309(i) of the Communications Act[9] which provides for random selection of licensees. As amended, this section grants the Commission the authority to use random selection if there is more than one application for an initial license or construction permit that will involve the use of spectrum for a service that is not among the subscription-based services described in Section 309(j)(2)(A).[10] The Budget Act also includes a "Special Rule" limiting the use of random selection.[11] The Special Rule provides that the Commission shall not use random selection to award any license or permit after August 10, 1993, unless the Commission has determined that the use of spectrum is not for the provision of a subscription-based service within the scope of Section 309(j)(2)(A) of the Act, or that one or more applications for such licenses were accepted for filing by the Commission before July 26, 1993.[12]

C. Notice and Position of the Parties

7. In the *Notice*, we concluded that in light of the criteria set forth in Section 309(j) and the Special Rule, the Commission has the discretion to select licensees for the unserved area applications filed prior to July 26, 1993 by auction rather than by lottery. Therefore, we proposed to subject these pending applications to competitive bidding procedures, and we sought comment on this proposal.[13]

8. The commenters overwhelmingly oppose the proposal to apply the competitive bidding process to the cellular unserved area applications filed prior to July 26, 1993. They argue that for the Commission to move from lotteries to auctions for these pending applications would delay service to the unserved areas;[14] would be unfair to those applicants who relied in good faith upon the existing lottery procedures;[15] would cause financial harm and economic dislocation to thousands of applicants, many of whom are small business owners;[16] and would constitute an impermissible retroactive application of administrative rules and law.[17]

9. In the *Notice*, we also asked whether the Commission should allow full market settlements in these markets pending the decision to proceed by lottery or auctions. The commenters favor adhering to the existing cellular settlement policies. For example, Thumb Cellular Limited Partnership comments that for reasons of effectuating legislative intent and public policy, the Commission should permit settlements in order to avoid mutual exclusivity in cellular unserved areas and proceed with licensing rather than awaiting lotteries or auction proceedings.[18] The Cellular Settlement Groups point out that the Commission has a well-established policy favoring full-market settlements of contested applications.[19] Furthermore, they

argue that the Budget Act indicates that Congress intended the Commission to proceed with its existing cellular settlement policies.[20]

III. DISCUSSION

10. Based on the record before us, we believe that the Congressional intent and the public interest would best be served by using the statutory lottery procedures for the unserved area applications filed prior to July 26, 1993. We agree with the commenters that use of the existing lottery procedures for the markets for which applications have been pending would be consistent with the congressional intent and would serve the public interest.

11. In the *Notice*, we determined that there are compelling public interest justifications for using lotteries rather than auctions for most services for which applications had been filed before July 26, 1993. *Notice* at para. 149. Thus, we proposed to lottery MDS applications filed before July 26th in order to avoid delays in service to the public that might result from awaiting the implementation of auction rules and noted that these applicants had already incurred substantial delays. In September, 1993, we also used lotteries to issue licenses to IVDS applications that were filed before July 26, 1993. *Notice* at para. 143, n. 150. We proposed in the *Notice* to use auctions for unserved area cellular applications and have examined the merits of this issue thoroughly. *Notice* at para. 160.

12. We have now decided not to use auctions for these services. As explained below, any concern that some speculative applications might have been filed for these cellular markets does not, by itself, justify the use of auctions in these circumstances. Rather, equitable factors must also be considered and balanced against that concern. We also believe that any concern regarding speculative applicants is mitigated considerably in view of the current rules governing cellular unserved areas. Our rules require that all facilities proposed in the application be constructed and service to the public be initiated within one year from the grant of the authorization. In addition, licensees may not transfer unserved area authorizations until after the facilities have been providing service for one year. As we indicated in the *First Report and Order*, these rules were adopted to provide service to the public as expeditiously as possible and to deter speculation.[21] Moreover, random selection of cellular unserved area licenses may increase the likelihood of new entrants offering service in the cellular marketplace.

13. The legislative history also demonstrates that Congress recognized the equities involved in the auction law's grandfathering provisions for applications on file with the Commission before July 26, 1993. For example, Congress in the Conference Report explicitly singled out the pre-July 26th applicants in the IVDS service as examples of applicants for whom the Commission would be permitted to use lotteries. H.R. Rep. No. 213, 103d Cong., 1st Sess. 498 (1993) ("Conference Report"). From this, we infer that, whatever concerns Congress had about the possibility of speculative applications in particular services, Congress ultimately decided that other factors, including considerations of equity and administrative cost and efficiency, justified the use of lotteries for those applicants who, in reliance on the Commission's existing lottery procedures, had filed applications prior to July 26th.

14. Consistent with the considerations that motivated Congress to enact the grandfathering provision, the commenters point out that many of these cellular unserved area applications have been on file for more than a year.[22] Further, they point out that these applicants' business plans did not take into account the additional expenditures that they would incur if licenses were to be awarded by competitive bidding. These arguments are, we believe, valid ones. Indeed, as a practical matter, we believe that existing applications for cellular unserved areas provide no indication that the applicants have any interest at all in participating in auctions. To ensure successful auctions, therefore, we would have to allow these applicants

to clarify their intentions and to submit the information required by Section 1.2105, of our Rules. In fairness to existing applicants, moreover, those who indicate no desire to participate in auctions should also be entitled to a refund of their application processing fees. In sum, if we were to use auctions, the whole application process must begin anew at a considerable cost to the 10,900 applicants and to the Commission.

15. Another factor that militates against the use of auctions is the questionable commercial value of the cellular unserved areas. Cellular unserved areas vary in geographic size and population coverage. Few markets would be likely to attract significant bids. As for the others, it is unclear whether the bids that would be submitted for most markets would be substantial enough to create an economic incentive to construct the facilities more efficiently.[23] It would be difficult to articulate a principled basis for distinguishing between markets that would be auctioned and markets that would be subject to lotteries. Finally, we believe that using auctions for the cellular unserved area applications would be inconsistent with the Commission's decision to use lotteries for IVDS applications that were filed prior to July 26, 1993.

16. On further reflection, therefore, we are not persuaded that either Congress's intentions or the public interest support the administrative upheaval and dislocation in business plans that would result from the use of auctions in these circumstances. Indeed, no assurance even exists that using auctions for these particular applications would expedite the deployment of service to the public, a principal objective of the auction law. It has been estimated that it may take 60 days or longer to complete an auction than to complete a lottery. We believe that such estimates must take into account other possible factors creating administrative confusion and attendant delays, such as the time that may be needed to accept new applications from new parties, the time to allow current applications to be returned and refunds issued, and the time for current applicants to refile their applications under the auction process. The delay inherent in completing the administrative process of calling for and reprocessing these applications might even exceed the time savings that might result from discouraging possible speculative applications. In addition, in view of the currently scheduled auctions for narrowband PCS and IVDS applications in late July, it is unlikely that auctions could be held for cellular unserved areas in the immediate future.

17. In contrast, if we employ lotteries, we will be able to proceed almost immediately to issue authorizations for these services. As we indicated in our First Report and Order in this proceeding, we believe our existing build-out rules are likely to have a substantial impact in ensuring that service is implemented promptly.[24] We are also convinced that using the lottery process for the cellular unserved area applications filed before July 26, 1993 provides an opportunity to make these systems available to new competitors in a very short period of time. Further, these new cellular unserved licensees could eventually seek joint ventures with PCS providers to offer expanded services in these markets. Therefore, taking all of these factors into account, we agree with commenters that auctions should not be used for these applications. Rather, we conclude the public interest would be furthered by using lotteries. The use of lotteries for applications filed before July 26, 1993 comports with Congressional intent.

18. For the same reasons that we are proceeding with the lotteries, we believe that it is in the public interest to utilize the full market settlement policies that apply to the cellular unserved area applications. Allowing those parties who have entered into full market settlements to proceed with licensing will expedite service to the public without expending further Commission and private resources.

IV. CONCLUSION

19. In this *Order*, we state our intention to use existing random selection procedures to choose from among mutually exclusive applications filed prior to July 26, 1993, for authorization to provide cellular service to unserved areas. This conclusion is consistent with the Special Rule adopted in Section 6002(e) of the Budget Act. In the near future, we will issue a Public Notice rescheduling the two previously scheduled lotteries. Finally, we will consider requests for approval of full market settlements and proceed with licensing where such approval is granted. We are confident that these decisions will expedite service to the public.

V. ORDERING CLAUSES

20. Accordingly, IT IS ORDERED that selection from among mutually exclusive applications filed prior to July 26, 1993, to provide cellular service to unserved areas shall be by random selection, in accordance with existing Commission rules, as set forth above.

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

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1 Implementation of Section 309(j) of the Communications Act - Competitive Bidding, PP Docket No. 93-253, Second Report and Order, FCC No. 94-61, released Apr. 20, 1994 (*Second Report and Order*). We began the rule making proceeding approximately six weeks after passage of the Budget Act. *See* Implementation of Section 309(j) of the Communications Act - Competitive Bidding, PP Docket No. 93-253, Notice of Proposed Rule Making, 8 FCC Rcd 7635 (1993) (*Notice*).

2 *See* Second Report and Order at para. 61.

3 *See id.* at para. 60, n. 55.

4 Cellular Service is governed by Part 22 of the Commission's Rules. *See* 47 C.F.R. Part 22.

5 The unserved areas are generally within the borders of cellular markets, namely Metropolitan Statistical Areas (MSAs), Rural Service Areas (RSAs), and the Gulf of Mexico Statistical Area (GMSAs). Two cellular systems are licensed in each market on separate frequency blocks. Each initial cellular licensee in the MSAs and RSAs was given five years from the date of initial authorization to build and expand its system within its market. The geographic area not covered by each licensee on each frequency block is considered "unserved area." *See* Notice of Proposed Rule Making in CC Docket No. 90-6, 5 FCC Rcd 1044 (1990).

6 First Report and Order and Memorandum Opinion and Order on Reconsideration in CC Docket 90-6, 6 FCC Rcd 6185 (1991) (*First Report and Order*).

7 *Id.* at 6217.

8 *See* Lottery Notice, Mimeo No. 34917 (Sept. 16, 1993).

9 47 U.S.C. § 309(i).

10 *See* 47 U.S.C. § 309(i)(1)(B).

11 Budget Act, § 6002(e).

12 *Id.*

13 *Notice*, 8 FCC Rcd at 7662.

14 *See, e.g.*, Small RSA Operators Comments at 8, 12.

15 *See, e.g.*, Van R. Boyette Comments at 1; John Dudinsky Comments at 1.

16 *See, e.g.*, The Quick Call Group Comments at 1; David F. Gencarelli Comments at 1; Thomas Crema Comments at 1.

17 *See, e.g.*, The Coalition for Equity in Licensing Comments at 5-11; Wendy C. Coleman d/b/a WCC Cellular Comments at 5-11.

18 Thumb Cellular Limited Partnership Comments at 1-5.

19 Cellular Settlement Groups Comments at 6.

20 *Id.* at 7.

21 *First Report and Order* at 6223-25.

22 *See, e.g.*, Cole, Raywid & Braverman Comments at 1; The Coalition for Equity in Licensing Comments at 18.

23 While Chairman Hundt in his dissent proposes a bifurcated process that uses auctions for "properties of meaningful value" and lotteries for the remaining markets, we believe that using the lottery process is the most consistent and the fairest method for dealing with all unserved area applications filed before July 26, 1993. Indeed, it is not clear that the Budget authorizes such a bifurcated procedure.

24 *See* First Report and Order in PP Docket No. 93-253, FCC 94-32, released February 4, 1994 (*First Report and Order*) at para. 9.

Dissenting Statement
of
Chairman Reed E. Hundt

Implementation of Section 309(j) of the Communications Act - Competitive Bidding for Cellular Unserved Areas (PP Docket No. 93-253)

The Commission's September 1993 Notice in the Competitive Bidding proceeding proposed that we use competitive bidding to award unserved area cellular licenses. [1] I concur in the Notice's tentative conclusion that competitive bidding is a better approach for awarding these licenses than lotteries. I accordingly dissent from my fellow Commissioners' decision to use lotteries for the unserved cellular area applications at issue in this proceeding. I greatly respect my colleagues' decisionmaking, but I am deeply troubled, for the reasons set forth below, by the prospect of giving away tens of millions of dollars (or more!) in public property -- spectrum -- by means of a lottery That technique, in my judgment, does not serve any significant public policy goals, and certainly inflicts much harm on the public interest.

Unserved cellular areas are those geographic portions of an initial cellular licensee's market that the licensee fails to serve within five years of its service authorization, at which point these areas become available for separate licensing. Under the Omnibus Budget Reconciliation Act of 1993 (the "Budget Act"), the Commission has the discretion to award licenses for those cellular unserved area applications filed before July 26, 1993, by either lottery or auction. It is important to note, however, that the Budget Act clearly suggests that the Commission should use auctions for applications filed before that date wher auctions would further the public interest objectives of the Act more effectively than awarding the licenses by lottery.

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[1] See Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, Notice of Proposed Rule Making, PP Docket No. 93-253, Para. 160 (released October 12, 1993) (Auction Notice).

Instead of evaluating this issue based on the public interest objectives of the Budget Act, the majority bases its conclusion that lotteries should be used to award licenses for applications filed before July 26, 1993, on the grounds that considerations of equity, administrative cost and efficiency justify lotteries for those applicants that relied on the Commission's lottery procedures in filing their applications.

In my view, none of these considerations is persuasive. First, in support of their concern with equity, the majority notes that many of these applications have been on file for more than a year, and that applicants' business plans did not take into account the additional expenditures entailed in auctions. The majority also relies on the suggestion of some commenters that switching from lotteries to auctions would cause financial harm and economic dislocation to many applicants.

This concern, however, is offset by the fundamental realities of the lottery process, as repeatedly experienced by this Commission. The Commission's extensive experience with cellular lotteries overwhelmingly demonstrates that lotteries inevitably attract applicants that have no interest in building and operating cellular systems in the long term or in providing quality service to customers in the unserved areas. Moreover, even those who might take exception to this proposition must agree that only an auction can award a license to the applicant that most highly values a license. These are some of the reasons that the Commission so forcefully supported the Congressional grant of auction authority. Nor should anyone ignore the grave deficiencies of the lottery practice – even without attending to the fact that the public fisc gains nothing from the lottery. This Commission's experience with lotteries in awarding cellular licenses demonstrates that lottery winners rarely intend to build and operate the cellular system proposed in their applications – in fact, approximately 85% of non-wireline cellular licenses changed hands after the initial lotteries. The evidence suggests that lottery applicants are unlikely to invest time or money in developing detailed

business plans to provide cellular service; indeed, given the arbitrary nature of lotteries, an applicant has little incentive to develop such a plan until it actually wins a lottery. Any applicants that are bona fide businesses seeking to provide cellular service in an unserved area would undoubtedly prefer the predictability of an auction to the randomness of a lottery.

Second, the majority suggests that an auction would entail considerable additional administrative costs. There is no evidence in the record to suggest the auctions would create significant additional administrative costs as compared to lotteries for this Commission. We have already developed auction procedures for other services covered by the Budget Act, and adapting these procedures and conducting auctions for cellular unserved area applications filed before July 26, 1993, would not entail significant additional expense.

Third, the majority further suggests that an auction approach would be less efficient than a lottery. As we have already done for other services, we should address this concern by choosing an auction procedure for unserved areas that is simple and efficient. (An example would be a single round of sealed written bids.) In any event, we should consider not only the efficiency of the award process, but also the effectiveness of that process in ensuring that customers receive service from the new licensee as soon as possible. Auction winners are guaranteed to be better prepared and to have a greater incentive than lottery winners to provide better service faster to unserved areas -- generally because they have paid money for their licenses.

In short, the record does not support a conclusion that auctions would entail more "administrative upheaval and dislocation in business plans" than would occur with lotteries. Nor does the record provide any significant evidence that equitable, cost or efficiency considerations dictate that lotteries should be used to award these licenses.

In fact, the public interest factors of the Budget Act all dictate that auctions would better serve the public interest under the Act than lotteries.

The first public interest objective of the Budget Act is the promotion of "the development and rapid deployment of new technologies, products, and services for the benefit of the public, including those residing in rural areas, without administrative or judicial delays." The majority suggests that no assurance exists that auctions would expedite service in furtherance of this objective, and observes that any speed that might be achieved by discouraging speculative applications could be eroded by the additional time required to conduct auctions. I believe the evidence supports the Notice's tentative conclusion that auctions do in fact expedite service to the public in unserved cellular areas because insincere applicants that do not intend to build out their systems would be discouraged from competing in an auction.[2] As noted above, the vast majority of the winners in our prior cellular lotteries sold their licenses after the lottery. That is very likely to happen here, unless by freakish chance the lottery winner proves to be a firm that would have submitted the winning bid in an auction. The result of the lottery, therefore, will be to transfer the tens of millions of dollars to be paid by these firms in auctions from the government to the lottery winner. It is not a personal judgment on these winners to say that they do not deserve the public's money.

As a result of our experience with cellular lotteries, we tightened our rules to eliminate many of the shortcomings that provided immediate, post-award windfalls to lottery winners and caused unacceptable delays in delivering service to the public in the lotteried

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[2] See Auction Notice at Para. 160.

markets. Even so, I do not believe that these revisions change the fact that cellular lotteries do not necessarily attract applicants that are fully committed to providing cellular service to customers in the unserved areas. Many, if not most, lottery applicants are not prepared for or experienced in building and operating cellular facilities. If prior experience is any guide, lottery winners for the unserved cellular areas will devote their efforts during the post-award period to finding other entities that will provide the necessary financing and technical expertise needed to help them construct their systems in time to avoid forfeiting their licenses. This process usually consumes weeks and months, resulting in additional and, in my view, unnecessary delay before consumers in these unserved areas finally have access to modern cellular telephone service from these licensees. By contrast, licensees that acquire their service area in an auction have a compelling incentive to begin earning a return on their investment in the license as soon as possible by expeditiously constructing their facilities and providing service to the public.

It is at least arguable that lotteries could be conducted sooner than auctions -- but not by any meaningful time period. However, if we moved promptly, it could take fewer than 60 additional days to conduct auctions for the unserved areas, as compared to a lottery process. This hypothetical (but in all events short) time difference in the pre-award period could be more than offset by the auction winners' incentive to build out their service areas quickly, as compared to the extra time it would take an unprepared lottery winner to accomplish the same task. In short, from the public's perspective, auctions will result in more rapid deployment of service in unserved areas than lotteries. After many years of waiting in some unserved areas, customers deserve service sooner rather than later, and auctions would give us that result.

The Budget Act's second public interest objective is to promote economic opportunity and competition and ensure that new and innovative technologies are readily accessible to the

public by encouraging small businesses, rural telephone companies, and businesses owned by minorities and women to become licensees. Auctions that include meaningful preferences for these designated entities would afford such applicants that genuinely wished to provide cellular service to the public a more realistic opportunity to obtain a cellular license than if they were subject to the whims of a lottery. Lottery applicants that did not ultimately wish to provide service would likely drop out of an auction and seek a refund of their filing fee, giving new designated entity entrants that really want to enter this market a better shot at obtaining a license than if they were merely participating in a random lottery. To elect a lottery method means to disregard the goal of including small businesses, women, and minorities as fair participants in the opportunity of providing cellular services in the subject areas.

The third public interest objective of the Budget Act is recovery of a portion of the value of the public spectrum resource for the benefit of the public. Although the record does not indicate the precise amounts that potential businesses could bid for these cellular unserved areas, we do know that hundreds of applications have been filed for some of these markets. For example, 513 applications were filed for the Los Angeles frequency block B unserved area, and 11 other markets drew more than 400 applications each. I believe conducting auctions for cellular unserved markets has the potential of generating substantial sums for the U.S. Treasury, as Congress intended in the Budget Act. The evidence suggests that it is reasonable to expect that these unserved cellular auctions would generate revenues of as much as $32 million, and perhaps significantly more.[3] Certainly the Commission has no evidence to disprove these estimates. In fact, there is no evidence in the record to support any contention that the auction of these licenses would draw only insignificant bids. I see no reason to deprive the U.S. Treasury of meaningful tangible revenues, particularly if

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[3] See Letter from G. Salemme, McCaw Cellular Communications, Inc. to W. Caton, Acting Secretary, Federal Communications Commission (May 13, 1994)

we simply propose to give these spectrum licenses away in a lottery to applicants that are likely to resell them privately for significant amounts as soon as our rules permit such a transfer. In addition to being inconsistent with the intent of Congress, using a lottery for these cellular unserved areas would produce the incongruous result of needlessly giving away valuable spectrum at the same time we are conducting auctions for other potentially less valuable properties.

I recognize that each and every cellular unserved property would not necessarily generate significant revenues in an auction. Indeed, it might not be appropriate to auction unserved cellular markets that are of such low value that the revenues generated would not justify the effort and expense of an auction for the participants. We could, however, sort out such properties by setting a reservation price (say, $50,000) for the cellular unserved auctions which bidders would have to meet or exceed in order to receive the license. If no bids were received at or above a specified level, the Commission could promptly conduct a lottery to award the license to one of the pending applicants. This dual approach, perfectly consistent with the statute, would ensure the public would receive the financial and quality of service benefits from auctioning licenses in markets that have commercial value, while allowing use of lotteries in markets where auctions do not produce the desired incentive to proceed promptly with construction.

The Budget Act directs us to use the technique of competitive bidding where it is more likely than the lottery method to lead to efficient use of the electromagnetic spectrum. An auction winner for an unserved cellular area will have an economic incentive to design and build its system to offer low-cost service to the public by, among other things, using spectrum-efficient technology that minimizes the need for future upgrades of its facilities to

accommodate spectrum shortages. By contrast, a lottery winner that anticipated the subsequent sale of its license as soon as our rules permit would be more likely to build out its system as quickly as possible using relatively inexpensive, spectrum-inefficient technology in order to meet its deadline under our rules.

I think it also bears emphasis that my conclusion that auctions should be used, wherever economically feasible, to award licenses for unserved cellular areas is the same conclusion that this Commission tentatively reached in the Notice of Proposed Rule Making. In that Notice, the Commission unanimously proposed the use of auctions for these licenses on the grounds that it would discourage insincere applicants and "provide more opportunity for a wider variety of applicants to become cellular licensees."[4] For the reasons set forth above in this Dissenting Statement, I see no basis in the extensive record in this proceeding for changing this well-reasoned conclusion.

In sum, the Congressional intent reflected in the public interest objectives of the Budget Act requires us in my view to subject mutually exclusive applications for cellular unserved areas to auctions whether they were filed before or after July 26, 1993. Competitive bidding is a better way than lotteries to serve the interests of consumers and service providers alike.

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[4] Auction Notice at Para. 160.

PUBLIC NOTICE

FEDERAL COMMUNICATIONS COMMISSION
1919 M STREET N.W.
WASHINGTON, D.C. 20554

50619

News media information 202/632-5050 Recorded listing of releases and texts 202/632-0002.

November 9, 1994

ANNOUNCING THE HIGH BIDDERS IN THE AUCTION OF 30 REGIONAL NARROWBAND (PCS) LICENSES; WINNING BIDS TOTAL $490,901,787

The Commission completed its auction of 30 Regional Narrowband personal communication service (PCS) licenses on November 8. The names of the high bidders and the licenses they won are listed below. The total gross revenue derived from the Regional Narrowband PCS auction was $490,901,787 (including the withdrawal penalty of $2,128,987 incurred by PageMart II, Inc.). The total net revenue obtained from the Regional Narrowband PCS auction was $394,835,784 (including the withdrawal penalty of $2,128,987 incurred by PageMart II, Inc.).

Winning bidders are reminded that they must submit a down payment sufficient to bring their total deposit with the Commission up to 20 percent of the sum of their winning bids on or before Wednesday, November 16, 1994. Winning bidders who qualify as small businesses will only be required to submit a down payment sufficient to bring their total deposit with the Commission up to 10 percent of the sum of their winning bids by this date.

This payment must be made to Mellon Bank in Pittsburgh, Pennsylvania on or before Wednesday, November 16, 1994. Bidders who have incurred bid withdrawal penalties will also be required to submit the full amount of the bid withdrawal penalty or 20 percent of the amount of the withdrawn high bid, whichever is less, on or before Wednesday, November 16, 1994. All payments must be accompanied by an FCC Form 159 identifying who is paying, the amount of payment and the licenses and/or penalties for which payment is being made. The FCC Form 159 is necessary to allow the Mellon Bank to accurately process a bidder's remittance. Failure to accurately complete the FCC Form 159 could result in a delay in processing the remittance. Before completing FCC Form 159, remitters should read the "Instructions For Using FCC Form 159" contained in the Bidder's Information Package.

ters, telegrams or other informal materials.

[41 FR 1287, Jan. 7, 1976]

PETITIONS AND RELATED PLEADINGS

§ 1.401 Petitions for rulemaking.

(a) Any interested person may petition for the issuance, amendment or repeal of a rule or regulation.

(b) The petition for rule making shall conform to the requirements of §§ 1.49, 1.52 and 1.419(b) (or § 1.420(e), if applicable), and shall be submitted or addressed to the Secretary, Federal Communications Commission, Washington, DC 20554.

(c) The petition shall set forth the text or substance of the proposed rule, amendment, or rule to be repealed, together with all facts, views, arguments and data deemed to support the action requested, and shall indicate how the interests of petitioner will be affected.

(d) Petitions for amendment of the FM Table of Assignments (§ 73.202 of this chapter) or the Television Table of Assignments (§ 73.606) shall be served by petitioner on any Commission licensee or permittee whose channel assignment would be changed by grant of the petition. The petition shall be accompanied by a certificate of service on such licensees or permittees. A draft Notice of Proposed Rule Making may be submitted with a petition for amendment of the FM or Television Table of Assignments.

(e) Petitions which are moot, premature, repetitive, frivolous, or which plainly do not warrant consideration by the Commission may be denied or dismissed without prejudice to the petitioner.

[28 FR 12432, Nov. 22, 1963, as amended at 28 FR 14503, Dec. 31, 1963; 40 FR 53391, Nov. 18, 1975, 45 FR 42621, June 25, 1980]

§ 1.402 Pioneer's preference.

(a) When filing a petition for rule making pursuant to § 1.401 of this part that seeks an allocation of spectrum for a new service or that, by use of innovative technology, will substantially enhance an existing service, the petitioner may also submit a separate request that it be awarded a pioneer's preference in the licensing process for the service. Alternatively, if in an existing proceeding in which a notice of proposed rule making has not yet been adopted the Commission is addressing the new service or technology for which an applicant seeks a pioneer's preference, the applicant need not file a rule making petition but only a preference request. Each preference request must contain pertinent information concerning a description of the service to be provided, the applicant's plan for implementing the service, the frequencies it proposes to use, and the area for which the preference is sought, and must address any conflicting licensing rules, showing how these rules should or should not apply. The applicant must demonstrate that it (or its predecessor-in-interest) has developed the new service or technology; *e.g.*, that it (or its predecessor-in-interest) has developed the capabilities or possibilities of the technology or service or has brought them to a more advanced or effective state. The applicant must accompany its preference request with either a demonstration of the technical feasibility of the new service or technology or an experimental license application, unless an experimental license application has previously been filed for that new service or technology. If the applicant files or has filed an experimental license application, it must specify the area in which it intends to conduct its experiment and whether that is the area for which the preference is sought. In determining in its discretion whether to grant a pioneer's preference, the Commission will consider whether the applicant has demonstrated that it (or its predecessor-in-interest) has developed an innovative proposal that leads to the establishment of a service not currently provided or a substantial enhancement of an existing service. Additionally, the preference will be granted only if rules, as adopted, are a reasonable outgrowth of the proposal and lend themselves to the grant of a preference.

(b) A party that believes that it can implement a new technology or service without a rule change may request a waiver of § 1.402(a) to permit it to file a pioneer's preference request without filing a petition for rule making. The waiver request must explain how or why no rule change is necessary to ac-

commodate the new technology or service within the requested spectrum, and should be accompanied by a license application in the desired service. If the waiver request is denied, a party will have 30 days or until the deadline for filing pioneer's preference requests, whichever is later, to perfect its pioneer's preference request by filing a petition for rule making.

(c) Pioneer's preference requests relating to a specific new spectrum-based service or technology that will be considered by the Commission will not be accepted after a specified date prior to the Commission's consideration of a notice of proposed rule making that addresses the service or technology. This date will be announced by public notice at least 30 days in advance.

(d) An initial determination on a request for a pioneer's preference will be made at the time of the adoption, if any, of a notice of proposed rule making addressing the new service or technology proposed in the request. A final determination on a request for a pioneer's preference and its scope will be made at the time of the adoption, if any, of a report and order adopting new rules. If awarded, the pioneer's preference will provide that the preference applicant's application for a constuction permit or license will not be subject to mutually exclusive applications.

(e) Any interested person may file a statement in support of or in opposition to a request for pioneer's preference, and a reply to such statements, subject to filing deadlines that shall be published in the "Public Notice" issued pursuant to § 1.403. Statements on pioneer's preference requests must be filed separate from, and not part of, any comments on an associated petition for rule making.

(f) In the event of a conflict between this rule and any rule for a particular service that provides for the filing and consideration of competing applications, this rule shall prevail.

[57 FR 7882, Mar. 5, 1992]

§ 1.403 Notice and availability.

All petitions for rule making (other than petitions to amend the FM, Television, and Air-Ground Tables of Assignments) meeting the requirements of § 1.401 will be given a file number, and, promptly thereafter, a "Public Notice" will be issued (by means of a Commission release entitled "Petitions for Rule Making Filed") as to the petition, file number, nature of the proposal, and date of filing. If a petition for rule making includes a request for a pioneer's preference, that request will be separately listed in the Public Notice with a separate file number. If a pioneer's preference request is not accompanied by a petition for rule making, it will be given a file number and a "Public Notice" will be issued (by means of a Commission release entitled "Requests for Pioneer's Preference Filed") as to the preference request, file number, and date of filing. Petitions for rule making and pioneer's preference requests are available at the Commission's Dockets Reference Center (1919 M Street NW., room 239, Washington, DC).

[57 FR 7882, Mar. 5, 1992]

§ 1.405 Responses to petitions; replies.

Except for petitions to amend the FM Television or Air-Ground Tables of Assignments:

(a) Any interested person may file a statement in support of or in opposition to a petition for rule making prior to Commission action on the petition but not later than 30 days after "Public Notice", as provided for in § 1.403, is given of the filing of such a petition. Such a statement shall be accompanied by proof of service upon the petitioner on or prior to the date of filing in conformity with § 1.47 and shall conform in other aspects with the requirements of §§ 1.49, 1.52, and 1.419(b).

(b) Any interested person may file a reply to statements in support of or in opposition to a petition for rule making prior to Commission action on the petition but not later than 15 days after the filing of such a statement. Such a reply shall be accompanied by proof of service upon the party or parties filing the statement or statements to which the reply is directed on or prior to the date of filing in conformity with § 1.47 and shall conform in other aspects with the requirements of §§ 1.49, 1.52, and 1.419(b).

frequency(ies) requested is fully justified by the applicant.[1]

§ 5.204 Experimental report.

(a) Unless specifically stated as a condition of the authorization, licensees are not required to file a report on the results of the experimental program carried on under this subpart.

(b) The Commission may, as a condition of authorization, request the licensee to forward periodic reports in order to evaluate the progress of the experimental program.

(c) An applicant may request that the commission withhold from the public certain reports and associated material and the Commission will withhold the same unless the public interest requires otherwise.

§ 5.205 Frequencies for field strength surveys or equipment demonstrations.

(a) Authorizations issued under § 5.202(e) and (f) will normally not have specific frequencies designated in a station license. Prior to the commencement of a survey or demonstration, the licensee will request a specific frequency assignment and submit the following information:

(1) Time, date and duration of survey.

(2) Frequency to be used.

(3) Location of transmitter and geographical area to be covered.

(4) Purpose of survey.

(5) Method and equipment to be used.

(6) Names and addresses of persons for whom the survey is conducted.

(b) Upon receipt of authority from the Commission to conduct a particular survey, the licensee shall furnish the Engineer-in-Charge of the radio district in which the survey is to be conducted, sufficiently in advance to assure receipt before commencement thereof, the following information: Time, date, duration, frequency, location of transmitter, area to be covered, and purpose of survey.

§ 5.206 Limited market studies.

Unless otherwise stated in the instrument of authorization, licenses granted for the purpose of limited market studies pursuant to § 5.202(j) are subject to the following conditions:

(a) All transmitting and/or receiving equipment used in the study shall be owned by the licensee.

(b) The licensee is responsible for informing anyone participating in the experiment that the service or device is granted under an experimental authorization and is strictly temporary.

(c) The size and scope of the market study may be subject to limitations on a case-by-case basis as the Commission shall determine.

§ 5.207 Experiments performed in conjunction with pioneer's preference applications.

An applicant for a pioneer's preference pursuant to § 1.402 may file an experimental license application for a limited geographical area, generally including no more than one Metropolitan Statistical Area. In order to be eligible for a tentative preference award at the time of a notice of proposed rule making in a proceeding addressing a new service or technology, the experimental applicant must have commenced its experiment and reported to the Commission at least preliminary results, unless it has also submitted an acceptable showing of technical feasibility.

[57 FR 7882, Mar. 5, 1992]

Subparts F–G (Reserved)

Subpart H—Student Authorizations

§ 5.401 Eligibility for license.

The Commission may issue an authorization under this subpart to students for the purpose of presenting experiments or technical demonstrations for school or school approved projects which require the use of radio for a limited period of time. Such authorizations may, in the discretion of the

[1] Notwithstanding the broad frequency provision for this Service, applicants desiring authorization for the purpose of wildlife or ocean buoy telemetering and/or tracking should, to the extent practicable, use frequencies in the bands 40.66–40.70 MHz or 216–220 MHz, in accordance with footnote US210 to the Table of Frequency Allocations, § 2.106 of this chapter. Transmitters to be used in these bands for this purpose shall comply with the requirements set forth in § 5.108 of this part.

Before the
FEDERAL COMMUNICATIONS COMMISSION FCC 93-550
Washington, D.C. 20554

In the Matter of	)	GEN Docket No. 90-314
	)	RM-7140, RM-7175, RM-7618
Amendment of the Commission's	)	PP-6 through PP-10, PP-12,
Rules to Establish New Personal	)	PP-13, PP-15 through PP-20,
Communications Services	)	PP-26, PP-27, PP-41 through
	)	PP-52, PP-54 through PP-68,
	)	PP-70, PP-72 through PP-78

THIRD REPORT AND ORDER

Adopted: December 23, 1993; Released: February 3, 1994

By the Commission: Chairman Hundt not participating; Commissioners Quello, Barrett, and Duggan issuing separate statements.

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INTRODUCTION

1. By this action, the Commission recognizes the pioneering efforts of American Personal Communications (APC), Cox Enterprises, Inc. (Cox), and Omnipoint Communications, Inc. (Omnipoint) and grants each a pioneer's preference for a personal communications service (PCS) license. APC is granted a pioneer's preference for its development and demonstration of technologies that facilitate spectrum sharing by PCS and fixed microwave users operating in the 2 GHz band. Cox is granted a preference for its development and demonstration of PCS/cable plant interface technology and equipment that results in a spectrum-efficient application for PCS services. Omnipoint is granted a preference for its development of 2 GHz equipment utilizing advanced techniques that will facilitate the continued development and

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implementation of PCS services and technologies. We are denying 47 additional pioneer's preference requests.

2. By virtue of receiving a pioneer's preference, each entity will not be subject to competing applications for a license within a PCS service area. As discussed in paras. 75-80, infra, we are designating for use by each pioneer Channel Block A, 30 megahertz at 1850-1865 and 1930-1945 MHz. APC's service area is the Major Trading Area (MTA) that includes Washington, D.C. and Baltimore, Maryland; Cox's service area is the MTA that includes San Diego, California; and Omnipoint's service area is the MTA that includes northern New Jersey. We note that both PCS channel blocks and service areas are the subject of petitions for reconsideration and clarification.[1] Should either PCS channel blocks or service areas be amended on reconsideration, the pioneer's preferences will be modified accordingly.

BACKGROUND

3. The Commission's pioneer's preference rules provide a means of extending preferential treatment in its licensing process to parties that demonstrate their responsibility for developing new communications services and technologies.[2] These rules are intended to foster development of new services and improve existing services by reducing the delays and risks innovators otherwise would face with the Commission's licensing process.

4. To be granted a pioneer's preference, an applicant must demonstrate that it has developed the new service or technology; e.g., that it has developed the capabilities or possibilities of the service or technology or has brought the service or technology to a more advanced or effective state. The applicant

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[1] See Public Notice, Report No. 1992, December 13, 1993.

[2] The pioneer's preference regulations are codified at 47 C.F.R. §§ 1.402, 1.403, 5.207 (1992). See Establishment of Procedures to Provide a Preference, Report and Order, 6 FCC Rcd 3488 (1991) (Pioneer's Preference Report and Order); recon. granted in part, Memorandum Opinion and Order, 7 FCC Rcd 1808 (1992) (Pioneer's Preference Recon. Order); further recon. denied, Memorandum Opinion and Order, 8 FCC Rcd 1659 (1993) (Pioneer's Preference Further Recon. Order). We are reviewing our pioneer's preference rules to assess the effect of authority to assign licenses by competitive bidding, see Review of the Pioneer's Preference Rules, Notice of Proposed Rule Making, ET Docket No. 93-266, 8 FCC Rcd 7692 (1993). In the First Report and Order in that proceeding, we decided not to apply any changes to pioneer's preference proceedings in which Tentative Decisions have been made, see FCC 93-551, released January 28, 1994.

also must demonstrate the technical feasibility of the new service or technology, either by submitting a technical feasibility showing or having submitted at least preliminary results of an experiment. Finally, a preference will be granted only if the rules adopted are a reasonable outgrowth of the proposal and lend themselves to grant of a preference.[3] In the Pioneer's Preference Report and Order, we stated: "[I]t will be our general policy to award a preference to any otherwise qualified innovator meeting our standard even if the Commission's final rules for the service are not identical to the innovator's original proposal. However, if the modifications are so significant that the particular innovator does not meet the eligibility standard, we will not award a preference to that innovator." We further stated that "any pioneer's preference would become final (and its scope determined) if final rules are adopted that are generally similar to the innovator's proposal."[4] An applicant meeting the pioneer's preference standard will be placed on a pioneer's preference track, will not be subject to competing applications, and if otherwise qualified will receive a license. Other applicants will compete for additional licenses on a separate track.[5]

5. The first pioneer's preference was awarded to Volunteers in Technical Assistance (VITA) for being the first to develop and demonstrate the feasibility of using a low-Earth orbit satellite system on VHF/UHF frequencies for civilian digital message communications purposes.[6] The second award was made to Mobile Telecommunication Technologies Corporation (Mtel) for developing and testing an innovative new 900 MHz narrowband PCS technology that will increase spectrum efficiency.[7]

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[3] See 47 CFR § 1.402.

[4] See Pioneer's Preference Report and Order, supra note 2, 6 FCC Rcd at 3495, 3497.

[5] See Pioneer's Preference Further Recon. Order, supra note 2, 8 FCC Rcd at 1659.

[6] See Allocate Spectrum for Fixed and Mobile Satellite Services for Low-Earth Orbit Satellites, Report and Order, ET Docket No. 91-280, 8 FCC Rcd 1812 (1993) (award to VITA).

[7] See Establishment of New Personal Communications Services, First Report and Order, GEN Docket No. 90-314 and ET Docket No. 92-100, 8 FCC Rcd 7162 (1993) (award to Mtel), recon. pending, appeals pending sub nom. BellSouth Corp. v. FCC, No. 93-1518 (D.C. Cir. filed August 20, 1993); Freeman Engineering Associates, Inc. v. FCC, No. 93-1519 (D.C. Cir. filed August 23, 1993).

6. In the Tentative Decision and Memorandum Opinion and Order (Tentative Decision) in this proceeding we noted that 2 GHz PCS has created unprecedented interest in new technologies and services. The Commission received pioneer's preference requests related to 2 GHz PCS from 89 applicants, of which 50 were accepted for consideration.[8] These 50 requests were placed on public notice and comment was solicited on them. In October 1992, we tentatively found that APC, Cox, and Omnipoint merited preferences and that the remaining requests should be denied. A large number of responses were filed to our Tentative Decision. After carefully reviewing these submissions, we conclude that APC, Cox, and Omnipoint meet the pioneer's preference standard and therefore merit award of preferences, and that the remaining requests do not meet this standard and therefore do not merit award of preferences.

DISCUSSION

Pioneer's Preferences Granted

7. APC, Cox, and Omnipoint have led the way in developing specific PCS services and innovative system designs or components. Each applicant has demonstrated the technical feasibility of their designs through development and testing of experimental systems. APC is granted a preference for having developed and demonstrated technologies that facilitate spectrum sharing by mobile PCS and fixed microwave systems at 2 GHz. Such sharing will facilitate implementing new PCS service in a timely manner. Cox is granted a preference for having developed and demonstrated the feasibility of innovatively using cable television facilities as part of the PCS infrastructure. Omnipoint is granted a preference for having designed and manufactured a 2 GHz spread spectrum handset and associated base station equipment.

8. To ensure the integrity of our pioneer's preference policies, we are directing the relevant licensing bureau to condition each 2 GHz PCS license obtained through the pioneer's preference process upon the licensee building a system that substantially uses the design and technologies upon which its

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[8] The remaining 39 were incomplete and dismissed for failing to provide basic information required by the Commission's rules, see Tentative Decision and Memorandum Opinion and Order, GEN Docket No. 90-314, 7 FCC Rcd 7794, 7809-13 (1992), appeal pending sub. nom. Adams Telcom, Inc. v. FCC, No. 93-1103 (D.C. Cir. filed February 2, 1993). Six additional pioneer's requests relating to 900 MHz narrowband PCS were tentatively denied in the Tentative Decision. These six requests were denied in the First Report and Order in GEN Docket No. 90-314 and ET Docket No. 92-100, supra note 7.

preference award is based. This condition is consistent with our award of a dispositive pioneer's preference. In the Pioneer's Preference Report and Order, we observed that the risk an innovator takes is that it may not be able to translate its developmental work into full business operation. We also observed that an otherwise-qualified innovator would risk that the Commission may not authorize its proposed service.[9] It is inherent in our pioneer's preference policy that the innovator use the technology upon which its preference is based. This condition will apply in the service area for which the preference is being granted and for the initial required five year build-out period[10] specified in the rules for 2 GHz PCS adopted in this docket.[11]

9. Additionally, we require the licensing bureau to condition the grant of 2 GHz PCS licenses awarded under our pioneer's preference rules on holding the license for a minimum of three years or until the construction requirements applicable to the five-year build-out period have been satisfied, whichever is earlier. This condition is consistent with the Commission's policies established in the initial pioneer's preference rulemaking. There, the Commission prohibited transfer of a preference on the grounds that the Commission did not intend to create a "futures market" in preferences.[12] Allowing licensees to transfer pioneer's preference licenses before substantial build-out has occurred would be tantamount to allowing the transfer of the preference, and would subvert the purpose of the pioneer's preference policy to "help ensure that innovators have an opportunity to participate in new services that they take a lead in developing ..."[13] As the Commission recognized in the

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[9] See Pioneer's Preference Report and Order, supra note 2, 6 FCC Rcd at 3492.

[10] See Second Report and Order, GEN Docket No. 90-314, 8 FCC Rcd 7700 at 7754 (1993); recon. pending. We did not take final action on 2 GHz PCS pioneer's preference requests in the Second Report and Order because of the complexity of the issues in this docket and because we had not completed our review of the relationship between recently-enacted competitive bidding authority to PCS licensing and to the pioneer's preference program. Id. at 7704.

[11] The Commission will consider a waiver only in a case in which there is an overriding national objective that may be thwarted; such as if nationwide PCS interoperability were to be thwarted.

[12] See Pioneer's Preference Report and Order, supra note 2, 6 FCC Rcd at 3496.

[13] Id. at 3488.

initial rulemaking, however, there may be circumstances, such as the sale of the company itself, that would result in the transfer of a preference but would not thwart the Commission's policies.[14] We would not preclude requests for waiver of the prohibition on transfer of licenses under these extraordinary circumstances.

10. American Personal Communications, Inc. (PP-6). APC requests a pioneer's preference for having developed and demonstrated technologies that facilitate spectrum sharing by PCS and fixed microwave systems at 2 GHz. APC argues that its Frequency Agile Sharing Technology (FAST) system, designed to use spectrum that APC demonstrated to be available in the 2 GHz band, will facilitate spectrum sharing by PCS and microwave users.

11. In November 1989, APC filed an application for an experimental license to conduct tests related to PCS. In 1991, APC submitted an examination of existing fixed microwave use of the 1850-1990 MHz band in the 11 largest markets.[15] APC's analysis and testing demonstrate the existence of unused spectrum in the band sufficient to permit initiation of PCS without first relocating existing licensees. The report concluded that enough spectrum is available in the largest metropolitan areas to initiate a commercially viable PCS service if 2.5 megahertz channels are used and "exclusion zones" engineered around existing operations. The exclusion zones were designed to protect existing fixed microwave operations from interference by preventing PCS use of co-channel and adjacent channel frequencies in the proximity of microwave receivers. The boundaries of the exclusion zones were calculated based upon an algorithm that considers three factors:[16] an absolute minimum distance from a microwave reception point in all directions,[17] a minimum

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[14] Id. at 3496.

[15] See APC's Fourth Progress Report at Appendix I. The markets studied were New York, Los Angeles, Chicago, Washington, Philadelphia, Detroit, Boston, Dallas, Houston, Miami, and San Francisco.

[16] APC's exclusion zone calculations assume a PCS base station transmitting antenna height of 30 feet and transmission at an effective radiated power of 1 watt across the entire 2.5 megahertz channel.

[17] For co-channel frequencies, APC considered any point within 4.0 miles of a microwave station to be in the exclusion zone. For adjacent channels, any area within a radius of 1.6 miles was considered to be in the exclusion zone. Both values are based upon empirical interference analyses.

distance in the main beam of the microwave receive antenna,[18] and an assumed main microwave beamwidth.[19]

12. APC developed its FAST technology to permit locating its PCS base stations in a manner that allows using the available spectrum for PCS without an immediate need to relocate microwave incumbents. As explained by APC,[20] FAST is a frequency planning and management tool used to predict (and avoid) interference both between private operational fixed service (POFS) and PCS systems, and within a PCS system. The FAST system utilizes theoretical interference analyses verified by signal strength measurements to determine frequency assignments to PCS base stations. This function is accomplished by a Channel Utilization Controller (CUC), which monitors and determines the channels each PCS base station may use. The CUC monitors coverage and interference; analyzes and integrates measured data; integrates supporting databases; and supports data communications links to each PCS base station. For each PCS base station the CUC calculates theoretical interference values and areas for every POFS station in its database. Both PCS-to-POFS and POFS-to-PCS interference is calculated. The CUC then compiles a list of available channels for each base station. The theoretical interference analysis is recalculated when PCS and/or POFS systems are changed.

13. In addition, the CUC periodically instructs each base station to measure the signal strength of each microwave channel. To accomplish this measurement, the base station receiver tunes to each microwave channel and measures the signal level. The signal strength data is transmitted back to the CUC, which uses the measured data to verify the accuracy of the theoretical interference analysis. After analysis, the CUC downloads to each base station its respective available channel list. APC states that the verification procedure typically would be done on about a monthly basis, more often when the system is first installed and less afterwards.

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[18] A distance of 25.75 miles was selected to require PCS facilities to be beyond the radio horizon, as viewed from a co-channel receiver. A distance of 14.9 miles was selected for adjacent channel frequencies using empirical interference analyses.

[19] A 10° main beamwidth was selected, based upon the beamwidths of typical microwave receive antennas.

[20] A detailed description of APC's technology is contained in APC's Seventh Progress Report, dated April 28, 1992, and supplemented by other submissions in both this docket and in the experimental file.

14. The specific channel assigned to a call is controlled by a protocol in the call set-up procedure. When a subscriber's PCS mobile unit[21] places or receives a call, the subscriber unit first measures the power on every channel in the available channel list (ACL) (base station transmit, subscriber unit receive), then transmits to the base station on the control channel (base station receive side of channel pair) a request for a voice channel. Also transmitted to the base station are the measurements taken by the subscriber unit on each of the channels in the ACL.

15. PCS base stations continually, i.e., every second, measure signal strengths on every voice channel in the ACL (base station receive, subscriber unit transmit). The voice channels in the ACL are ranked by ascending signal strength, the channel ranked number 1 having the least amount of measurable power. When the base station receives the subscriber unit's measured data, it ranks the subscriber unit's channels according to the same criteria. For each channel, the base station adds the subscriber unit rank to the base station rank and selects the channel with the lowest total rank. The base station then transmits a message to the subscriber unit on the control channel to select the specific voice channel to be used for the call being set up. By this method the best available channel is selected for each call and interference to or from fixed microwave or other PCS operations prevented. Other mechanisms, such as continual monitoring of the carrier to interference ratio by both base station and subscriber unit, are utilized to ensure that high quality communications continue for the duration of the call. This protocol provides an additional measure of protection from interference to ensure that the best available channel is selected for each call.

16. APC states that FAST technology can be used with any relatively narrowband PCS system channel architecture employing a channel bandwidth of 5 megahertz or less. In particular, APC states that the FAST system can be used in conjunction with code division multiple access (CDMA), time division multiple access (TDMA), time division duplexed (TDD), and frequency division duplexed (FDD) systems that use various transmit-receive frequency (channel) separations.

17. Finally, APC states that testing of its FAST/CDMA system verified the ability of its technology to complete PCS calls without causing interference to existing microwave operations. APC maintains that its FAST/CDMA system, operational in downtown Washington, D.C. since October 23, 1992, integrates

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[21] For purposes of this Report and Order, the term "mobile unit" is used in a generic sense to include "portable unit."

Qualcomm Inc.'s (Qualcomm's) narrowband CDMA system with FAST.[22] The 1.25 megahertz FDD channels employ a transmit-receive separation of 80 megahertz and each PCS base station transmits a pilot signal in each channel.[23] The mobile station scans the base station transmit channels and locks onto the strongest pilot signal, which determines the mobile transmit center frequency.

18. In the Tentative Decision we proposed to grant APC a preference for its development and demonstration of technologies that facilitate spectrum sharing at 2 GHz by PCS and existing fixed microwave licensees. A number of parties oppose our tentative grant to APC.

19. In comments to the Tentative Decision, Bell Atlantic Personal Communications, Inc. (Bell Atlantic) and GTE Service Corporation (GTE) state that APC's proposal is not significantly innovative. Bell Atlantic asserts that APC's FAST method of frequency selection is the only technology it reasonably can claim to have developed and that this technology is unremarkable because it is simply frequency management combined with the dynamic allocation technique used by second generation cordless telephone (CT-2) systems. Bell Atlantic asserts that the Commission already has determined that CT-2 technology does not warrant a preference and, since incumbent 2 GHz licensees can be relocated easily, APC's proposal has little relevance or value in facilitating provision of PCS at 2 GHz.[24] GTE also argues that APC's FAST approach is not unique, and states that FAST works only if unduly large quantities of spectrum are licensed to each PCS operator.[25] GTE states that PCN America, Inc. (PCNA) discussed an approach similar to FAST in its original petition, and that an analogous approach that has existed for many years is the licensing of narrowband Amplitude Compandored Single Sideband (ACSB) systems on interstitial land mobile channels between wideband channels.

20. In response to Bell Atlantic's arguments, APC states that its FAST system uses a combination of theoretical interference and measured data analyses to determine channels that can be used without interference to microwave incumbents.

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[22] APC's FAST/CDMA system is comprised of three base stations, a Qualcomm Telephone Switching Office, and 24 subscriber units. See APC's Ninth Progress Report.

[23] The pilot uses 20% of the RF energy transmitted on the channel. The remaining 80% is available to transmit the communications itself.

[24] See Bell Atlantic at 6-13 (January 29, 1993).

[25] See GTE at 6-11 (January 29, 1993).

According to APC, its system dynamically adjusts to a changing radio frequency environment. APC argues that the advanced techniques it developed to manage interference both within PCS systems and to and from incumbent microwave users cannot legitimately be described as simply traditional frequency management.[26] Further, APC states that Bell Atlantic's claim that frequency sharing techniques such as FAST will not be needed because the 2 GHz band will be cleared of incumbents fails to consider the transition plan adopted by the Commission in ET Docket No. 92-9.[27]

21. In response to GTE's arguments, APC notes that GTE opposes all of the preference requests and argues that in opposing APC's request GTE merely is adhering to its view that no party merits a preference regardless of the significance of its accomplishments. APC concludes that GTE's comments ignore the full scope of APC's efforts, provide no new evidence or arguments, and should not receive serious consideration.

22. We conclude that FAST is more than an existing frequency management scheme combined with a CT-2 allocation technique; that it permits PCS to be implemented in the same band as microwave users, and permits PCS to share licensed spectrum with these incumbents by utilizing unused frequencies. We do not agree that FAST is similar to PCNA's proposal. The system proposed by PCNA relied upon a completely different overlay technology. We also disagree with GTE that licensing ACSB systems on interstitial land mobile channels is similar or relevant to considering the innovativeness of FAST. The technical problems of designing for spectrum sharing between unlike systems such as fixed microwave and mobile PCS necessarily are substantially different from merely coordinating the frequency use of systems that are in the same service and therefore have a substantial set of similar characteristics. Further, the integration of CT-2 elements such as the call set-up procedure utilized by APC does not detract from this technology; it is only one part of APC's complete system. APC's system provides substantial additional interference protection to both PCS and microwave operations.

23. PCNA, Southwestern Bell Personal Communications, Inc. (SBPC), Personal Communications Network Services of New York,

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[26] See APC Reply at 5-7 and Attachment A of the Reply at 17-18 (March 1, 1993).

[27] See Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, First Report and Order and Third Notice of Proposed Rule Making, ET Docket No. 92-9, 7 FCC Rcd 6886 (1992) and Third Report and Order and Memorandum Opinion and Order, ET Docket No. 92-9, 8 FCC Rcd 6589 (1993), recon. pending.

Inc. (PCNS-NY), and Associated PCN Company (Associated) argue that APC has not met the standard for a preference award. PCNA states that its efforts -- and not APC's -- led to consideration of 2 GHz spectrum for PCS. According to PCNA, its petition initiated Commission consideration of PCS.[28] SBPC states that the 1850-1990 MHz band already was under international consideration for PCS; therefore, APC should not be credited with focusing attention on this band. Further, SBPC argues that APC's analysis of unused spectrum in the 2 GHz band is flawed because it did not include co-channel and adjacent channel exclusion zones in the vicinity of the microwave transmitters. SBPC asserts that had APC's study considered these aspects, significantly less spectrum would have been identified as available for PCS. Additionally, SBPC argues that the FAST concept was not revealed until October 28, 1991 -- more than three months after SBPC disclosed the details of its Intelligent Multiple Access Spectrum Sharing (IMASS) system.[29] PCNS-NY states that in its pioneer's preference request filed on July 30, 1991 it originated the proposals governing relocation of existing 2 GHz fixed microwave users that the Commission credits to APC.[30]

24. Associated states that it preceded APC with respect to both the proposal of a frequency-agile sharing technology and field testing of this technology.[31] Associated states that it proposed a frequency agile spectrum sharing technology in its experimental PCS license dated August 17, 1990, whereas APC's first mention of the FAST concept was in its Fifth Quarterly Report submitted in October 1991. Associated states that it conducted the first field tests of its spectrum sharing technology in early October 1991, whereas APC's first testing of the FAST concept occurred in April 1992.

25. With respect to the arguments of PCNA, APC responds that the raw and unanalyzed data supplied by PCNA significantly differs from the detailed and exhaustive analyses contained in APC's July 1991 FAST Report. APC further notes that PCNA's approach is an overlay scheme that would require PCS systems to use the same frequencies as the POFS systems, whereas APC's approach is a frequency agile avoidance system that permits PCS systems to utilize unused POFS spectrum.

26. With respect to the arguments of SBPC, APC responds that its July 1991 FAST Report quantified PCS spectrum

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[28] See PCNA at 25-27 (January 28, 1993).

[29] See SBPC at 8-13 (January 29, 1993).

[30] See PCNS-NY at 9-12 (January 29, 1993).

[31] See Associated at 6-8, 25-37, 40-47 (January 29, 1993).

availability in the 1850-1990 MHz band utilizing sound engineering criteria for spectrum sharing.[32] APC states that its spectrum sharing study was updated in August 1991 to include co-channel and adjacent channel exclusion zones in the vicinity of microwave transmitters and that its original conclusions were affirmed.[33] APC contends that, in contrast, as late as December 17, 1992 SBPC was still unwilling to quantify PCS spectrum availability or even commit to the feasibility of spectrum sharing.[34] Additionally, APC states that FAST was designed to work in a highly congested microwave environment. Finally, APC states that it initiated its approach to spectrum sharing in March 1990 and first publicly disclosed it in May 1990. APC states that it has been making systematic measurements of the 1850-1990 MHz band since April 1991, when it initiated tests of its first transmitter, whereas SBPC first disclosed the IMASS concept in its July 16, 1991 application for experimental authorization.

27. With respect to the arguments of PCNS-NY, APC responds that APC's approach to sharing spectrum with some microwave licensees and relocating others forms the basis for the transition plan adopted by the Commission in ET Docket No. 92-9.[35] By contrast, APC notes that PCNS-NY's approach is not to share the band, but to clear it entirely of existing users.

28. With respect to the arguments of Associated, APC responds that Associated's proposals are not the same as FAST.[36] APC argues that the entire scope of Associated's developmental activity lies in its attempt to develop a cellular-style hand-off technique for PCS under the rubric of frequency hopping. Additionally, APC argues that Associated's proposal addresses only fixed microwave to PCS interference protection, and that Associated failed to consider PCS to fixed microwave interference. Further, APC reiterates that unlike its own frequency avoidance scheme, Associated's proposal is an overlay scheme. Finally, APC states that Associated has not field tested

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[32] See APC Reply at 7-9 and Appendix A of the Reply at 43-49 (March 1, 1993).

[33] With the addition of the co-channel and adjacent channel transmitter exclusion zones, the number of grid point locations with at least 50 megahertz of spectrum available for PCS dropped from 96.3% to 95.7% in the top 11 markets.

[34] Citing SBPC's Quarterly Report Number Three.

[35] See APC Reply at 15-16 (March 1, 1993).

[36] See APC Reply at 11-12 and Appendix A of the Reply at 1-16 (March 1, 1993).

an operating PCS system to demonstrate that its proposals will lead to an interference-free, high capacity PCS system.

29. As we noted in the Tentative Decision, while APC was not the first to suggest the 1850-1990 MHz band for PCS, APC's studies focused attention on sharing this band.[37] APC's study was the first to demonstrate the feasibility of initiating PCS operations in this band without first relocating the existing fixed microwave operations. In addition, as set forth by APC, its analysis considered co-channel and adjacent channel interference. Finally, APC clearly stated its intention to geographically share spectrum with POFS stations in its May 3, 1990 application for an experimental license. In the Engineering Exhibit thereto APC stated that it "intends to select microcell locations so as to avoid inter-system co-channel and semi-adjacent channel interference."[38] Additionally, it stated that "[a]ll APC portable units can be prevented from operating in the areas of potential interference near the receive antennas of existing co-channel licensees by the careful location of base stations."[39] Accordingly, to the extent that timing is an issue, the record demonstrates that APC's intentions were revealed before SBPC's disclosure of its IMASS proposal.

30. With respect to the arguments of Associated and PCNA, both parties proposed frequency overlay schemes. We find that such experiments are technically different from a frequency avoidance scheme such as FAST, and therefore there is no need to consider further the requesters' filing timetables. With respect to PCNS-NY, we find that APC proposed a strategy of sharing spectrum with microwave users and relocating some microwave users -- with full cost reimbursement, and only to reliable alternative frequencies -- in its October 1, 1990 comments to the PCS Notice of Inquiry[40] and again in its May 4, 1991 filing in this docket.[41]

31. Corporate Technology Partners (CTP) argues that APC has not developed the capabilities or possibilities of a given technology such as narrow channel CDMA. Instead, CTP argues that APC has developed a way that existing technology, through base station siting and propagation analysis, can be used in "gaps"

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[37] See Tentative Decision, supra note 8, 7 FCC Rcd at 7797.

[38] See APC's Application for Experimental Radio Service License, 1447-EX-PL-9, at page 6 of the Engineering Exhibit.

[39] Id. at 8.

[40] See Notice of Inquiry, GEN Docket No. 90-314, 5 FCC Rcd 3995 (1990).

[41] See APC's Petition for Rulemaking at 17.

between the fixed microwave transmission paths. CTP submits that it has done far more than APC to adapt base technologies for frequency sharing. Further, CTP states that APC's claim that it developed its FAST concept in March 1990 lacks credibility. CTP notes that in APC's May 1990 experimental license application, APC states that its "proposed CDMA system experiment is not designed to test...interference issues." Moreover, CTP alleges that there is substantial evidence that essential elements of FAST were derived specifically from CTP's prior Interference Sensing Code Division Multiple Access (ISCDMA) work.[42]

32. APC responds that it developed the FAST approach to spectrum sharing and that FAST clearly is distinguishable from CTP's ISCDMA.[43] APC argues that a major way in which FAST differs from CTP's proposal is that FAST has been proven to work in practice through on-the-air demonstration, whereas CTP's approach has not been proven on paper, much less field-tested. APC asserts that the sole technical paper on which CTP relies for the viability of its proposal concludes that "further work is needed" to test the proposal's "reliability in an actual PCS environment."[44] APC also states that CTP's proposal would not effectively protect incumbent microwave users because CTP's system only "senses" interference at initial call set-up and does not continuously monitor and adjust the operating frequency. Additionally, APC states that CTP's proposal would not protect receive-only systems and systems that do not utilize an 80 megahertz transmit-receive separation. Finally, APC states that in its May 3, 1990 application for experimental license it disclosed that its experiment was based on frequency avoidance techniques and designed to test interference issues; and that the statement that CTP quotes refers specifically to PCNA's overlay approach, not APC's avoidance approach.

33. We conclude that APC's FAST is significantly different from CTP's ISCDMA, particularly in that it continues to monitor the channel and can adjust frequency after call set up. We also concur with APC that the technical feasibility of FAST has been demonstrated through an experiment.

34. In the Pioneer's Preference Report and Order, we stated that "proposals that promise to enable the sharing, or co-use, of allocated spectrum may qualify" for a preference.[45] The major challenge that we faced in this proceeding was to design a

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[42] See CTP at 24-38 (January 29, 1993).

[43] See APC Reply at 16-25 and Appendix A of the Reply at 19-40 (March 1, 1993).

[44] See CTP, Exhibit G at 21 (January 27, 1993).

[45] See note 2 supra, 6 FCC Rcd at 3492.

specific, comprehensive plan to provide spectrum for PCS. We conclude that APC's development and demonstration of technologies that facilitate spectrum sharing by PCS and microwave systems at 2 GHz is a significant communications innovation of the sort the Commission established the pioneer's preference rules to recognize and that APC meets the criteria established by those rules for a preference. This conclusion is based upon two factors: APC's demonstration of unused spectrum, and APC's system that permits using this spectrum to initiate PCS.

35. APC's analysis and testing demonstrated that unused spectrum exists in the 1850-1990 MHz band sufficient to allow immediate initiation of PCS services with no need to immediately relocate existing licensees. APC's July 1991 FAST Report that convincingly demonstrated the existence of this spectrum changed the focus of attention from relocating the existing licensees to frequency sharing. This study, and the transition plan presented in APC's petition for rule making, have elements in common with the transition plan we adopted in ET Docket No. 92-9 to facilitate making available 2 GHz spectrum for emerging technologies, including PCS. Further, we conclude that APC demonstrated that its FAST technology is significantly different from that proposed by other 2 GHz PCS applicants, constitutes more than traditional frequency management techniques, and that APC has demonstrated its technical feasibility. In sum, APC has demonstrated that FAST provides the means of accomplishing a graceful transition from a fixed service environment to a shared fixed and mobile services environment.

36. For the above reasons, we find that APC has demonstrated that its FAST technology is innovative, spectrum efficient, and technically feasible. Its proposal builds on prior developments and brings them to a significantly more advanced and effective state, combining new and existing technologies and utilizing them as the basis for a complete system to provide PCS services on spectrum shared with existing fixed microwave operations. APC has demonstrated the technical feasibility of its proposal, including the underlying technology upon which it relies. Additionally, we find that APC has demonstrated that it developed an innovative proposal that will lead to the establishment of a new service within the PCS family. Finally, we find that the rules we have adopted are a reasonable outgrowth of APC's proposal and lend themselves to a grant of a preference to APC. The PCS service rules adopted earlier in this proceeding and the transition plan adopted in the emerging technologies proceeding[46] both reflect APC's spectrum sharing study and related submissions. Specifically, our allocation of the 1850-1970 MHz, 2130-2150 MHz, and 2180-2200 MHz bands for licensed and unlicensed PCS on a shared basis with existing fixed

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[46] See note 27, supra.

microwave licensees reflects several APC studies and proposals.[47] Further, our licensing of PCS on an MTA basis reflects a proposal made by APC.[48] Accordingly, we award APC a pioneer's preference.

37. Cox Enterprises, Inc. (PP-52). Cox requests a pioneer's preference for its having developed and demonstrated the feasibility of using cable facilities to provide backbone communications linking PCS microcells; and for its development of the equipment that permits this use. Cox states that it has pioneered advancements essential to the realization of PCS, including the development of equipment (a "cable microcell integrator" (CMI)) that is a critical component of the cable-PCS infrastructure that it envisions.[49] The CMI is an interface, developed under a joint contract with Scientific-Atlanta, that connects individual PCS communications to multiple types of cable television distribution systems.[50]

38. Cox states that in its experimental license application submitted on September 20, 1990, it was the first to propose three specific design criteria central to the introduction of PCS using cable facilities: 1) cable distribution plant as the backbone for a PCS network; 2) centralized instead of distributed modulation; and 3) distributed antennas.[51] Cox now states that it has demonstrated the feasibility of all three criteria. It contends that using cable as PCS backbone facilitates the delivery of PCS to the public quickly and in a spectrum efficient manner. Further, Cox states that centralizing modulation, which entails placing expensive modulation equipment at centralized locations such as cable headends, lowers the overall cost of deploying PCS because of the lower equipment costs for each microcell. Finally, Cox contends that using distributed antennas, which are small, inexpensive, passive antennas that relay the received signals to a central location, lowers the cost of equipment at microcell locations and increases cell coverage areas.

39. On February 12, 1992, Cox employed cable plant to carry a PCS phone call over an operating cable system. To accomplish

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[47] See note 20, supra, and APC's Request for Separate and Expedited Treatment of "Existing Pioneer Preference" Issues, at note 8 (October 28, 1993).

[48] See APC's Supplement to Petition for Rule Making at 27-34 (May 4, 1992).

[49] See Cox Pioneer's Preference Request at 21 (May 4, 1992).

[50] Id. at 10.

[51] Id. at 4.

this, Cox developed, tested, and used its CMI that receives radio voice channels and modulates and multiplexes the channels onto the cable plant. Cox claims that its equipment permits acquiring a 1.544 megabit per second channel using existing cable plant. The signals can be sent in either direction over the cable plant (to the cable headend or to a PCS microcell), and downconverted to voice channels. According to Cox, its microcell is suitable for placement in the outside pole-mounted cable plant, and includes both a transmitter/receiver and antenna integrated with the CMI. Cox states that this equipment can be used in fiber, copper, or hybrid fiber/copper cable distribution systems.

40. Cox states that in March 1992 it successfully demonstrated cell-to-cell handoff using an operating cable system to connect microcells operating with 2 GHz equipment. SCS Mobilecom, Inc.'s (SCSM's) broadband 1850-1990 MHz equipment was used to communicate between two cells connected to the cable headend. As the mobile handset moved between cells it received signals from both until the handset signaled the headend and cell base stations to switch to the stronger signal.[52]

41. Cox also states that it successfully demonstrated operation of centralized modulation during the March 1992 tests. As explained by Cox, a 2 GHz CDMA signal was received, converted to an intermediate frequency, and transmitted over cable plant to a headend. At the headend the signal was demodulated and connected into the public switched telephone network (PSTN). This, Cox claims, demonstrated the feasibility of centrally locating modulation electronics at the headend and deploying smaller, less expensive equipment at microcells to lower network costs by sharing equipment.[53]

42. Responding to Cox's preference request, CTP acknowledges that Cox has performed significant work on a fiber optic-PCS interface, but states that Cox has not addressed PCS radio technology.[54] GTE argues that Cox's efforts are similar to other experiments, and therefore are not innovative or pioneering.[55]

43. Pacific Telesis Group (PacTel) argues that Cox's proposal to adapt its cable infrastructure to PCS does not merit a preference because Cox's demonstration of an actual call could have been made using any one of a number of current systems being tested. Additionally, PacTel contends that Cox does not address

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[52] See Cox Report at 3 (June 25, 1992).

[53] Id. at 2.

[54] See CTP at 1 (June 10, 1992).

[55] See GTE at 16 (June 10, 1992).

spectrum sharing at 2 GHz.[56] Viacom International, Inc. (Viacom), while not disagreeing that Cox warrants a preference, states that it is the only cable entity that addresses sharing 2 GHz spectrum with incumbent microwave users.[57]

44. In response to CTP, Cox argues that it tested radio technology by conducting propagation and over-the-air tests with 902-928 MHz and 1.8 GHz equipment, and that this constitutes development of radio-based service. Further, Cox argues that objections based on the development of radio equipment would limit preference awards to equipment manufacturers.[58] In response to PacTel, Cox argues that it addressed spectrum sharing issues in its filings in the PCS proceeding; and that in any event, although spectrum sharing proposals are eligible for pioneer's consideration, the Commission has never implied that spectrum sharing is an essential or necessary component of a preference showing.[59]

45. We concur with Cox that it has addressed appropriately PCS radio technology and spectrum sharing issues in its filings. In the Tentative Decision we proposed to award Cox a pioneer's preference for its proposal to use the cable television plant for connecting PCS microcells and its subsequent development and demonstration of equipment capable of interfacing PCS microcells with copper, fiber, and hybrid copper/fiber cable plant.

46. In response to the Tentative Decision, Nextel Communications, Inc. (Nextel), PCNA, Tel/Logic, Inc. (Tel/Logic), and Viacom express support for granting Cox a pioneer's preference. Additionally, Cablevision Systems Corporation (Cablevision) and Time Warner Telecommunications, Inc. (Time Warner) explicitly do not object to a preference grant to Cox, although each contends that its own proposal is equally or more deserving of a preference.

47. However, Cable USA, Inc. (Cable USA), CTP, Pacific Bell, and Satcom, Inc. (Satcom) contend that Cox should not be granted a preference. These parties argue that Cox was not the first entity to propose using cable television plant to provide PCS and that Cox otherwise does not meet the pioneer's preference criteria.[60] Cable USA, CTP, PacTel, and GTE all take issue

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[56] See PacTel at 26 (June 10, 1992).

[57] See Viacom at 3 (June 10, 1992).

[58] See Cox Reply at 4 (June 25, 1992).

[59] Id. at 8.

[60] See Cable USA at 6-7, CTP at 19-20, Pacific Bell at 15, and Satcom at 6 (January 29, 1993).

with our conclusion that Cox's request demonstrates innovation. Cable USA claims that Cox tested the same equipment that Rogers Cantel (Rogers) had previously tested in Canada. Pacific Bell states that Manitoba Telephone Service demonstrated the use of cable plant to carry telephone signals in the 1980's.[61] GTE submits that Cox's demonstration used Omnipoint equipment designed to operate in the 902-928 MHz band and therefore should not be attributed to Cox nor considered for a 2 GHz award; and that the CMI was designed by Scientific-Atlanta and appears to be no more than a modulator/demodulator transmitting and receiving voice over a fiber optic cable. GTE also asserts that Cox's distributed antenna/remote antenna driver (RAD) technology was developed in Canada. Finally, CTP states that Tele-Communications, Inc. (TCI) has been carrying phone calls for the military over cable systems for many years.

48. In reply, Cox states that the equipment tested in Canada proved inadequate to meet Cox's requirement for a full-featured PCS system. Cox states that the CT-2 type service tested by Rogers could provide overlapping coverage areas but not call handoff.[62] Further, Cox maintains that the Rogers system connected directly to the PSTN and had no independent switching capabilities. Cox states that from early discussions with potential PCS equipment suppliers it concluded that linking microcells by two-way cable TV systems had not been considered, and that suppliers were focusing on radio technology for the backhaul. Cox asserts that it tested cable and fiber backhaul, both broadband and narrowband, and that readily available modems could not support testing multi-backhaul configurations and multi-PCS links. Therefore, in June 1991 Cox states that it approached Scientific-Atlanta with the CMI concept to provide flexibility for network reconfiguration and connection to various types of PCS radio equipment.[63]

49. We conclude that although CT-2/Cable TV tests were conducted in Canada, Cox was the first to propose using cable for backbone purposes and begin testing actual equipment to demonstrate whether or not the theoretical synergies of PCS and cable systems could be realized through a cost-effective integration of aspects of both networks. We further find that Cox did not merely copy other CT-2/Cable tests having limited capabilities, but rather designed, developed, and tested multi-backhaul configurations and multi-radio PCS systems that incorporated hand-off capability, centralized modulation, and distributed antenna configurations. These capabilities were

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[61] See Pacific Bell at 15 (January 29, 1993).

[62] See Cox Reply at 32 (March 1, 1993).

[63] Id. at Exhibit D, 5-7.

realized through its design and development work and brought to fruition by the CMI it developed in conjunction with Scientific-Atlanta.[64]

50. Cox has demonstrated the technical feasibility of its concepts by, among other things, initiating a phone call over its system and interfacing PCS microcells with copper, fiber, and hybrid copper/fiber cable plant. Using the existing cable plant in PCS network design permits economical and rapid deployment of PCS systems and substitution of existing infrastructure for increasingly scarce spectrum. Cox has demonstrated that it has "developed the capabilities or possibilities of the technology or service" and has "brought them to a more advanced or effective state"[65] as required by our rules by developing and demonstrating the cable/PCS interface equipment. The efforts of Cox advanced PCS system design by demonstrating the feasibility of integrating cable networks with full-featured PCS systems to offer a spectrum efficient service in a timely, cost effective manner. Finally, the rules adopted in the Second Report and Order are a reasonable outgrowth of Cox's proposal and reflect Cox's experimental cable/PCS efforts in the 1850-1990 MHz band. We note that the PCS Second Report and Order declined to allocate PCS support spectrum, as proposed by several parties, because "many of these support operations can be provided through facilities such as fiber optics, wireline telephone services and coaxial cable, that do not require use of radio."[66] Cox's early efforts in demonstrating how cable facilities can be used in place of additional spectrum to connect PCS microcells was an important component of this decision. Accordingly, we award Cox a pioneer's preference.

51. Omnipoint Communications, Inc. (PP-58). Omnipoint requests a pioneer's preference for its design, development, miniaturization, and deployment of the first 1850-2200 MHz handheld phone. Its equipment utilizes spread spectrum technology with associated CDMA, TDD, and frequency division multiple access (FDMA). Omnipoint claims that its spread spectrum equipment can provide a variety of voice, data, and video services using microcell technology. Omnipoint's equipment was designed to be independent of a specific network architecture

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[64] Both Cox and Scientific-Atlanta appear to have played key roles in developing the CMI, but apparently under the direction of Cox. As detailed herein, Cox also performed substantial additional work in demonstrating the feasibility of using cable facilities to provide PCS, and in this proceeding Scientific-Atlanta does not dispute Cox's responsibility for the CMI.

[65] See 47 C.F.R. § 1.402(a).

[66] See Second Report and Order, note 10 supra, 8 FCC Rcd at 7741.

and therefore can be used with systems such as Advanced Intelligent Network (AIN), cable television, private branch exchanges (PBXs), and Centrex. Omnipoint claims that the design of its equipment results in less interference to incumbent microwave operations than that of other proposed PCS equipment, and that this permits greater spectrum sharing. Omnipoint's handsets can switch from licensed PCS bands at 2 GHz to unlicensed frequencies at 2.4 GHz. Omnipoint proposes a Common Air Interface (CAI) that will permit its mobile equipment to operate with different network topologies (including one-way, two-way, PSTN, Central Office based networking, AIN, and cable television).

52. Omnipoint contends that operation of its proposed PCS equipment can coexist with other users and fixed microwave operations on the same frequencies with minimum disruption and maximum flexibility. Omnipoint states that these attributes derive from utilizing spread spectrum for its phone instruments, which allows for exclusion zones around microwave towers that are 10 to 100 times smaller than the exclusion zones of equally-powered narrowband systems. Omnipoint argues that other CDMA systems have multiple users transmitting on the same frequency at the same time, which increases the level of interference, while its system is distinguished by its use of TDD to separate users in time. According to Omnipoint, only one unit is transmitting at any one time on a channel, and therefore the unit can operate at lower power and cause less interference. Omnipoint also states that its system has less potential of interfering with microwave operations than a narrowband CDMA system because its system spreads its transmission across 5 or 10 megahertz. Additionally, Omnipoint says that its TDD equipment allows the user to transmit and receive on one 5 or 10 megahertz channel and that its equipment is frequency agile. Omnipoint asserts that using 10 megahertz channels permits its system to match the fixed microwave channelization scheme and the frequency agility permits the system to minimize interference by utilizing unused spectrum.

53. Omnipoint maintains that its coding scheme permits using high data rates per frequency channel and to separate users within a cell by time. Omnipoint states that its system uses frequency offsets and codes to separate cells and that it can operate at a frequency reuse factor of three, or with a frequency reuse factor of one with less capacity. Omnipoint states that its system has flexibility in the number of time slots per user per second used, which permits flexibility in the number of simultaneous users and types of service. Specifically, it says that its TDD technology allows voice and data transmissions on the same frequency. Omnipoint asserts that it does not require precision adjustable power control and continuous soft handoff because its system does not overlay multiple users on the same

frequency at the same time, which it contends gives it an advantage over CDMA-only systems.[67]

54. Omnipoint states that its handsets can switch between the proposed PCS band at 1850-1990 MHz to the existing unlicensed spread spectrum band at 2400-2485 MHz. According to Omnipoint, this capability allows the user to access a base station using unlicensed frequencies while at home or in the office, and to access the PCS network when away from the base station.

55. In the Tentative Decision we proposed to award Omnipoint a preference for having developed 2 GHz equipment that utilizes innovative techniques that may facilitate the development and implementation of PCS services and technologies. We acknowledged Omnipoint's efforts in the areas of: 1) radio frequency engineering and related spread spectrum product design, development, miniaturization, and deployment of equipment; 2) system architecture that facilitates coexistence with other users of the same frequencies; and 3) design and development of a base station interface that is compatible with advanced features of the PSTN.

56. We were persuaded that Omnipoint merited a tentative preference because it was the first to produce practical, working 2 GHz equipment for PCS. Omnipoint's equipment uses direct sequence spread spectrum access techniques in a 5 or 10 megahertz channel.[68] We recognized that there likely will be a number of equipment designs for PCS, some of them significantly different from that developed by Omnipoint in terms of access technique, bandwidth, or size. Nevertheless, we found that the original work of Omnipoint had contributed significantly to the development and testing of PCS services and design concepts.

57. We also stated that the concepts and technological developments pioneered by Omnipoint will facilitate the implementation of PCS in the 2 GHz band and permit sharing with fixed microwave licensees. We tentatively concluded that Omnipoint's design, development, manufacture, and demonstration of spectrum-efficient innovative concepts as set forth in its request for pioneer's preference and its experimental file demonstrate the feasibility of its concepts.

58. In comments to the Tentative Decision GTE argues that Omnipoint did not develop its spread spectrum equipment for PCS

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[67] Omnipoint states that soft handoff, which permits a mobile to communicate on one frequency to multiple cells at the same time, reduces capacity, and that automatic power control is an added expense.

[68] See Omnipoint's Semi-Annual Experimental License Progress Report, August 1993, at 7.

systems, but rather used the PCS proceeding to translate its technology development into a spectrum authorization.[69] Similarly, GTE and PageMart, Inc. (PageMart) assert that the Commission previously determined that equipment manufacturers generally should not be eligible for a preference unless their technology is linked to a specific service, and according to GTE, Omnipoint's handsets were not developed in association with a licensable service, but rather were developed for unlicensed operations in the Industrial, Scientific, and Medical (ISM) bands (902-928 MHz and 2.4-2.4835 GHz).[70] GTE also asserts that Omnipoint initiated development of its spread spectrum products four years before the May 1991 release of the Pioneer's Preference Report and Order and should not be awarded a pioneer's preference for past innovation.

59. In response to GTE, Omnipoint states that it drew from previous experiences to design a system specifically for PCS and made substantial innovations specifically related to PCS. It contends that while it has been involved with spread spectrum research for some time, it has spent millions of dollars to bring to fruition its PCS innovations, and that these efforts were spurred by the Commission's adoption of the pioneer's preference rules. Omnipoint also argues that GTE's timing arguments have no legal basis because there is no Commission requirement that a pioneer conduct its entire work within any specific time.[71] Regarding GTE's and PageMart's assertions that the preference rules do not extend to innovative technology or equipment development but only to service innovators, Omnipoint responds that its equipment facilitates an innovative service, and that creating a dichotomy between technology and service misconstrues the Commission's pioneer's preference rules.[72]

60. We conclude that Omnipoint has demonstrated that its PCS equipment uses innovative technology that relates specifically to provision of PCS at 2 GHz. Omnipoint has demonstrated the capability of its equipment and has developed a flexible technology that other entities can implement in establishing their PCS systems. We disagree with GTE's argument that Omnipoint's equipment is not associated with a licensable service. Omnipoint as well as other experimental licensees that

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[69] See GTE at 15-18 (January 29, 1993).

[70] Id. at 15; see also PageMart at 4-5 (January 29, 1993).

[71] See Omnipoint Reply at 17 (March 2, 1993).

[72] Omnipoint argues that its work will lead to the establishment of low cost, wireline quality voice, data, and video services, delivered wirelessly, to pocket-size devices, for use in public and private environments, with a minimum of disruption to fixed microwave users.

have used Omnipoint's equipment have demonstrated that Omnipoint's equipment may be used in either a licensed or unlicensed service. Further, the use of dual mode phones that permit the use of unlicensed frequencies while in business or residential environments and licensed PCS frequencies in public or mobile environments is itself a potential benefit by making efficient use of the available spectrum and providing for equipment use without airtime charges. Further, we disagree with GTE's arguments concerning the timing of Omnipoint's developments relative to our establishment of pioneer's preference rules. Omnipoint has demonstrated that it performed significant new work related to 2 GHz PCS after adoption of the pioneer's preference rules.

61. GTE further contends that the Commission failed to explain why Omnipoint's request should receive a preference in light of deficiencies identified in Omnipoint's two other requests.[73] GTE argues that the Commission's tentative denials of these two requests is inconsistent with the tentative approval of this request because the three filings use the same basic architecture and equipment.

62. Omnipoint replies that the pioneer's preference rules do not provide for a grant to all who use the same technology, but only to those who innovate and do significant work with the technology that leads to a service. Omnipoint asserts that its tentative award, PP-58, should not be linked with the tentatively denied requests, PP-59 and PP-60, because there are obvious fundamental differences among the three proposals. For one, Omnipoint argues that each proposal dealt with a completely different service concept.

63. We conclude that there are substantial differences between Omnipoint's request in PP-58 and the two requests that we tentatively denied. In PP-59 Omnipoint, Oracle, and McCaw proposed a data broadcast service, and in PP-60 Omnipoint Mobile Data Company proposed two-way data communications to mobile devices such as portable computers. We proposed to deny the requests in both PP-59 and PP-60 because the applicants did not demonstrate successfully the technical feasibility of their proposals, or their specific responsibilities for development of identifiable and innovative PCS technologies or services. By contrast, in PP-58 Omnipoint requests a preference for developing 2 GHz spread spectrum equipment that it demonstrated to be capable of being used to provide voice, data, and PCS video services. Omnipoint also demonstrated on the record its

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[73] Omnipoint filed a pioneer's preference request jointly with Oracle Data Publishing, Inc. and McCaw Cellular Communications, Inc. (PP-59); and Omnipoint Mobile Data Company also filed a preference request (PP-60).

responsibility for specific identifiable innovations, as discussed above.

64. Bell Atlantic also disagrees with our tentative approval of Omnipoint's request, stating that Omnipoint's system is based on well-known spread spectrum techniques that have been used in both military and commercial equipment for over twenty years.[74] Therefore, Bell Atlantic argues, neither the concept nor the demonstration of operation at 2 GHz by Omnipoint is innovative. Bell Atlantic adds that SCSM, Digital Spread Spectrum Technologies, Inc. (DSST), and Qualcomm also manufacture 2 GHz CDMA equipment. Bell Atlantic also argues that European companies have designed TDMA PCS systems in the 2 GHz range, and further claims that Omnipoint's TDD/CDMA/FDD is a compilation of existing technologies. Finally, Bell Atlantic asserts that Omnipoint's request lacks substantial field or experimental data to demonstrate operational multicell feasibility.

65. Regarding Bell Atlantic's comments that Omnipoint's equipment is based on well-known spread spectrum techniques, Omnipoint asserts that the spread spectrum technologies and military projects to which Bell Atlantic refers are completely different from its technology. Omnipoint states that its engineers worked on each of the military projects mentioned by Bell Atlantic and that this did provide experience with spread spectrum technology, but that none of these military projects form the basis for a PCS system.[75] Omnipoint asserts that some of the differences are that the military equipment is much heavier than PCS equipment, is not duplex, uses frequency hopping rather than direct sequence techniques, and is high power. Omnipoint also asserts that Bell Atlantic glosses over the significant differences between its system and those of SCSM, Qualcomm, and DSST. Omnipoint claims that it was the first to miniaturize its phone and that it is responsible for integrating TDD with CDMA.

66. Concerning Bell Atlantic's assertion that Omnipoint has not demonstrated an operational system, Omnipoint asserts that several other parties in this proceeding use Omnipoint's equipment and that this demonstrates its technical feasibility. Further, Omnipoint maintains that it has fully demonstrated the systems's operation itself.[76]

67. Based on the record, we conclude that Omnipoint's equipment is innovative and substantially different from that of SCSM, DSST, Qualcomm, and the various military projects for which

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[74] See Bell Atlantic at 13 (January 29, 1993).

[75] Id. at 21.

[76] Id. at 23.

Omnipoint also developed equipment. We are not aware of any other entity proposing or building 2 GHz PCS equipment that allows for both transmit and receive on the same frequency channel (TDD) and multiple users on the same frequency channel (TDMA) while also providing for multiple cells on the same frequency channel by using spread spectrum and associated CDMA technology or by using different frequency channels (FDMA) with CDMA. This combination of FDMA and CDMA is used to provide diversity from one channel to the next. We are not convinced that developments in any of the mentioned military projects are capable of being used for pocket phone PCS. Additionally, we believe that not only has Omnipoint demonstrated the feasibility of multicell operations, but that other entities have used Omnipoint's equipment in various configurations that support our finding of feasibility.

68. Pacific Bell concedes that Omnipoint has made significant contributions to PCS, but argues that Omnipoint's proposed system is inferior to that developed by Pacific Bell.[77] Pacific Bell contends that Bell Atlantic tested both Omnipoint's and Pacific Bell's equipment and the results indicated that Pacific Bell has more sensitive receivers and that its TDMA technology has twice the coverage area and could operate at lower transmitter power.

69. In response to Pacific Bell, Omnipoint states that Pacific Bell's own data do not support its claims when subjected to the same analysis as Omnipoint's system. Additionally, Omnipoint asserts that the test upon which Pacific Bell relies was but one of many at this site, that the site was chosen because of its unusual propagation properties, and further, that Omnipoint's equipment used for the particular test in question contained experimental aspects not part of its current design.[78] We conclude that the record does not support Pacific Bell's claim.

70. Qualcomm claims that Omnipoint has not filed the results of an experiment or tests that validate the performance of its system.[79] Qualcomm also claims that Omnipoint failed to provide a detailed description of its system. It further argues that Omnipoint's interference to microwave facilities analysis is flawed and that a proper analysis would show that there is no significant difference in exclusion zone radius between Omnipoint's system and a narrowband system. Qualcomm states that Omnipoint erred by using average, rather than peak, powers in its calculations of interference to microwave operations, and argues

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[77] See Pacific Bell at 12 (January 29, 1993).

[78] Id. at Appendix 1.

[79] See Qualcomm at 19 (January 29, 1993).

that if Omnipoint's system transmitted the same number of speech bits over the same channel using the same antenna as a CT-2 system, its average power would be comparable to that of the CT-2 system.

71. Qualcomm also asserts that many technical details were omitted from Omnipoint's material, but that given the parameters provided, it appears that Omnipoint's system can provide only eight calls in each cell, using 10 megahertz of spectrum. Qualcomm further maintains that Omnipoint has not developed a working system and therefore would have to use a third party's equipment in order to capitalize on its pioneer's preference.[80]

72. Omnipoint responds that it has demonstrated a functional system, and provides statements from Ameritech, American Portable Telecommunications, Inc. (APT), Cox, SBPC, and Time Warner that each have tested Omnipoint's system. With respect to Qualcomm's assertion that Omnipoint's system cannot coexist with microwave operations, Omnipoint replies that experiments with SBPC disprove this claim.[81] Further, Omnipoint maintains that Qualcomm's assertion that Omnipoint uses average power in its interference analysis is incorrect. Omnipoint states that peak power is used in all of the calculations and coexistence tests.

73. We find no basis to question Omnipoint's interference analysis. Additionally, Omnipoint has demonstrated the technical feasibility of its system. Finally, we do not agree with Qualcomm's assertion that a preference applicant must use only its own equipment for a complete system.

74. Accordingly, we conclude that Omnipoint meets the standard specified in our rules for grant of a pioneer's preference. Omnipoint has demonstrated its role in developing PCS by designing and manufacturing innovative spread spectrum/time division equipment. Omnipoint's handsets also have enabled other entities to develop PCS experimental systems, thereby facilitating experimentation and establishment of this new service. Omnipoint also has proposed a viable service with the flexibility to be implemented in a variety of environments and with capabilities useful to subscribers. Two of these capabilities are the flexibility in assigning time slots to mobile units so that long data messages can be transmitted in a short time, and the ability to switch from licensed PCS frequencies to unlicensed frequencies, thereby permitting subscribers to use the handsets in residential or office environments in a manner similar to that of a cordless telephone. Finally, the rules we are adopting are a reasonable outgrowth of

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[80] Id. at 24.

[81] Id. at 26.

Omnipoint's proposal and reflect Omnipoint's development of equipment in the 1850-1990 MHz band. The technical standards adopted in the PCS Second Report and Order are consistent with experiments performed by Omnipoint and those of several other parties using Omnipoint's equipment. Accordingly, we award Omnipoint a pioneer's preference.

License Block

75. In the Second Report and Order the Commission allocated seven blocks of spectrum for licensed PCS encompassing 120 megahertz at 1850-1890, 1930-1970, 2130-2150, and 2180-2200 MHz.[82] We also adopted regional and local PCS service areas based upon MTAs and Basic Trading Areas (BTAs).

76. APC, Cox, and Omnipoint argue that a 30 megahertz MTA grant is necessary to permit their implementation of the systems they have proposed.[83] APC states that the 10 megahertz BTA blocks at 2130-2200 MHz are too small, expensive, and time-consuming to clear, and require equipment that is costly and not yet available. APC explains that equipment to operate in the 2130-2200 MHz band will not be available until 1997. APC further contends that the crowded nature of the 2130-2200 MHz band precludes the use of some technologies, including CDMA. APC also argues that the 20 megahertz BTA block at 1880-1890/1960-1970 MHz is inadequate in many cities because of congestion. Finally, without regard to the amount of spectrum, APC argues that the economic integrity of the Washington/Baltimore market for which it has applied for a preference would be impaired by granting it any of the BTA blocks because Washington and Baltimore are in different BTAs. According to APC, using current technology, a 20 megahertz BTA block could not be combined with a 10 megahertz block in the 2130-2200 MHz band. APC concludes that grant of only a single 10 or 20 megahertz BTA block would prevent it from implementing the service it pioneered and would be inconsistent with its preference request.

77. Cox contends that preferences should not be awarded in the 2130-2200 MHz band because those specific frequencies have not been the subject of any preference applicant's tests; and that a 20 megahertz BTA grant would preclude fully developing its service in the 1850-1990 MHz band. Cox states that it performed studies of microwave congestion in the 1850-1990 MHz band and contends that from these studies it determined that 40 megahertz

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[82] See Second Report and Order, supra note 10.

[83] See APC letter of September 27, 1993 to Chairman Quello and Commissioners Barrett and Duggan; Cox letter of September 28, 1993 to Chairman Quello and Commissioners Barrett and Duggan; and Omnipoint letter of September 29, 1993 to Acting FCC Secretary William F. Caton.

is the minimum necessary to bring a fully functional range of PCS to the public.[84] Further, Cox maintains that given the nature of the mobile communications market, wide service areas such as MTAs will best serve customers. Finally, Cox states that Commission award of a preference other than a 30 megahertz MTA would not ensure enough spectrum for an innovator to provide service.

78. Omnipoint asserts that the 2130-2200 MHz band is virtually unusable with its system design; and that its system is optimized for use at 1850-1990 MHz with a total of 30 megahertz or more per operator. Omnipoint states that in its June 25, 1992 filing with the Commission it specified that it required such a spectrum assignment. It maintains that its system has been designed to co-exist with 5 and 10 megahertz microwave links at 1850-1990 MHz, rather than 800 and 1600 kilohertz links at 2130-2200 MHz; and argues that all of the key RF components in its equipment would have to be different to operate at 2130-2200 MHz. Omnipoint states that while its system can operate in the 2400-2483 MHz Part 15 unlicensed band, as well as in the 1850-1990 MHz PCS band, it is not designed to operate between 1990-2400 MHz. Further, it states that its system is designed to be used in a three frequency reuse pattern to obtain the economic benefits of its innovations, and that such a reuse pattern requires at least 30 megahertz.

79. Cablevision, Southwestern Bell Corporation (SBC), and Fidelity Investments and Cylink Corporation (Fidelity/Cylink) disagree that a 30 megahertz MTA license should be awarded pioneers.[85] Cablevision contends that the Commission's challenge is to fit pioneer's preference awards into the PCS structure, rather than accommodating the desires and expectations of the preference grantees. According to Cablevision, this can best be accomplished by awarding pioneers the 20 megahertz BTA block at 1880-1890/1960-1970 MHz. Cablevision maintains that a 10 megahertz block at 2130-2200 MHz would unfairly marginalize the contribution made by the grantees at 1850-1990 MHz, but that a 20 megahertz BTA block would permit the grantees to use the band in which they have conducted experiments, while not

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[84] Cox notes that 2 GHz PCS licensees may aggregate spectrum up to 40 megahertz in a geographic area; see Second Report and Order, supra note 10, 8 FCC Rcd at 7813.

[85] See Cablevision letter of October 5, 1993 to Chairman Quello and Commissioners Barrett and Duggan; SBC letter of October 14, 1993 to Chairman Quello and Commissioners Barrett and Duggan; and Fidelity/Cylink letter of October 8, 1993 to Acting FCC Secretary William F. Caton. Cablevision filed a pioneer's preference request in this proceeding, see PP-10, and subsidiaries of SBC and Fidelity/Cylink also filed pioneer's preference requests, see, respectively, PP-17 and PP-42.

conveying a windfall 30 megahertz MTA block that could have a preclusive effect on other licensees. SBC concurs, stating that a 20 megahertz BTA block would be enough spectrum to provide adequate PCS service.[86]

80. We find the arguments of APC, Cox, and Omnipoint persuasive. Each applicant conducted experiments in the 1850-1990 MHz band, not in the 2130-2200 MHz band. An award in the lower band is appropriate and will ensure that the grantees can implement the services they have proposed. While we continue to believe that the upper band has the potential to provide a variety of important PCS services, APC, Cox, and Omnipoint have designed their systems and conducted their experiments in the 1850-1990 MHz band. Further, we are not convinced that a 20 megahertz BTA grant would be adequate, given the nature of the systems proposed.[87] Accordingly, we are awarding each pioneer a 30 megahertz MTA block in the area each requested. If otherwise qualified, APC will be licensed to use Channel Block A in the MTA that includes Washington, D.C. and Baltimore, Maryland; Cox will be licensed to use Channel Block A in the MTA that includes San Diego, California; and Omnipoint will be

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[86] Fidelity/Cylink argue that a 10 megahertz BTA block at 2130-2200 MHz would be adequate because such a block would enable the provision of full-featured PCS, as well as many specialized PCS services. Fidelity/Cylink contend that the paramount technical challenge in the design of PCS spread spectrum radios is the development of the digital baseband, and not the design of the radio frequency segment, and accordingly use of the 2130-2200 MHz band is not a substantial limiting factor. Fidelity/Cylink state that while design of a common antenna to serve both the 1850-1990 MHz and 2130-2200 MHz bands would require significant technical effort, this effort is not insurmountable. Further, according to Fidelity/Cylink, a common antenna is not necessary to realize the benefits of an allocation at 2130-2200 MHz. Fidelity/Cylink assert that a 10 megahertz block in this band can, with the use of emerging technologies such as Synchronous CDMA/FDMA/TDD, achieve greater system capacity than an existing 25 megahertz cellular radio block.

[87] Additionally, we note that in our Notice of Proposed Rulemaking on competitive bidding we proposed to set aside the 20 megahertz BTA block for small businesses, rural telephone companies, and businesses owned by minorities and women. See Implementation of Section 309(j) of the Communications Act Competitive Bidding, PP Docket No. 93-253, Notice of Proposed Rule Making, 8 FCC Rcd 7635 at 7655 (1993).

licensed to use Channel Block A in the MTA that includes northern New Jersey.[88]

Pioneer's Preferences Denied

81. American Portable Telecommunications, Inc. (PP-7). APT requests a pioneer's preference for having integrated traditional paging service with a proposed PCS service providing CT-2 type voice communications with one-way alpha-numeric messaging. APT names its service Enhanced Personal Message Service (EPMS). APT states that EPMS is designed to provide: 1) improved control by users over incoming and outgoing messages; 2) enhanced functions, including call forwarding and redirecting of calls; 3) improved spectrum efficiency over existing and proposed PCS systems; and 4) cost savings over existing and proposed PCS systems. APT also states that its system will take advantage of digital compressed voice in combination with EPMS to provide additional services.

82. In APT's proposed system the customer would receive a paging message on a 900 MHz paging channel. The customer could acknowledge the page by making a connection over a PCS channel, or have the EPMS redirect the call. APT maintains that its proposal constitutes a new service because it combines digital communications using PCS with a two-way messaging or acknowledgement capability. APT calls this its "message back" feature.[89] APT claims that its proposal is innovative because its enhanced messaging service would permit users to exercise control over incoming and outgoing message traffic.

83. In comments on APT's pioneer's preference request, GTE states that the request should be denied because it is grounded in outdated CT-2 technology. GTE states that APT's proposed PCS system will be capable only of providing two-way voice communications near microcell base stations. As such, according...

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[88] To provide certainty to other parties that may be preparing analyses for 30 megahertz MTA channel blocks we are designating the specific spectrum and geographic areas for the pioneers. Each grantee, if otherwise qualified, will be licensed for Channel Block A, 1850-1865 and 1930-1945 MHz, in the MTAs noted supra. The existing pioneer's preference rules will apply to these license grants, see note 2 supra. The existing pioneer's preference rules do not contemplate payment for the value of the spectrum awarded, see 47 CFR § 1.402; First Report and Order, ET Docket No. 93-266, supra note 2, at note 23. Therefore APC, Cox, and Omnipoint will not be required to pay any spectrum-based charge for the grants.

[89] APT defines "message back" technology as that which provides a two-way acknowledgement of a page and its "meet me" concept as that which allows immediate connection between the person initiating the page and the user.

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