There are many other appropriate forms of interconnection. Digital forms of interconnection, perhaps based on ISDN Basic Rate Interface and Primary Rate Interface, may be desirable in some cases. Some PCS systems may be best served by interconnection based on IS-41 (the interface standard used for inter-cellular system signalling), or other specialized signaling arrangements that may be supported by Signaling System 7 networks. Other PCS systems may need only standard business telephone lines. In any event, any PCS provider should be entitled to obtain service identical to those already provided to end users, and cellular, paging and interexchange carriers, under common rates, terms, and conditions.

Specific interconnection interfaces, and the information to be exchanged over these interfaces, are currently being defined by Committee T1 and TIA Committee TR45.4. Telocator has also taken an active role in defining the service requirements for PCS. All industry sectors have been committed to this effort, including local exchange carriers, interexchange carriers, manufacturers, cellular and paging carriers, and potential providers. U S WEST strongly supports and actively participates in the work of such organizations.

III. LOCAL EXCHANGE CARRIER ELIGIBILITY IS IN THE PUBLIC INTEREST

The competitive market structure U S WEST has advanced for the delivery of a wide variety of PCS services would be enhanced by an open eligibility policy. Giving all potential participants the opportunity to hold PCS licenses will further the values of universality, speed of deployment, diversity of services and competitive delivery. This approach includes eligibility for LECs without any restriction on the geographic areas they may serve.

The Commission has acknowledged the tremendous success of its regulatory approach in cellular. [30] Cellular service has grown from a zero base to nearly nine million customers in ten years, confounding the predictions made when it started. Cellular carriers have introduced a variety of new technologies at a rapid pace at the same time as prices for service and equipment have plummeted. This has occurred with the vigorous participation of a wide variety of suppliers, including telephone companies, cable television operators, publishers, and independent entrepreneurs. Without this diverse mix of providers, it is questionable whether cellular would be the success it is today.

It would be unfortunate if the Commission were to ignore this experience when developing policies for PCS. All potential providers should be encouraged to contribute their unique approaches to making PCS a universal, diverse array of services that will meet a wide variety of customer needs.

Permitting and even encouraging telephone companies to compete in providing PCS, together with all other potential providers, would be consistent with a long line of Commission precedent in establishing new services. Even though new services have the potential to create increased competition for existing service providers, the Commission has repeatedly chosen to allow the existing service providers to participate. For example, the Commission gave television broadcasters the right to provide High Definition Television service. [31] It allowed telephone companies and cable television operators to provide

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[30] *See NPRM,* 7 FCC Rcd. at 5678, ¶ 2.

[31] *Advanced Television Systems*, MM Docket 87-268, *Second Report and Order / Further Notice of Proposed Rulemaking,* 7 FCC Rcd. 3340 (1992), *recon. in part on other grounds,* FCC 92-438 (released Oct. 16, 1992).

"wireless cable" service when MMDS was authorized. [32] Likewise, it refused to bar telephone companies from providing Digital Electronic Message Service. [33] When it authorized cellular service, the Commission considered carefully whether to exclude telephone companies because of the potential for competition with wireline telephone service, and concluded that telephone company participation was essential. [34] In *none* of these or many other instances were existing service providers denied the opportunity to participate in the new service or to take advantage of a new technology simply because of their status as an existing service provider. Likewise, the Commission should open PCS eligibility to all companies that have a valuable contribution to make.

A. Local Exchange Carrier Affiliation with Cellular Carriers Should Not Bar Eligibility

There is no plausible basis for barring telephone companies from PCS simply because their affiliates may provide cellular service in the same areas. First, PCS and cellular service are different. While cellular is one form of "existing personal communications service" in a generic sense, the new PCS licensees will have the ability to offer a wide variety of voice and data services, many of which are currently unavailable. The Commission realized as much when it repeatedly contrasted "cellular service" with "PCS-type services". [35] That is why the Commission acknowledged that "PCS and cellular licensees,

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[32] *Instructional Television Fixed Service,* Gen. Docket 80-112, *Notice of Inquiry and Proposed Rulemaking,* 45 Fed. Reg. 29, 350 (April 1980); *Report and Order,* 94 FCC 2d 1203 (1983); *recon.*, 98 FCC 2d 129 (1984).

[33] *Digital Termination Systems,* 86 FCC 2d 360 (1981), *recon. in part,* 90 FCC 2d 319 (1982).

[34] *Cellular Communications Systems,* CC Docket 79-318, *Notice of Inquiry and Notice of Proposed Rulemaking,* 78 FCC 2d 984 (1980); *Report and Order,* 86 FCC 2d 469 (1981), *recon. in part,* 89 FCC 2d 58, *further recon.,* 90 FCC 2d 571 (1982), *pet. for review dismissed sub nom. United States v. FCC,* No. 82-1526 (D.C. Cir. 1983).

[35] *E.g., NPRM,* 7 FCC Rcd. at 5704, 5712, ¶¶ 70, 94.

. . . while not offering an identical package of services, will compete on price and quality."[36] In other words, there will be some customers whose needs can be served by either, but the services will in fact be different.

Second, it would be both impractical and inequitable to bar LECs from eligibility for PCS licenses because of their presumed ability to use cellular spectrum licensed to their affiliates. The current structural separation rules in Section 22.901 of the Rules require full separation of a Regional Holding Company's ("RHC") telephone company and cellular operations. Thus, a telephone company could not use its affiliate's cellular spectrum for its own provision of PCS services.

The Commission has suggested that relaxation of the Part 22 separation requirements may be in order to allow local exchange companies of the RHCs to use cellular affiliate spectrum for the provision of PCS. U S WEST believes that eliminating the structural separation rules would *not* facilitate access to cellular spectrum by the telephone companies because of the structure of the cellular industry. [37] Most telephone company-

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[36] *Id.* at 5701, ¶ 63.

[37] From a priority perspective, U S WEST believes the public would benefit far greater from removal of the MFJ interLATA restriction for RHC cellular services than from modification of the existing cellular separation rules. Those MFJ restrictions are a significant impediment to the efficient, cost-effective, competitively-priced delivery of existing RHC cellular services. Non-RHC cellular carriers can buy interexchange service in bulk and bundle it with local air time so that customers avoid paying retail long-distances rates. However, the MFJ interLATA restrictions prohibit cellular affiliates of the RHCs from extending these services to their customers. RHC affiliated cellular customers pay $200 million a year because of MFJ decree restrictions that prevent the RHC affiliates from buying long-distance service in bulk and bundling that service with local airtime. Where two competitors are free of the MFJ restrictions and allowed to compete on an even footing, the unfettered rivalry saves American consumers millions of dollars. Accordingly, the RHCs have sought relief from the MFJ's interLATA restrictions for cellular service. *See* Motion for Removal of Mobile Services from the Scope of the Interexchange Restriction and Equal Access Requirements of Section II of the Decree, *United States v. American Tel. & Tel. Co.*, 552 F. Supp. 131 (D.D.C. 1982) (filed December 31, 1991).

affiliated cellular licensees are limited partnerships. Thousands of telephone companies, small and large, hold interests in such partnerships, either directly or through affiliates. For example, NewVector holds an interest in 89 cellular markets. Of these, 79 licenses are held by partnerships, mostly limited partnerships. No partner has the right to use the partnership's spectrum for its own purposes. Under these circumstances, a telephone company will simply not have access to cellular spectrum for offering PCS in the vast majority of cases.

As discussed above, U S WEST believes the public interest would be served by licensing one of the PCS frequency blocks on the basis of Major Trading Areas. However, a major inequity would result if telephone companies were ineligible to apply for these areas merely because of the presence of an affiliated cellular company in a given Major Trading Area. In many cases, telephone companies have no cellular presence, either directly or through affiliates, in large portions of Major Trading Areas where they offer telephone service. An interest in a cellular licensee covering a remote portion of a Major Trading Area would potentially disqualify a telephone company from PCS eligibility in the entire Major Trading Area. For example, NewVector has no cellular ownership interest in 86 MSA/RSA markets within the fourteen-state U S WEST region, yet it has some cellular presence in at least a portion of all of the Major Trading Areas in that region. Thus, if telephone companies are rendered ineligible from PCS in Major Trading Areas where they have cellular interests, USWC would be ineligible throughout its entire fourteen-state region.

Even if MSA/RSA licensing is used for PCS, as with cellular, it would be unreasonable to bar telephone companies from PCS licenses because of their cellular holdings, particularly since these holdings are organizationally and physically separated from telephone company operations. As noted above, telephone companies' affiliated cellular holdings are generally structured as partnerships; an RHC's participation in such

partnerships is through its fully separated cellular subsidiary. U S WEST's fully separated cellular subsidiary, NewVector, has minority or limited partnership interests in many cellular systems throughout the U S WEST region. Thus, if affiliation with a cellular carrier were a bar to LEC eligibility, USWC would be ineligible for PCS involvement in large areas within its region simply because it is affiliated with a cellular carrier which may have only a minority passive interest. For example, NewVector only has a 7.6% limited partnership interest in a cellular system serving Portland-Salem, Oregon. U S WEST submits that USWC, its local exchange carrier subsidiary, should not be prohibited from applying for a PCS authorization to serve Portland simply because its structurally separated sister company, NewVector is, in turn, a limited partner in the Portland-Salem cellular partnership.

Ultimately, the notion that a local exchange carrier should be barred from providing PCS services because of affiliation with a cellular provider appears to be based on unproven and unfounded fears of anticompetitive behavior. Speculative concerns — the *possibility* of improper cross-subsidization or denial of interconnection — cannot form a reasoned basis for exclusion of local telephone companies from PCS. To deter potential anticompetitive activity in PCS, the Commission could instead adopt reasonable non-structural safeguards. [38]

Finally, the Commission must weigh the considerable benefits of local exchange carrier participation in deciding whether they should be eligible. The local exchange companies have unequalled telecommunications experience and performance, and they are

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[38] The answer to the advocates of limited entry is adoption and enforcement of regulations assuring a competitive and fair PCS marketplace. This is certainly achievable, as has been demonstrated by the Commission in the past. U S WEST believes that the Commission's current nonstructural safeguards for enhanced services under CI III are the most appropriate and effective regulatory safeguards for any new services, such as PCS, offered by the RHCs. Structural separation is not, and should not be, required for PCS for the same reasons as those set forth in CI III for enhanced services.

fully committed to delivering telecommunications services of the highest quality to a mass consumer and business market over the long term. The telephone companies have facilities in place now that form the basis for PCS infrastructure, and they should be encouraged to develop their networks in a PCS-friendly manner. Prohibiting telephone companies from holding PCS licenses in areas where they have local exchange network infrastructure in place will lead to PCS being more expensive and less competitive than if they are eligible for PCS licenses and therefore encouraged to develop their networks suitably for support of PCS.

As U S WEST has emphasized in previous filings with the Commission, the PCN experience in the United Kingdom bears this point out. In the U.K., British Telecom ("BT"), the principal operator of the public switched network, was deemed ineligible for a PCN license. Furthermore, the PCN licensees were expected to provide some degree of competition with BT's network. In part because of regulatory constraints, PCN providers were unable to take advantage of BT's network to support their PCN infrastructure requirements. Accordingly, they designed their own independent infrastructure for the delivery of PCN services. However, the cost of a stand-alone PCN support network was so high that U S WEST's PCN operation has since merged with another PCN licensee and is developing a single infrastructure. In sum, the U.K. PCN licensees' inability to rely on the existing infrastructure provider for support of their PCN efforts resulted in a less competitive PCN market structure, with only two providers, instead of three.

Given the cost and complexity of the infrastructure that will be needed to support PCS in the United States, as well as the Commission's goals of competitive delivery and diversity of services, PCS licensees will need to take advantage of existing networks as a major part of their system infrastructure. The Commission recently stated:

> We believe that the use of embedded plant to carry PCS signals, whether the plant belongs to cable television, interexchange

> carriers, private utilities, railroads, switched telephone networks, or others, is highly efficient. [39]

To minimize costs, and thereby maximize their ability to meet the demands of customers, licensees will find it beneficial to share infrastructure through use of various in-place public and private networks.

The participation of multiple existing network providers, including cable operators, local exchange carriers, competitive access providers, and other facilities-based public and private carriers in developing the infrastructure for PCS is critical to the timely and cost-effective deployment of new PCS products and services. This is true not only because one network or another may be best suited for a particular part of the PCS infrastructure, but also because the availability of competitive sources of supply will both minimize cost and maximize the options available to a PCS licensee. This will allow a wide range of services to be offered that best satisfy the customer at the lowest cost.

The fashioning of a PCS infrastructure from both existing and yet-to-be-deployed facilities will require substantial planning, upgrading of facilities, and installation of new plant, regardless of whose network is involved. This will involve significant technological development and capital investment spanning several years. Existing infrastructure providers should be encouraged to undertake these efforts to develop new facilities for PCS support by allowing them to participate in providing PCS services themselves. In the *NPRM*, the Commission recognized that —

> there may be significant economies of scope between PCS and the local exchange carrier wireline network which would not be

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[39] *New Personal Communications Services*, Gen. Docket 90-314, *Tentative Decision and Memorandum Opinion and Order,* FCC 92-467 at ¶ 18 (released Nov. 6, 1992) *(PCS Tentative Decision).*

> realized if local exchange carriers were prohibited from providing PCS service within their current wireline services areas. [40]

For this reason, the Commission tentatively concluded that there is a "strong case" for allowing local exchange carriers to provide PCS within their service areas. [41]

U S WEST submits that the Commission's tentative conclusion is entirely correct: open eligibility — for telephone companies and *all* other potential providers — is the best policy. The Commission recently awarded a pioneer's preference to a cable television company for demonstrating the suitability of cable plant for a PCS infrastructure, stating, "cable's use will promote immediate and inexpensive PCS service to the public because embedded plant already exists in most areas." [42] The same can be said of telephone companies and many other potential infrastructure providers. To encourage the development of multiple competitive sources of PCS infrastructure, the Commission should take an even-handed approach and encourage all potential providers, not only cable, by adopting an open eligibility policy. Open eligibility will allow a wide variety of providers to benefit consumers through the unique contributions they can make, based on their differing perspectives, their experience, and any economies of scope and of scale they have to offer.

B. Competition in the Local Exchange Market Supports Eligibility for LECs

Local telephone companies should be eligible for PCS because they need access to emerging technologies in order to continue providing improved local services in an

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[40] *See NPRM,* 7 FCC Rcd. at 5705, ¶ 73. The Commission also noted that local exchange companies would not in any case be restricted from PCS license eligibility outside their service areas. *Id.* at 5706 n.52. Because there does not appear to be any conceivable rationale for imposing such a restriction, U S WEST will not address out-of-region eligibility in these comments.

[41] *See NPRM,* 7 FCC Rcd. at 5705, ¶ 75.

[42] *PCS Tentative Decision, supra* note 39, at ¶ 18.

increasingly competitive local service environment. Local exchange carriers must have the tools needed to build a competitive network that will meet the needs of customers in years ahead.

Competition at the local exchange level is growing rapidly. There is no more local exchange monopoly. The Commission has held that local exchange companies must allow their competitors both to install equipment on or near phone company property, and to interconnect using leased private lines. [43] Comcast, a cable television operator, recently demonstrated its ability to place phone calls to different cities without using the facilities of local telephone companies. Commissioner Barrett has noted that Teleport, a Chicago competitive access provider, has "announced that their 'ultimate goal is to become the second phone company in the Chicago area . . . and all the other areas in which we now operate.'" [44] In U S WEST's own region, Oregon uses a state-owned educational network system to bypass USWC facilities, and Iowa has nearly completed a communications network that will result in significant bypass of USWC.

These are but a few examples of growing local competition which are causing local exchange carriers, and the Regional Holding Companies in particular, to undergo a substantial transition. Access charges, which represent approximately 25% of the revenues of the former Bell companies, are falling and will continue to fall. The availability of capital and other means of underwriting the cost of expansion are shrinking. In addition, the RHCs have been unable to free themselves from the regulatory, judicial and legislative restraints which prevent them from launching new services. As noted in a recent business magazine

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[43] *See Expanded Interconnection,* CC Docket No. 91-141, *Report and Order and Notice of Proposed Rulemaking,* FCC 92-441 (released Oct. 16, 1992).

[44] Remarks of Commissioner Andrew C. Barrett before the Institute of Public Utilities of Michigan State University, December 9, 1991, at 8 (*quoting* a Nov. 22, 1991 Wall Street Journal article).

article, the RHCs, with their basic business eroding, face an "uncertain and rocky future", and, while they are "fighting back", they "have one hand tied behind them." [45]

At the same time, cable television operators and other competitors are not so restricted in entering new markets. [46] AT&T and other long distance providers are free to enter into PCS ventures with cable television systems, partner with alternative fiber-optic networks, and collaborate with cellular service providers. Indeed, AT&T has announced its intention to become part-owner of the nation's largest cellular operator, McCaw Cellular. [47] The Wall Street Journal reported that:

> [AT&T Chairman] Allen envisions using the McCaw network to offer what would become common telephone service via pocket-size wireless phones. If AT&T is successful, it could cut the hefty fees it pays to local phone companies to complete calls and

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[45] Gary Slutsker, *What Should We Be?* Forbes, Sept. 28, 1992, at 132.

[46] John J. Keller, *Investment Insights: Securities Analysts Offer Their Advice on Where Your Money Should Go,* Wall Street Journal, May 18, 1992, at R15. Many studies and press accounts discuss telephone service opportunities for cable operators. *See e.g.,* L. Gitten, E. Albagli & C. Walker, Planning CATV-Based Personal Communications Networks, 1992 NCTA Technical Papers 129; A. Paff & R. Pitcock, Technical Implications of Alternative Access and the Cable Operator, 1992 NCTA Technical Papers 136; G. Hart, Cost Effective Cable Television Transport for PCN, 1992 NCTA Technical Papers 148. Cable operators are rapidly upgrading their networks to stay competitive in program choices and to increase the reliability of their networks. They will bring fiber optic cable, with its large transport capacity, into neighborhoods. The fiber optic will then be connected to *existing* coaxial drops, which have much greater capacity than telephone company copper loops. Their network architecture will use the same star-on-ring topology that the LECs use in their state-of-the-art deployments. Once the first phase of these upgrades is implemented, personal communications can be offered for small incremental investments.

[47] Last week, AT&T announced that it plans to acquire a 33% interest in McCaw Cellular Communications, Inc. so as to increase its ability to enter new wireless service markets. In fact, AT&T will have options to acquire greater control of McCaw in the future. John J. Keller and Randall Smith, *AT&T, Seeking to Enter the Cellular Era, In Talks for 33% of McCaw for $3.73 Billion,* Wall Street Journal, Nov. 5, 1992, at A3.

> could use the savings to reduce rates and squeeze its competition. [48]

Given these developments and the clear trend toward even more local competition, there clearly is no factual basis to the argument that local exchange carriers should be excluded from PCS eligibility for competitive reasons. Indeed, that argument is now outdated, having been overtaken and overwhelmed by recent developments.

Perhaps most importantly, the use of advanced technology is increasingly needed to improve and expand local exchange offerings. As the Commission has recognized, PCS can be integrated with the local telecommunications infrastructure, achieving economies of scope and of scale in providing both basic exchange and specialized service. [49] For example, using PCS technology for the "last mile" of the local loop can provide service in some areas of equal quality to wired facilities, but at greatly reduced cost. The use of wireless technology will also facilitate the introduction of less expensive and more diverse services to rural areas. In a competitive environment, USWC and other providers of local exchange service must have the ability to use the best technology available in providing service that will be competitive in cost and quality.

In sum, the public interest would not be served if the Commission denies local telephone companies the ability to become PCS licensees, particularly in the places where they already provide local exchange services. Such a decision would be inconsistent with the Commission's more inclusive approach to new-service competition, would exclude entities capable of competing and providing quality services at reasonable prices, and would be "consumer unfriendly" by restricting unnecessarily the telephone companies' ability to

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[48] Mary Lu Carnevale, *AT&T-McCaw Link Stuns Baby Bells,* Wall Street Journal, Nov. 6, 1992, at B1.

[49] *See NPRM,* 7 FCC Rcd. at 5705, ¶¶ 73-75.

continue providing an expanding array of services at affordable prices to the American public. As Chairman Sikes has recognized:

> [L]egislators and regulators should err on the side of freedom. Sure, market power still exists. And, I for one, know that regulation has a place. But, cartel management aimed at making the strong weak or at least weaker will not work. Simply stated, there will be and there must be room for the big and the small but not at the expense of throttling development of the nation's communications infrastructure. [50]

C. United States Trade Policy Supports Eligibility for Local Exchange Carriers

The United States policy position on international telecommunications, which advocates the abolition of monopolies in telecommunications services and equipment, provides additional justification for telephone company eligibility to provide PCS services. [51] Part of this policy is an acknowledgement and acceptance that many foreign governments want to retain the economic viability of their basic telephone providers, while at the same time create a competitive telecommunications environment. As a result, United States telecommunications companies have been able to pursue opportunities abroad in new value-added telecommunication services such as PCS, cellular and other ancillary services, and the basic telephone providers in these nations have also been allowed to compete in the emerging services markets so as to maintain their financial viability.

The United States effort in this respect has been successful in that it has reaped benefits for American companies in the form of new opportunities overseas and

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[50] Remarks of Alfred C. Sikes, Chairman, Federal Communications Commission, before the USTA Annual Convention, New Orleans, Louisiana, Oct. 6, 1992, at 6.

[51] Reference to U.S. trade policy is clearly appropriate here. The *NPRM* expressly identified "international considerations" as a basis for establishing the PCS service. *See NPRM,* 7 FCC Rcd. at 5688, ¶ 28. Further, the Commission repeatedly referenced the international implications of the new service. *See, e.g., NPRM,* 7 FCC Rcd. at 5679, 5681, 5683-84, 5687-88, ¶¶ 8, 11, 15, 17, 23, 27.

increased exports of telecommunications technology. By way of example, U S WEST has benefited through its involvement in Mercury Personal Communications, which will become the first operational PCS provider in the United Kingdom next year, and its equity position in a number of cable systems offering basic telephone service in that country. [52]

U S WEST believes that prompt adoption by the Commission of a fair and comprehensive set of PCS regulations that encourage local exchange carrier participation in PCS will assure that United States companies, such as U S WEST, will continue to develop the expertise needed to compete effectively overseas, as well as domestically, in the emerging wireless services market. United States trade policy has achieved an accommodation between the dual objectives of retaining the economic vibrancy of the basic provider and promoting a competitive environment. U S WEST recommends a like policy to the Commission and submits that unrestricted eligibility of local exchange carriers to provide PCS services is an absolute essential to such a policy.

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[52] The United States trade policy has also been beneficial to joint ventures between United States companies and Eastern European countries. A number of U.S. companies are partners with Eastern European governments in updating their telecommunications systems and in offering new services. U S WEST has pioneered this effort by constructing and operating the first cellular system in Hungary and by assisting in similar efforts in the Czech and Slovak Republics, Moscow, St. Petersburg and elsewhere. Other United States companies, including other RHCs, cellular carriers, and manufacturers, have been similarly successful.

IV. CONCLUSION

For the foregoing reasons, U S WEST respectfully suggests that the Commission adopt PCS regulations consistent with the suggestions contained herein.

Respectfully submitted,

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November 9, 1992

Interactive PCS Model
Description as of November 6, 1992

U S WEST has developed a model to test the economic viability of the PCS market in general and a single PCS Licensee in particular under various demand and cost assumptions. The model's underlying assumptions are:

a) Bellcore's FA Technology, i.e., low power microcellular system with wireline voice quality and slow-speed hand-off on a LEC architecture.
b) Licensee "owns" radio ports, radio port control unit, switched and PSTN connection, but "purchases" transport from the LEC.

The model can be broken down into four major input modules; Demand, Operating Cost, Capital Cost and Financing and one output module. Below we identify specifically the assumptions and inputs required for each module.

INPUT MODULES:

1. DEMAND:
In this module, the user has the ability to develop a number of demand curves given different assumptions around:

a) how large the market is at maturity, i.e. 10 year saturation/penetration given pricing and product functionality; and
b) how quickly the market reaches maturity, i.e. diffusion.

U S WEST's research and other secondary studies are the foundation for the different assumptions around market size and market diffusion.

2. OPERATING COST:
These costs are built up given overall product demand and capital required to support demand, and are based on U S WEST research of cellular and LEC support organizations. This does not contain any user input or override options.

3. CAPITAL COST:
Capital costs are a function of market data on cities with populations ranging from 50 thousand to 3 million and density equal to or greater than 250 people/square mile. This provides the analog for cities of similar size and density.

4. FINANCING:
Allows the user to vary assumptions related to capital structure, interest rates on expense and income and weighted cost of capital.

OUTPUT MODULE:
This section calculates:

a) Free cash flows used for valuation purposes
b) Net Present Value and Internal Rates of Return
c) Cumulative Cash Flow Break Even Point
d) Number of Licensees supported at Net Present Value = 0
e) Sensitivity Analyses

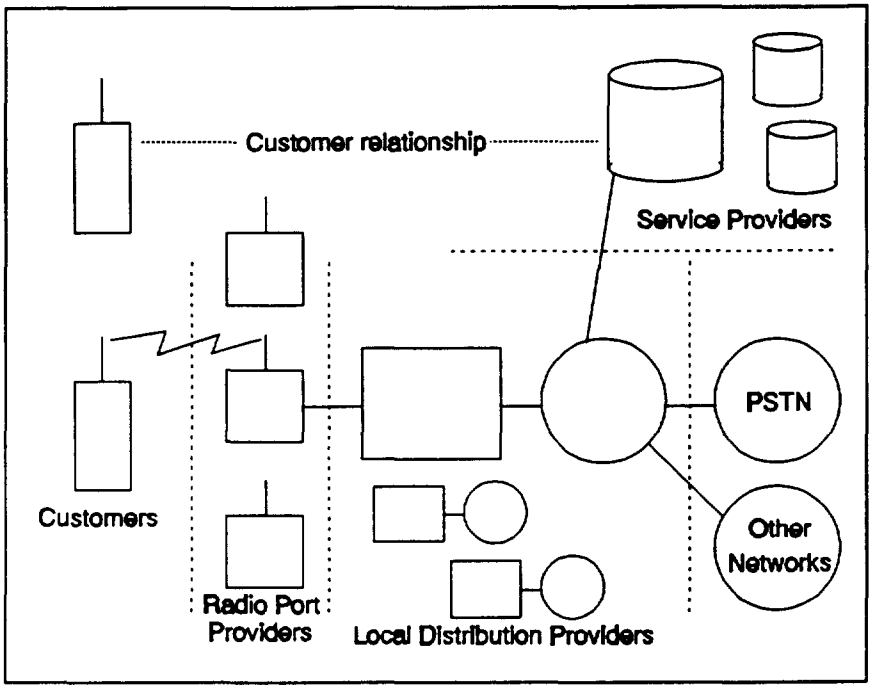
COMMODITY PCS

As an alternative to granting exclusive licenses for use of blocks of spectrum in designated geographic license areas, U S WEST has considered a "commodity" approach for PCS that will permit open entry with very minimal regulatory involvement. While U S WEST has proposed that the Commission adopt exclusive licensing, it nevertheless presents the Commodity PCS approach for comment and consideration.

What is Commodity PCS?

Commodity PCS is an alternative way of providing PCS that maximizes reliance on market forces to determine how service is delivered. There are no exclusive licenses, no predetermined number of providers, and no government-established service areas. The FCC would not adopt regulations that take the place of market forces but would instead adopt regulations that would allow an essentially unregulated market to function. PCS would truly be a commodity that could be offered by anyone, virtually anywhere, with a market structure competitive at each level, determined by private investment of capital and expertise instead of FCC regulations.

There are at least three separate levels at which competition could occur under the Commodity PCS model: (1) operation of "radio ports" or base stations; (2) operation of the local distribution facilities functioning as the infrastructure linking base stations with the public switched network and other networks; and (3) establishing relationships with customers for providing Commodity PCS service. These separate functions are delineated in the diagram below.



The key to commodity PCS is a common air interface ("CAI") that ensures the peaceful coexistence of a multitude of PCS radio ports operated by any number of providers. With a CAI designed to prevent interference among PCS radio ports and between PCS and microwave, there would be no need for limiting the number of providers. There would also be no need for establishing defined service areas. The CAI would allow any number of providers to offer PCS radio access in locations that they themselves decide upon.

Providers could conceiveably operate a single radio port or thousands, covering territories ranging from small — a building lobby, the area surrounding a convenience store, or a business or residential district — to large — a metropolitan area, a large region, or nationwide. Each company would scale the area it serves, and the number of radio ports it operates, to the investment it is willing to make.

Each radio port would be connected to a PCS support infrastructure that would link a variety of radio ports together with the public switched network and other

networks and provide the switching, network intelligence, billing, and validation services needed to make PCS a *service* and not merely a radio transmission technology. This infrastructure might be provided by a number of different vendors to the owners of radio ports, including telephone companies, cable television operators, competitive access providers, public utilities, and others. There would be as many or as few providers of this infrastructure as there are companies willing to make the investment of capital and expertise. These "local distribution providers" would compete to sign up radio port operators for their networks. As with radio ports, there would be no regulatory limit on the area served by local distribution providers; some companies might provide local distribution service within a limited area, such as a residential community or a campus, while others might serve metropolitan, state-wide, regional, or larger areas.

Finally, the actual marketing and provision of service to customers would be competitive as well. The retailers of service to customers ("service providers") would enter into agreements with local distribution providers for customers' access to the radio ports connected to their networks. They would then market this service to their customers. The most likely companies to become service providers are companies with considerable capabilities for marketing services directly to customers, such as credit card companies, interexchange carriers, and enhanced service providers, in addition to some of the same companies likely to be local distribution providers.

In short, Commodity PCS is a concept that uses a technical standard to make PCS a commodity delivered in a largely unregulated marketplace, competitive at each of several different levels, just as the personal computer became a commodity when IBM established a compatibility standard, allowing competition to develop in many different sectors, including peripherals, software, memory boards, and other hardware.

Technical implementation of Commodity PCS

Under the Commodity PCS approach, the Commission would allocate a substantial block of spectrum for nonexclusive usage. U S WEST suggests that one or more 25 MHz blocks would be appropriate for this purpose.

The use of this spectrum would be governed by a common air interface developed by a recognized industry standards-setting body. It would apply to all transmitting equipment, including base stations and portable or mobile units, all of which would have to comply with the CAI to be type accepted by the Commission. The CAI would be designed to ensure that transmitters follow a standardized protocol not only for network access but also for frequency selection and interference prevention. The CAI would contain provisions for dynamically assigning frequencies among multiple base stations of competing service providers within a small geographic area. Thus, the use of an appropriate CAI would provide for equitable channel allocation and minimum co-channel interference criteria that would be administered by each base station. The same CAI could also be used in the adjacent bands earmarked for unlicensed private PCS operations.

In addition to the open entry and CAI, Commodity PCS would be facilitated by the standardization of open interfaces between radio ports, local distribution facilities, switches, and databases. Industry groups are already working to define network interfaces and a low-power CAI. With viable standards for network interfaces, any number of vendors can participate in the market. Both system operators and end users would benefit from increased vendor diversity and greater compatibility among both networks and individual network elements.

It may not be necessary to license the transmitters, since there would be no exclusivity conferred by a license, and interference would be avoided by adherence to the

CAI. If necessary, however, providers could be required to submit to the Commission an application certifying that they meet any eligibility requirements and have completed frequency coordination; the application could also, if needed, include the geographic location and FCC identification number of each base station. In order to expedite delivery of service, the Commission should allow applicants to submit applications electronically and to commence interim operation upon filing.

By using a single large common block of spectrum for multiple providers, instead of separate blocks for each provider, the entire band would be available to all service providers, thereby increasing trunking capacity and improving spectral efficiency. In addition, all providers would have an equal opportunity to use all frequencies in the band at every geographic location, depending on which frequencies are in use at any given time; this would equalize the effect on all providers of avoiding frequencies occupied by microwave users.

Competition under the Commodity PCS approach

The Commodity PCS approach could lead to competition at many different levels, as shown in the diagram above. U S WEST has identified three separate tiers at which there could be competitive suppliers — radio port operators, local distribution providers, and service providers.

These are separate business opportunities; some companies could participate in only one aspect of providing Commodity PCS, while other companies could integrate all three functions. Because there would be no exclusive licenses or franchises, a company performing any of these functions more efficiently than others will have the opportunity to succeed in the competitive marketplace.

Under Commodity PCS, entrepreneurs would be free to become as involved in providing service as their finances and business plans allow, while not foreclosing investment by others. Some small businesses might operate a small number of radio ports, for an investment of a few thousand dollars. Other businesses could operate metropolitan area or regional local distribution services and facilities for supporting and networking together many different radio ports. Some businesses might concentrate on establishing a retail customer base and arranging for delivery of service through local distribution providers. Thus, Commodity PCS would create opportunities for minority-owned businesses and small businesses, as well as large companies. There is no reason why entry at any level should necessarily be subject to regulatory limitation or economic regulation.

Open issues

This approach clearly has advantages from the standpoint of open entry, number of potential providers and ease of administration. However, U S WEST has identified several risks or uncertainties. First, compensation of existing spectrum users is an issue. With an unlimited number of service and facilities providers at each level, there is no immediately apparent means to compensate microwave users if Commodity PCS requires their relocation. Second, there appears to be no way to insure universality of service, particularly in the area of competitive retail services. Third, there might not be a sufficient margin of profit to sustain a competitive market with multiple providers at each level. Fourth, there does not appear to be any way to ensure that service is deployed across both rural and urban areas. Finally, technical standards could significantly delay service deployment.

While the technical and business arrangements appear to favor this approach, additional analysis appears needed. U S WEST believes this concept may have merit, and therefore raises it for Commission and industry consideration and comment. The specific areas which need further analysis and consideration include: (1) interface standards; (2) management of common spectrum resources; (3) the business relationships among the various entities, and (4) the role of the FCC in Commodity PCS.

CERTIFICATE OF SERVICE

I, Kelseau Powe, Jr., do hereby certify on this 9th day of November, 1992, that I have caused a copy of the foregoing **COMMENTS OF U S WEST, INC.** to be mailed via first class mail, postage prepaid, to the persons named on the attached service list.

Kelseau Powe, Jr.

*** via hand delivery**

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