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OFFICE OF THE SECRETARY

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EX PARTE

February 17, 1994

Mr. William F. Caton
Secretary
Federal Communications Commission
Room 222
1919 M Street NW
Washington, D.C. 20554

Re: CC Docket No. 94-1: Price Cap Performance Review for Local Exchange Carriers

Dear Mr. Caton:

Please place on the record of this proceeding the attached copy of The Enduring Local Bottleneck: Monopoly Power and the Local Exchange Carriers.

Sincerely,

Leonard S. Sawicki

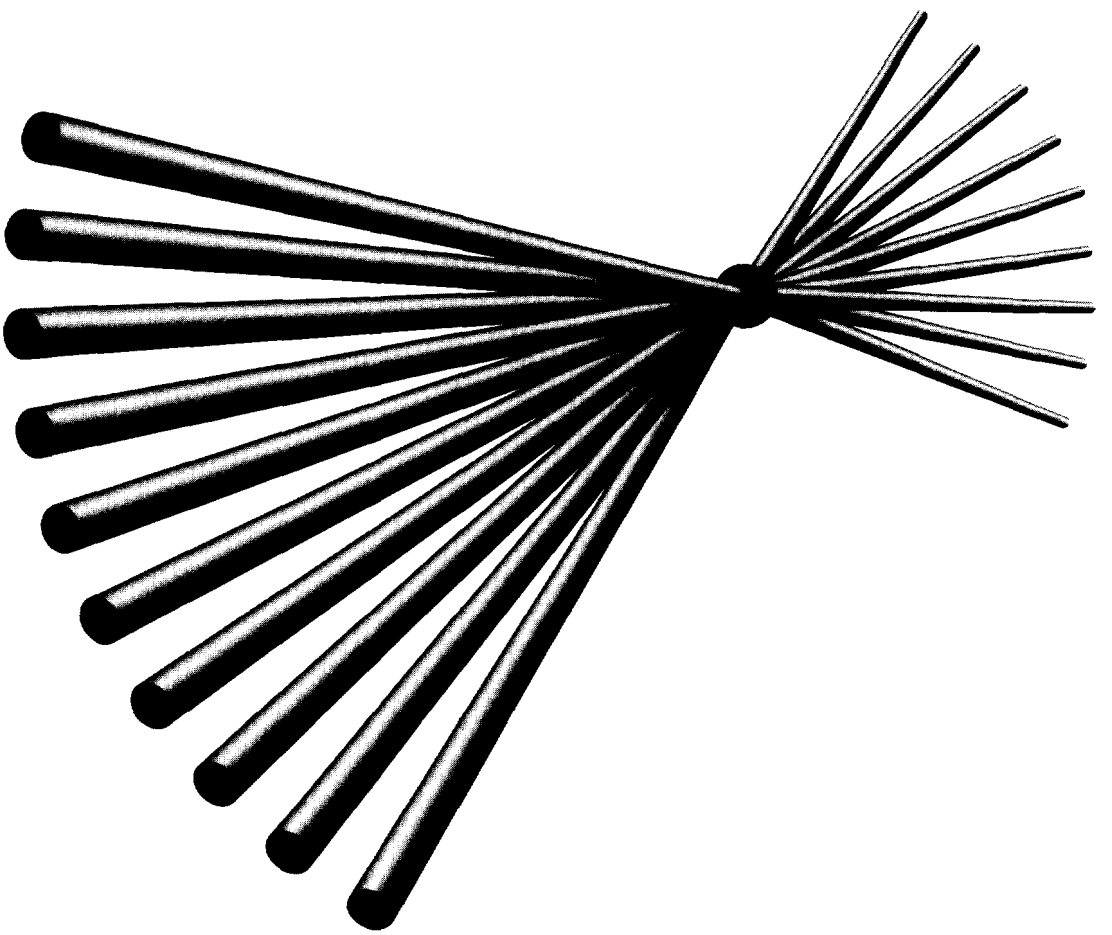
Leonard S. Sawicki

Attachment

No. of Copies rec'd 0+1
List ABCDE

THE ENDURING LOCAL BOTTLENECK

Monopoly Power and the Local Exchange Carriers



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Preface | THE ENDURING LOCAL BOTTLENECK

This study was sponsored by AT&T, MCI Communications Corporation, and the Competitive Telecommunications Association (CompTel). The project was the joint effort of Economics and Technology, Inc. (ETI) and Hatfield Associates, Inc. (HAI), and was conducted under the overall direction of Dr. Lee L. Selwyn and Susan M. Gately of ETI and Dale N. Hatfield and Dr. Robert A. Mercer of HAI. Contributing to this work were Dr. David J. Roddy, Patricia D. Kravtin, Sonia N. Jorge, Elizabeth A. Howland, David N. Townsend, Paul S. Keller, Jenny H. Yan and Jennifer L. Gray of ETI and Gene G. Ax, Richard A. Chandler, Mark W. Easland and Dr. A. Daniel Kelley of HAI. The consumer survey discussed in Chapter 4 was conducted by First Market Research Corporation of Boston, Massachusetts. The project has also benefitted from the expertise and comments of Larry Fenster, Senior Analyst, Public Policy Institute, American Association of Retired Persons.

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February, 1994

Executive Summary | THE ENDURING LOCAL BOTTLENECK

U.S. telecommunications policy is increasingly being driven, at both the state and federal levels, by the goal of establishing viable and efficient competitive markets. While competition in the long distance and telecommunications equipment markets has flourished in recent years, local exchange services remain essentially monopolistic. Policymakers are attempting to assess the extent of this monopoly, and prescribe rules and regulations that will foster additional competition where practical and efficient. This study supports that effort by providing a comprehensive technical, economic and policy examination of both the current state of local exchange competition and the potential for increased competition over the next five to ten years. The study concludes that competition for local telephone service may be both viable and sustainable in the future under certain favorable market and regulatory conditions, but that the proper sequencing of policy implementation is critical to this outcome.

In contrast, the Regional Bell Holding Companies (RBHCs or RBOCs) argue that they face robust competition in many of their markets today, and that competition in remaining markets is imminent. If this were true, then revision of the existing *MFJ* may well be appropriate, although not necessarily in the precise direction being sought by the RBHCs. But the factual basis for the RBHCs' position is not true, and the regulatory and structural changes being sought by the RBHCs will have precisely the opposite effect: They will frustrate competitive entry into the local telephone market, and will harm existing competition in the long distance and equipment manufacturing markets.

I.

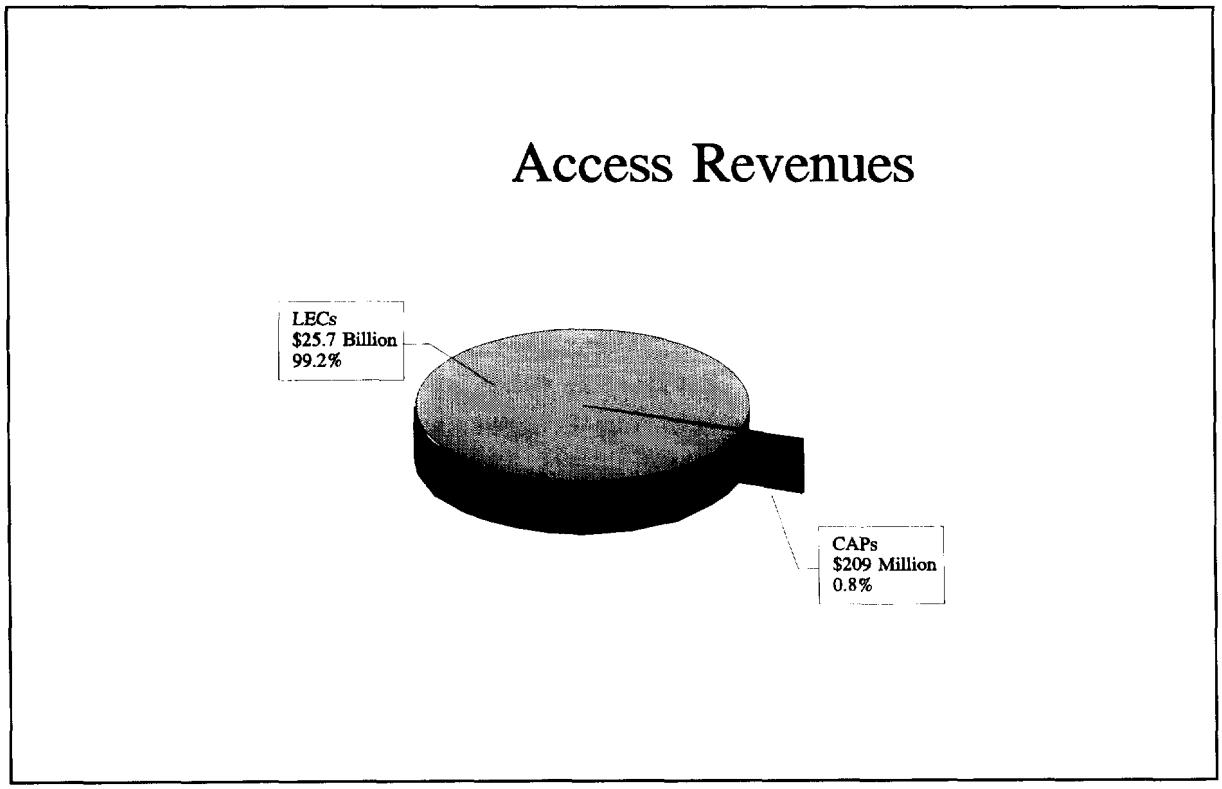
The Local Telephone Monopoly

Expansion of alternative access provider services, FCC mandated interconnection requirements, the growing use of wireless services, even multi-billion dollar alliances between traditional telecommunications carriers and potential future alternative local service providers, have all contributed to a *perception* that local competition has arrived. While these developments may have increased the prospects for competition, their actual *economic impact* on the traditional local exchange monopolies is, at the present time, far more smoke than fire. Furthermore, the enormous investments required to build alternative local networks across the country, the time it will take to win customers away from the

incumbents, and the power of the dominant local exchange carriers to thwart competitive entry ensure that effective competition will not occur overnight.

Some key factors that demonstrate the limits of competition in local markets today, and the resources available to the BOCs to maintain their bottleneck control include:

- Aggregate revenues, which are paid by long distance carriers and end users, for access services of all Competitive Access Providers (CAPS) combined are *less than one percent* of total monopoly local exchange carrier access revenues, and an even smaller percentage of total revenues. (See Figure)



Alternative access providers have captured a very small portion of the market

- Wireless services are not substitutes for local service today. The costs, capacity constraints, quality and reliability of wireless services relative to basic local service preclude direct substitution.

- No cable system offers local telephone service today: These systems require significant capital investments to provide two way telephony. In view of the investments required it may be some time before any significant number of

consumers would have a competitive alternative available, even under the most favorable scenarios.

- Between now and the year 2000 the seven RBHCs will generate roughly *$100-billion* in recurring depreciation charges, creating cash flow for reinvestment at a level that dwarfs all of the potential competitors combined, and all without risk to RBHC shareholders.

- Although major segments of the local telecommunications marketplace may become competitive in the future, the RBHCs, by virtue of their extensive and ubiquitous local networks, will maintain "bottleneck" control of essential interconnection functions for a significant period of time.

Noticeably absent from the discussions that are driving public opinion is any detailed analytical assessment of the potential for real competition in the local exchange markets. This study undertakes to examine the likelihood of viable competition developing in the foreseeable future. Both a market structure and business case point of view are used. The study includes an examination of the types of regulatory structures and requirements that will be necessary to foster local exchange competition, and the potential strategic responses available to the incumbent local carriers. It also includes an assessment of the potential demand for local exchange services offered by alternative local service providers, and some of the hurdles that must be overcome in order for such new entrants to attract customers away from an incumbent service provider. Our analysis leads to one fundamental conclusion:

Competition is likely to increase for some significant *components* of local telecommunications service over the next five to ten years under appropriate regulatory and market conditions. However, the level and scope of competitive entry is unlikely to be sufficient to eliminate or even significantly reduce the power of the BOCs. Additional time is required for effective and *sustainable* local exchange competition to emerge.

II.

The Long and Winding Road to Competition

The Federal Communications Commission (FCC) and some state regulators have for more than three decades been pursuing policies aimed at expanding competition throughout the telecommunications marketplace. The discussion and figures that follow highlight the slow road to competition.

- It took nearly *thirty years* (from the *Above 890* ruling in 1959 until the "equal access" process was substantially completed in 1989) for serious long distance competition to become established.

- It took some *sixteen years* from the initial *Carterphone* ruling in 1968 until full CPE competition was firmly established, following deregulation and divestiture, in 1984.

- The FCC's Open Network Architecture (ONA) policy was initially adopted in the FCC's *Third Computer Inquiry* ruling in 1985; today in 1994, the path to ONA has hardly begun. As with CPE interconnection and interexchange carrier equal access, we will no doubt ultimately arrive at some form of "open network" interconnection and interaction scheme that will enable local competition to exist at some level. Fulfillment of the "open network" vision, which is critical to viable local exchange competition, however, is still many years in the future.

- In the context of this history, local exchange competition is at an extremely early stage.

One essential feature of the road to competition in all segments of the telecommunications marketplace must be noted and underscored: *Not one of the major competitive achievements would have been possible without affirmative regulatory intervention.* It took the FCC to initiate, the federal courts to validate and ultimately to implement, and the largest corporate restructuring in U.S. history to achieve, equipment and long distance competition. It took efforts by state commissions and by the FCC for competitive service providers to gain even the limited collocation that has now been required. It took FCC and state commission action to unbundle rates for competitive services from basic monopoly service prices, and this process is still far from complete. It will require regulatory action to arrive at anything close to an "open" network. It will require regulatory action to foster local exchange competition. Ironically just as the need for regulatory oversight is increasing, programs which call for increased pricing flexibility or reduced oversight of LEC costs are being considered in numerous jurisdictions.

THE LONG ROAD TO COMPETITION: CUSTOMER PREMISES EQUIPMENT

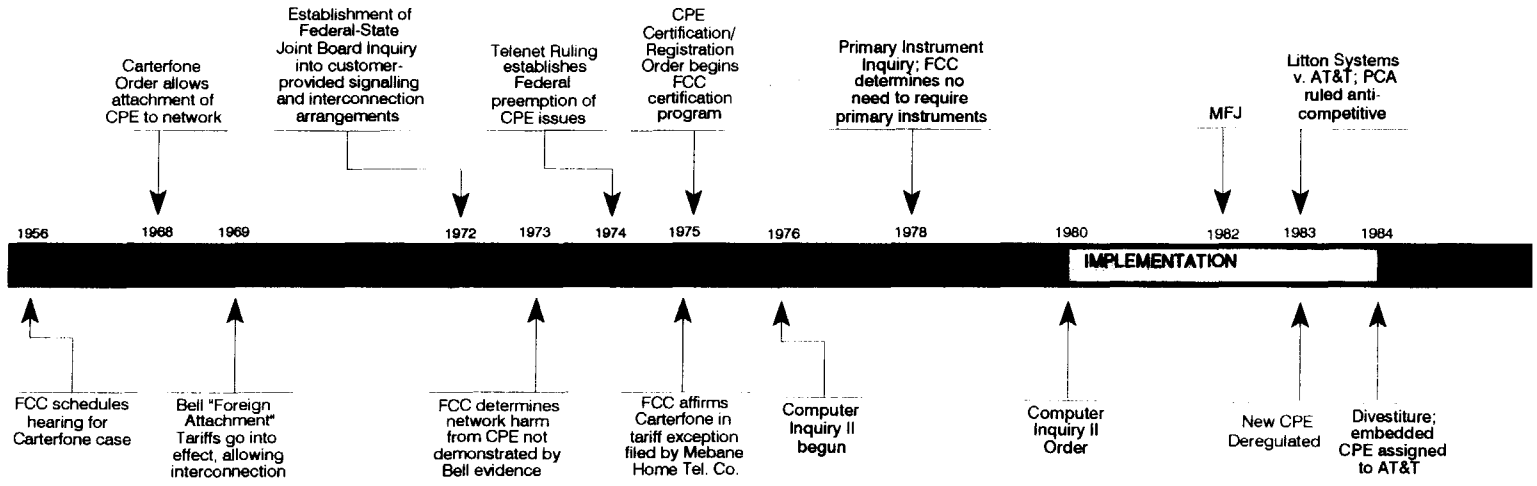


Figure 1.3

THE LONG ROAD TO COMPETITION: LONG DISTANCE

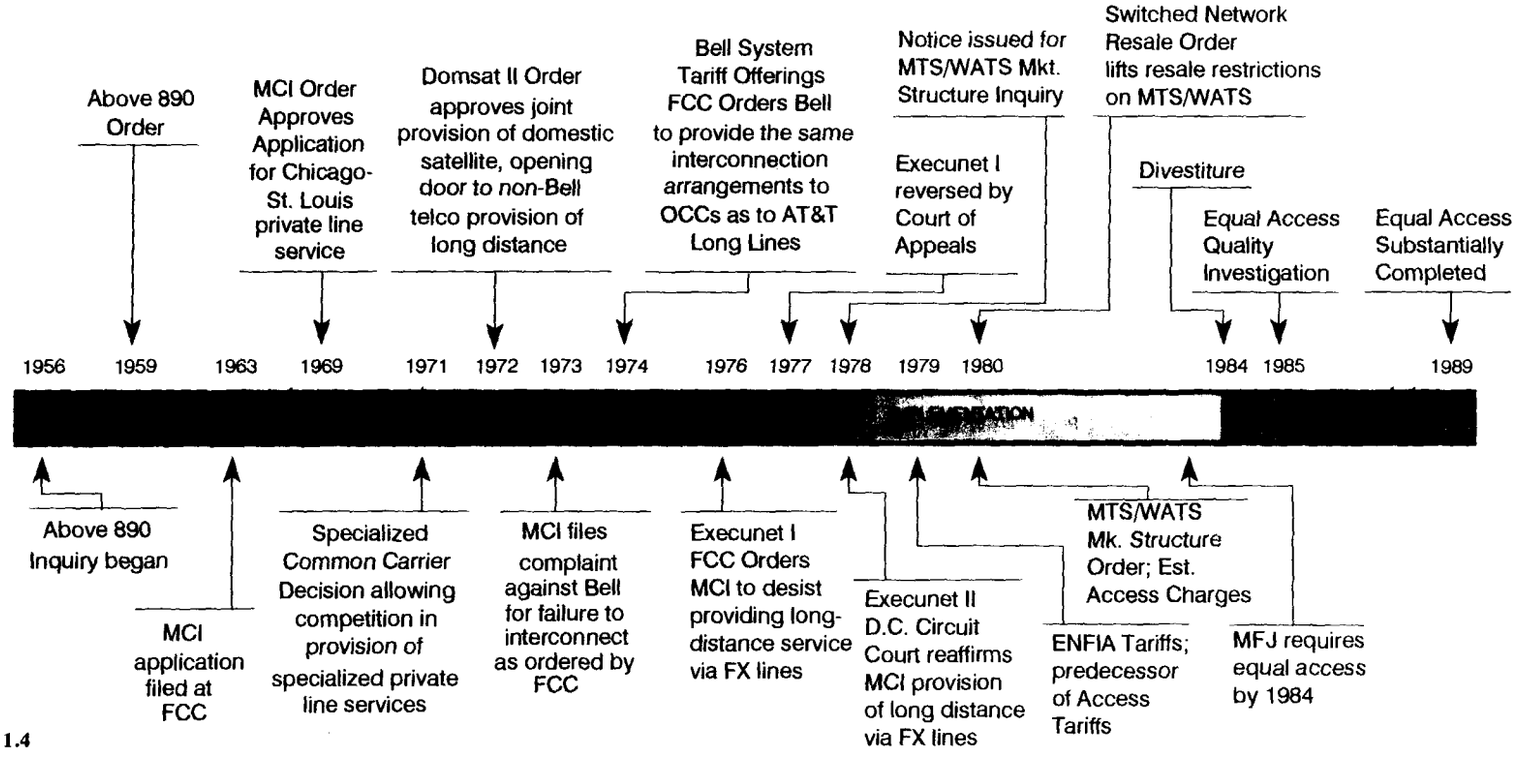
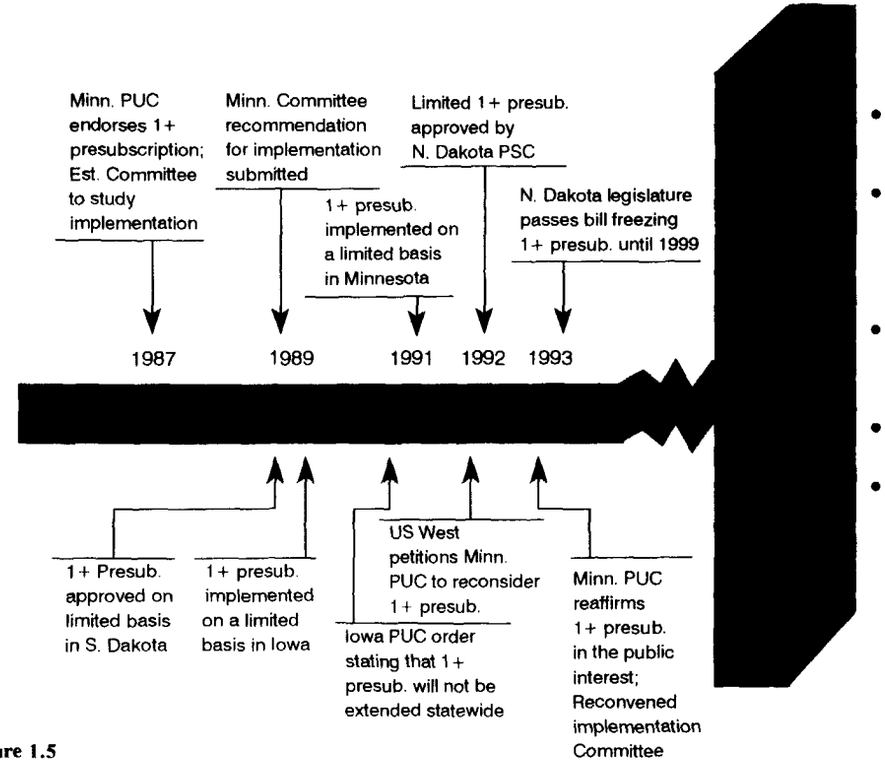


Figure 1.4

THE LONG ROAD TO COMPETITION: INTRALATA TOLL

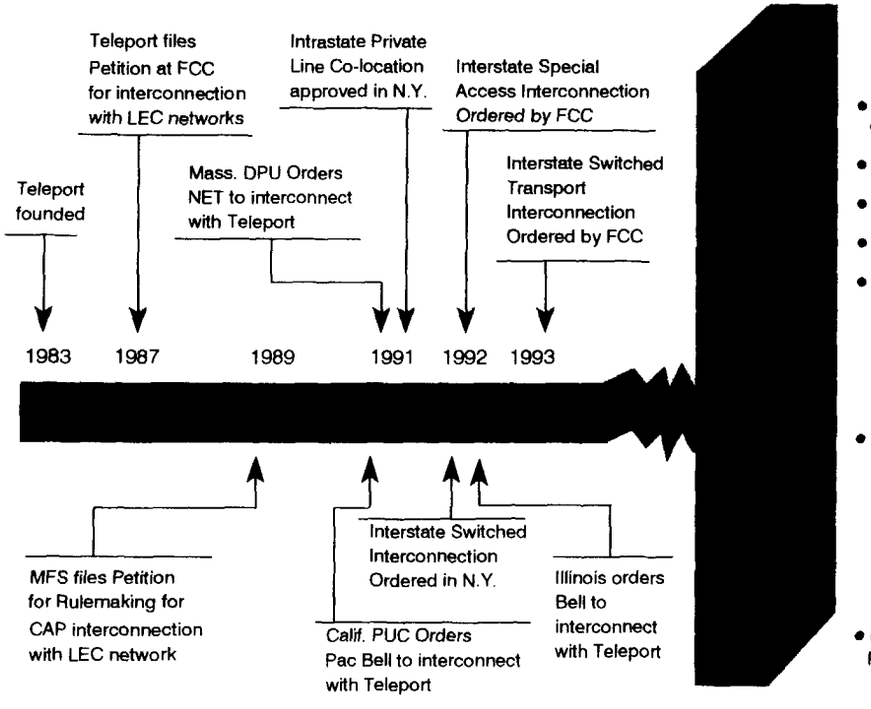


ROADBLOCKS TO NATIONWIDE INTRALATA TOLL COMPETITION

- Basic IntraLATA toll competition not authorized in:
  California (until July 1994), Hawaii, Nevada, North Carolina, Oklahoma, and Virginia
- No ongoing 1+ presubscription proceedings in:
  Alabama, Alaska, Arizona, Arkansas, Colorado, Georgia, Hawaii, Idaho, Indiana, Kansas, Louisiana, Maine, Maryland, Mississippi, Missouri, Nebraska, Nevada, New Mexico, North Carolina, Oklahoma, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, West Virginia, and Wyoming
- 1+ presubscription proceedings in progress or planned but not completed in:
  California, Connecticut, Delaware, Florida, Illinois, Kentucky, Massachusetts, Michigan, Montana, New Jersey, New Hampshire, New York, Ohio, Pennsylvania, Texas, and Wisconsin.
- Absence of statewide 1+ presubscription in Minnesota, Iowa, South Dakota, North Dakota, and Alaska
- Switch and network rearrangements and upgrades not implemented

Figure 1.5

THE LONG ROAD TO COMPETITION: ALTERNATIVE LOCAL SERVICES



ROADBLOCKS TO ALTERNATIVE LOCAL SERVICES

- Individual CAPs and Alternative Local Service Providers not granted required certification in most states
- Link, port, and local switching/transport charges not unbundled
- Trafffic interchange arrangements and agreements not established in all states
- *No local number portablility*
- Expanded interconnection/co-location for intrastate special access not authorized in 33 states:
  Alabama, Alaska, Arizona, Arkansas, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Mexico, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, and Wyoming
- Expanded interconnection/co-location for intrastate switched access not authorized in 48 states:
  Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming
- FCC ruling on access to LEC signalling in Competitive Switched Access Networks proceeding (CC Docket No. 91-141, Phase II)

Figure 1.6

The line of business restrictions set forth in the *MFJ* have been successful in fostering competition in precisely those markets in which BOC entry is prohibited. By contrast, in *other* adjacent markets in which BOC entry was not foreclosed by the divestiture decree, the BOCs have been singularly successful in limiting their competitors to a minor fraction of the total market.

III.

Identifying the LEC Bottleneck

We begin our evaluation of the potential for competition with an examination of the monopoly characteristics of the local exchange service markets. A basic principle of economic theory holds that the amount of monopoly power that a monopolist may exercise in a market is essentially a constant, so long as the monopolist retains monopoly control over at least one critical ("bottleneck") element of the overall production process. The relevant question is not whether certain components of the traditional BOC monopoly have now been opened to competition, but rather whether the *de facto* monopoly that is still enjoyed by the BOCs with respect to any *remaining* service or network elements is sufficient to permit the BOCs to harm competition in adjacent markets including those from which their entry is currently proscribed. (See figures below.)

By its very nature, the service being furnished by a LEC involves an interconnection between at least two different customers. More generally, the service being offered to any one LEC customer is the *ability* to communicate with any other customer served by the LEC's network or to be interconnected with other non-LEC networks which are themselves connected to the LEC's network. The provision of competitive *access*, whether in the form of a high-capacity special access service or a residential dial tone line, in no sense constitutes a *complete* competitive offering. In fact, no one would seriously consider the use of alternative access or dial tone services *unless full LEC network interconnection were assured*, a point that has been expressly recognized in a series of recent FCC actions dealing with expanded interconnection and intelligent networks. The lack of local number portability, a problem with no obvious or easy solution at this time, is also important to the ability of alternative providers to attract customers. LEC control of numbering, distribution, switching and transport networks present a formidable barrier to entry that will not be overcome by competition for selected network elements.

This property of networks to interconnect members creates *externalities* with respect both to supply and to demand. On the supply side, because networks generally have high fixed costs, the larger the population of members, the lower will be the average unit cost *per member* for connectivity. At the same time, increasing the *availability* of other network members makes the connectivity offered by the network more valuable to each participant, in effect increasing the potential demand for network access generally. Hence, the presence of externalities results simultaneously in reducing unit cost and in recursively increasing total demand. The presence of externalities thus provides an established network characterized by an extensive, near ubiquitous connectivity with a decisive competitive advantage over any present or potential rival, and produces a formidable economic barrier to entry for such rivals that is not easily overcome.

It is this property of *interconnectedness* among individual network components that creates value for network participants and which confers market power on the network's owners. In the past, efforts to identify and to quantify the presence of telecommunications competition have tended to focus on the ability of individual end users to acquire and to deploy facilities that were separate from those of the public common carrier networks. Often relying on purely anecdotal evidence, the presence of competition would be asserted (consistent with the theory of market "contestability"), if, for example, it could be shown that an individual user was capable of constructing his or her own private microwave or fiber optic transmission facility or that a small, niche market provider had entered, was planning to enter, or perhaps was merely *permitted* legally to enter, a particular market segment. The matter of interconnectivity among these isolated facilities was generally ignored.

Modern economic theory supports the view that where an interconnection or exchange function is a primary element of an industry's production activity, one principal firm is likely to dominate the market in a given geographic area, subject to the onset of "congestion" and/or of high transportation costs. Even if competition develops for a number of (but less than all) functions now provided by the LECs, as well it may, only the incumbent LEC, by virtue of its historic dominance and extensive infrastructure, will necessarily remain involved in effecting connectivity even where another carrier is the primary provider of access for an individual customer. Thus, the new entrants to the local market — and their customers — will continue to be dependent upon the LECs for ubiquitous interconnection.

Telecommunications services rely, to a degree probably unmatched in any other industry, on the need to provide ubiquity. Thus, connectivity is key to control of the market. The exchange function that is performed by local telephone companies involves demand and supply externalities similar to those found in other network-based industries. Even if effective competition develops for *access* and other local public network services, the strategic points of connectivity will remain essentially monopolistic for the foreseeable future. In this respect, the market for these potentially competitive services must

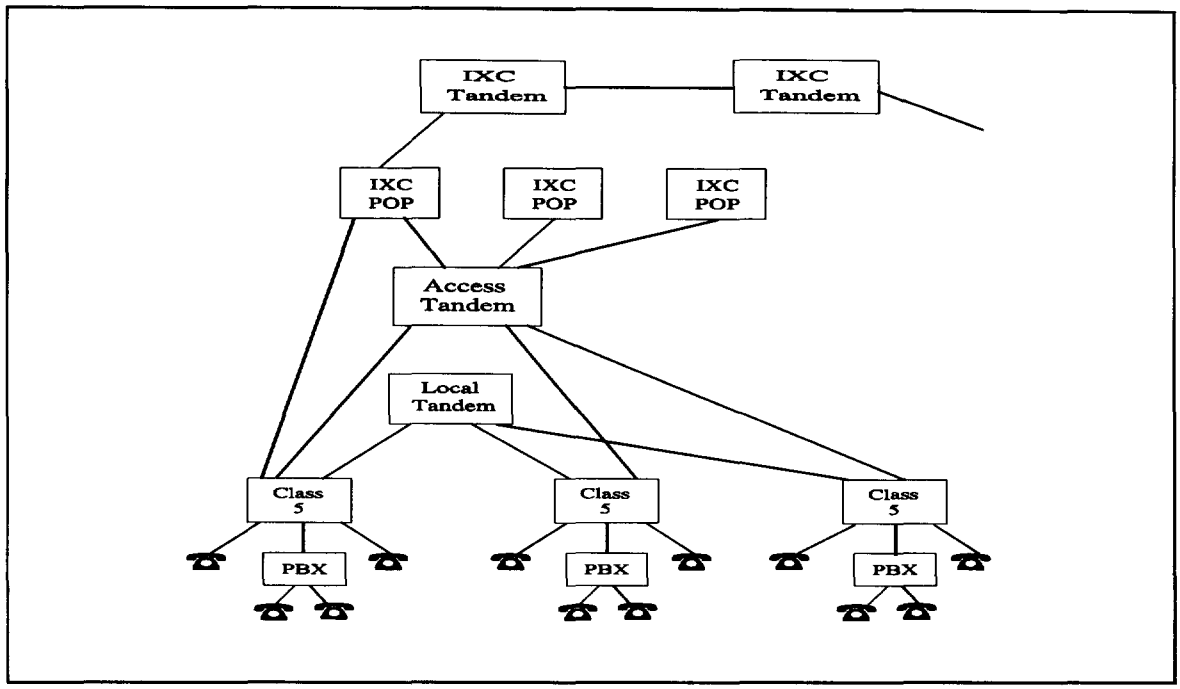
necessarily be viewed as "adjacent" with respect to the LEC network exchange operations. Unless the entities that control strategic connectivity (the LECs) are prevented from leveraging their exchange monopoly into the adjacent markets, these other services will remain monopolistic as well. While unrestricted and fully "equal" interconnection is clearly a necessary prerequisite to virtually any local competition, by itself it may still be insufficient to prevent the BOCs from monopolizing the adjacent markets.

The "geodesic network" revisited

In his 1987 report to the Department of Justice in connection with its first triennial review of the *MFJ*, Peter Huber argued that the telecommunications network was "geodesic" in nature and that as a result, no single entity, such as a BOC, could exert monopoly control over essential network elements. Huber envisioned a highly interconnected network in which traffic travelled along the outer shell rather than through a central core, where individual nodes were each connected with several others, such that multiple alternate routing was always possible. By implication, with multiple alternative routes always available, no single entity could exert monopoly power, and control of adjacent markets, or for that matter even the core local exchange market, was thereby foreclosed.

The U.S. telecommunications network, however, is fundamentally *hierarchical* in structure (see figure below). Most telecommunications connections involve routing through several network layers — the local (Class 5) end office, in many cases an "access tandem" switch that interconnects individual end offices with several different IXC networks, and at least one (and frequently more than one) intermediate IXC switching point. Even where alternative local access services (e.g., CAPs, cellular, PCS, cable television) are introduced, they all ultimately interconnect *with the dominant LEC's public local switched network.*

Contrary to the "geodesic" model posited by Huber, LEC networks are actually becoming more centralized and more highly concentrated. The availability of large-capacity digital switches, coupled with low-cost, high-capacity fiber optic cables, have enabled LECs to consolidate switching intelligence into a smaller number of larger entities. Intelligent Network architectures, such as the *Advanced Intelligent Network* (AIN), contemplate centralization of Service Control Points (SCPs), the databases and processors that will control a broad range of LEC network services.



The hierarchical public network architecture

The public network of the future will be far more geocentric than geodesic, constructed around a hierarchical architecture in which various *distribution* (access) technologies are interconnected with large-scale intercity networks, all operating under extensive common control intelligent network management systems. The vision of a "network of networks" in no sense implies a "network of equal networks" or the elimination of LEC market dominance in the foreseeable future.

Distribution networks employing conventional landline (wire) facilities will compete with coax/fiber distribution networks, mobile and fixed wireless networks, and specialized application-specific distribution networks which will continue to utilize dedicated (leased channel) facilities. These will be interconnected with each other and with intercity and international transport networks through local switching/transport "hubs" maintained by existing local exchange telephone monopolies. Various intelligent network functions (for example, number portability) will require common management and control systems, as well as common databases that will ultimately depend upon centralized management.

Local exchange monopolies control the strategic nodes where interconnections among the various competing distribution systems, *including the dominant landline telephone distribution system maintained by the LEC itself*, take place. LECs will also control key interconnection nodes between disparate distribution networks and interexchange carrier networks, as well as primary intelligent network control points. There is nothing even remotely "geodesic" about this architecture.

Although many parts of the local telecommunications market may sustain competition, the strategic role of the BOCs as the holders of essential facilities will remain for the foreseeable future, and the risk of BOC monopolization of the growing number of adjacent markets that rely upon BOC essential facilities is distinctly greater now than at any time since the break-up of the Bell System.

Huber's "geodesic" construct is advanced to buttress efforts by the BOCs to apply the theory of market contestability to the telecommunications industry. If true, the highly interconnected architecture of a geodesic network would minimize, perhaps even eliminate, the presence and importance of externalities of both demand and supply that have traditionally acted to limit the extent to which market competition can realistically be expected to arise in this sector. There would be no such thing as an "essential facility" in the geodesic network that Huber and the BOCs seek to portray. As we have shown, however, the geodesic analogy is fundamentally flawed, and externalities are both present and pervasive.

IV.

The Future Prospects of Competition for Local Telephone Service

In order to assess the potential for local competition, we undertook an analysis of alternative local technologies as well as potential consumer demand. We then used this information to analyze the business case for local competition. The business case shows that it will take significant time and money for competitors to begin operation — and there are no guaranteed returns.

Per Subscriber Incremental Technology Investments

Component	Cellular Radio	PCS	Cable Telephony	Cap Fiber Ring
Customer Connection	$300	$300	$320	$100
Remote Terminal	2,160	400	0	230
Backhaul Facilities	100	100	40	630
Network Interface Unit	50	50	225	0
Switch	190	190	190	190
Wire Center	60	60	60	60
Interoffice Facilities	0	0	0	0
TOTAL	**2,860**	**1,100**	**835**	**1,210**

Alternative Technologies for Potential Market Entrants

Crucial to our analysis of the potential for competition in the local exchange is an evaluation of the types of technologies that might be used by potential entrants, and the deployment costs and time frames required for them to commence operations. The question then becomes: To what degree can other providers successfully compete with the LECs, who are able to bundle their distribution network with the interconnecting network that all other distribution network providers must utilize?

The table above presents an assessment of the per-subscriber incremental investments (including lump-sum capacity) required for entry into telephony for four alternative technologies. These represent potential architectures and associated technologies that might be utilized by a new entrant into the distribution network business used to provide fixed-location telephone service. These results form a key input to the business case analysis.

We examined the distribution architectures and technologies highlighted in the table, as well as various combinations of these architectures. In order to facilitate comparisons, a generic distribution network model was introduced. We assume a service area containing 80,000 homes. Consistent with figures that pertain to a typical cable system, we assume 2,230 homes per square mile. We further assume the alternative provider attains a 10% penetration, or 8,000 homes in the service area. Component cost data were obtained from references in the literature, through conversations with people involved with the

corresponding technologies, and where necessary, based on our own industry experience and professional judgement.

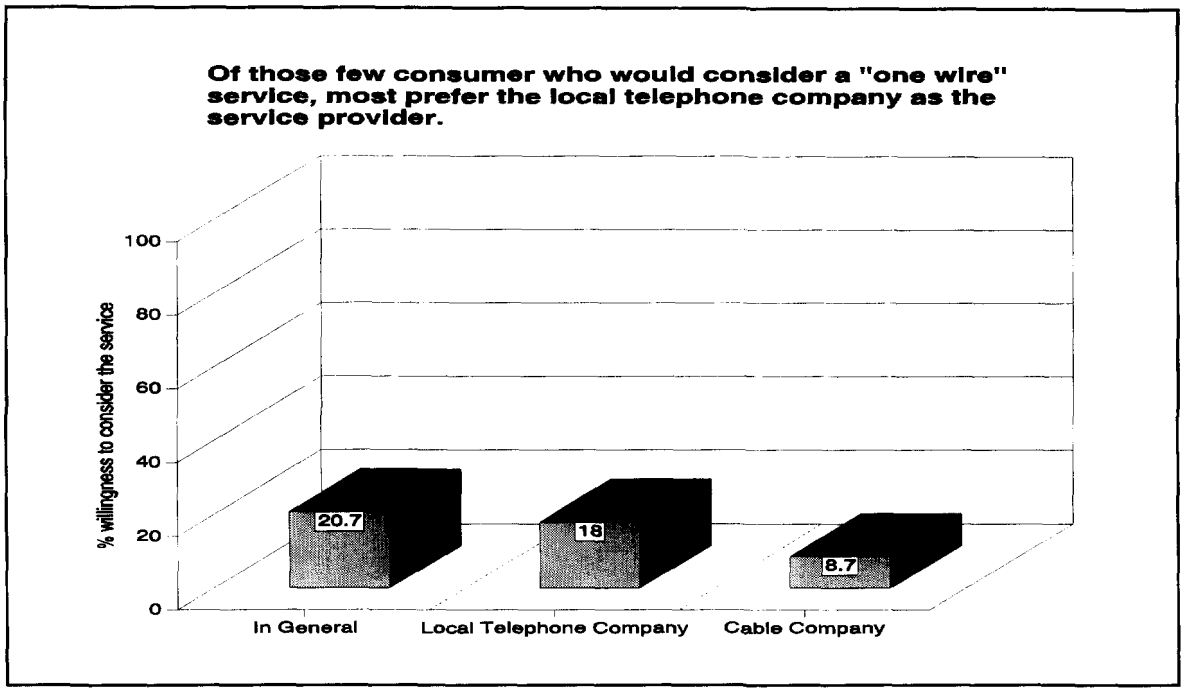
We compared our results with commonly-cited industry "benchmark" figures for such investments, focusing on PCS and cable telephony as the most promising alternative technologies. We also conducted sensitivity analyses by varying density of homes and total size of the market, penetration level and mix of residential and business customers. The best case total in the nominal scenario is $835 per subscriber for cable telephony. Depending on the treatment of the costs associated with the use of the fiber/coaxial spectrum, this could be reduced to approximately $675. However, these capital costs do not reflect the substantial investments that will be necessary to build or augment systems to provide ongoing operations and maintenance functions, or initial investments that will be necessary to win customers away from the local exchange carriers. These issues are addressed in the business case discussed below.

V.

Demand for Alternative Local Services

The economic viability of alternative local telephone service providers is critically dependent upon customer willingness to switch to the new carriers. Market research conducted for this study, however, reveals a strong preference for the incumbent local exchange carrier. Technology assessments, such as that described above, provide information about the *supply* characteristics of alternative scenarios: Very little is, however, known about the potential consumer responses to such alternatives.

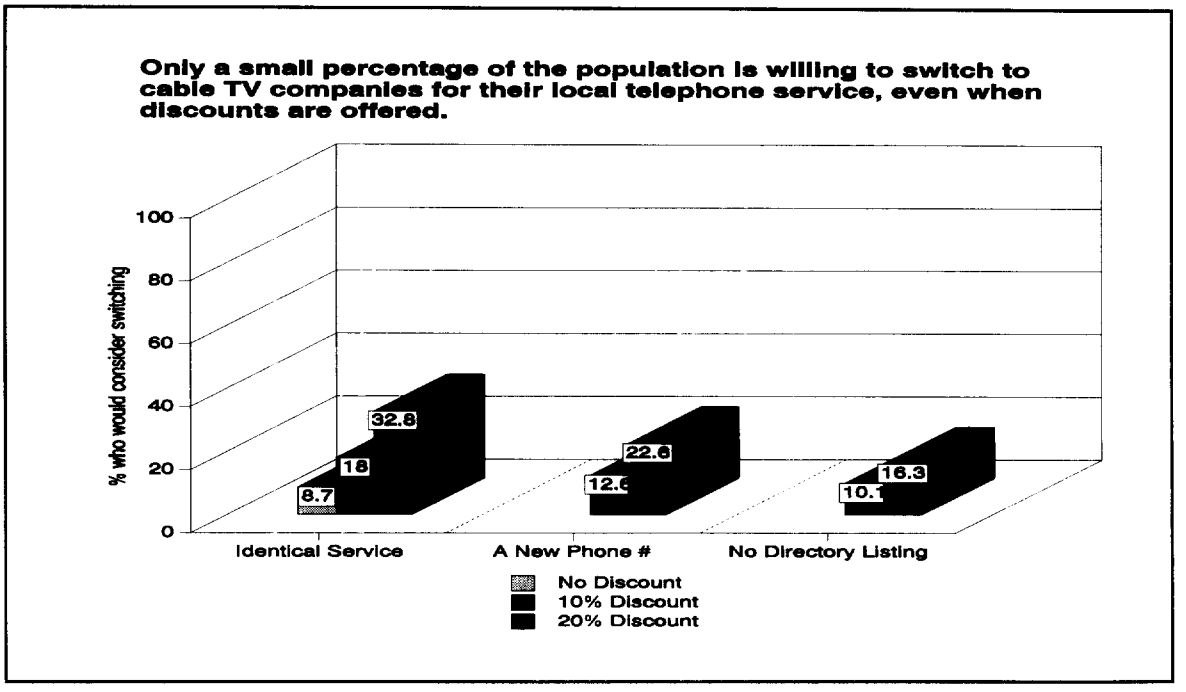
In order to develop data about the potential *demand* for alternative services, a telephone survey of 1,203 residences across the country was conducted in January, 1994. The survey dealt with subjects related to the level of effort that will be required for an LEC local service competitor to achieve sufficient demand to cover costs. Data were gathered on the willingness of a customer to change local phone companies if the phone number must also be changed; the willingness of a customer to switch to a cable TV provider for local phone service, and attitudes toward vendors whose service quality was perceived to be lower than that offered by LECs. Also investigated were general "size of the market" questions dealing with video dialtone, interactive TV, video home shopping, and sophisticated work-at-home needs.



In order to analyze the future prospects of providing video and telephony from the same company, the respondents were asked whether or not they would consider purchasing both telephone and cable services from a single company. In general, we found that people are significantly more interested in purchasing such a service from their local telephone company than from their local cable company, as summarized in the figure above.

Our survey also revealed price, numbering and directory issues to be of great importance relative to customer willingness to consider an alternative local service provider. The figure below shows clearly that alternative providers will have a difficult climb in their efforts to attract customers should they elect to enter the local telephone market.

Overall, we find that while some consumers may be willing to consider switching to cable providers for local telephone service, they will require significant price incentives, investments in customer service, and high service reliability. As a result, marketing and customer support expenses are likely to be substantial, especially in the early years, in order to overcome the current status of cable companies in the marketplace.



VI.

The Business Case For Alternative Local Services

The table below presents a detailed "business case" analysis of the real costs of cable television and wireless entry into telephony. This analysis was performed by first constructing a financial model that captures the *incremental investment costs* developed in the technical analysis, along with the various market development and operational requirements suggested by the survey results. The net present value of the cash flow was calculated using various alternative entry, demand and performance scenarios, permitting us to project the likelihood of success under various sets of conditions.

Provision of Local Telephone Service
Business Case Results

By Cable Television Company: 15 Year Horizon

	Pessimistic <----------			> Optimistic
Scenario*	A	B	C	D
First Year of Positive Cash Flow	8	7	6	5
Years to Breakeven**	15	15	14	11
NPV*** per Subscriber at 14% Cost of Capital	($174)	($95)	$58	$137
NPV per Subscriber at 18% Cost of Capital	($192)	($127)	($19)	$46

By Wireless/PCS Company: 15 Year Horizon

	Pessimistic <----------			> Optimistic
Scenario*	A	B	C	D
First Year of Positive Cash Flow	8	8	7	7
Years to Breakeven**	15	15	15	13
NPV*** per Subscriber at 14% Cost of Capital	($229)	($150)	$4	$83
NPV per Subscriber at 18% Cost of Capital	($226)	($162)	($53)	$11

*The scenario assumptions are: (A) final year price of $35 and 18% penetration; (B) final year price of $35 and 30% penetration; (C) final year price of $50 and 18% penetration; and (D) final year price of $50 and 30% penetration.

**Year when the cumulative discounted (14%) cash flow becomes positive. In scenarios A and B, "breakeven" is longer than the 15 year horizon.

***NPV is "Net Present Value". Projects with negative NPV (shown in parenthesis) would not normally be undertaken in such a situation; there is a high risk that the overall rate of return will be less than the cost of capital.

We use a standard capital budgeting model based upon the discounted cash flow

methods that are commonly used in business plan analysis. The models provide estimates of the net present value (NPV) of alternative realistic business outcomes. By applying different assumptions in a series of scenarios, these models provide estimates of the financial risks and opportunities that cable television and wireless operators face as they attempt to enter the local telephone service business.

The result of our process is an estimate of the net present value of the decision to enter the local telephone service business. Our approach embraces the total cost of the operation in a multi-year context, including depreciation and cost of capital components, as well as ongoing out-of-pocket operating expenses. The analytical technique applied here thus reflects the financial discipline of the income/expense statement and balance sheet, as opposed to simply using the engineer's list of capital expenditures as has been done in other studies. Those studies seek to portray entry as viable merely because the per-unit cost of entry appears to be within reach of multiple incumbents. However, initial capital outlays represent only one element of cost.

Overall, our estimates show that it will be a long hard climb for CATV and wireless providers who plan to offer local telephone service in competition with the LECs. The table below summarizes the business case results for the large markets of 200,000 potential subscribers, but the results are consistent for smaller and larger markets as well.

While under certain scenarios the provision of alternative local services will be profitable and yield a positive net present value, they will still take 5 to 8 years to generate a positive cash flow and 11 to 15 years to reach breakeven. The ultimate profitability of the new entrant is subject to a significant degree of risk.

VII.

Constraining BOC Behavior: Expanded Regulation vs. Permanent Structural Solutions

While one might speculate about the structure of a regime of substantive and enforceable safeguards directed precisely at preventing the BOCs from extending their core monopoly into competitive and potentially competitive adjacent markets, such a regime would necessarily *expand* the current scope and responsibility of the telecommunications

regulatory process in ways that will be far less efficient and effective than retention of line-of-business restrictions — if those restrictions are removed prior to the development of effective competition in local exchange markets.

Major Potential Cross-Subsidy Opportunities for RBHCs

Inter-temporal cross-subsidy flows

- Cross-subsidies resulting from shifts in the monopoly/competitive boundary
- Use of monopoly resources to enter adjacent markets.
- Personnel transfers between monopoly and competitive RBHC organizations
- Research and development costs carried "above-the-line"
- Usage-based (rather than purpose-based) cost allocations

Other non-book cross-subsidy flows

- Transfer prices designed to shifts costs into, or to keep revenues out of, regulated monopoly services
- Use of Customer Proprietary Network Information (CPNI) and BOC marketing resources in adjacent markets

To understand this point, one need only examine a few of the many devices and stratagems that are available to — and that have been effectively utilized by — the BOCs to gain unfair advantage over competitors, both in new, adjacent markets they seek to enter and in the local exchange markets that others seek to enter. Cross-subsidization and restrictive interconnection policies are perhaps the most important of these devices.

In order to develop and advance its competitive position, a regulated telephone company has both the economic incentive to sell products in competitive markets at a price below cost, *as well as the ability* to make up the shortfall through excessive prices and profits obtained in markets in which legal or *de facto* monopoly is maintained. Thus, BOC entry into adjacent markets can be facilitated if the local exchange monopoly is able to generate revenues from the provision of its core monopoly services that can be utilized to finance such entry and/or to respond to the entry in segments of the local exchange market. Moreover, to the extent that resources acquired in the course of providing core monopoly services can be utilized by a BOC to furnish the competitive service at less than the price that such assets would command if purchased on a stand-alone basis, the integrated firm will have a decided edge over any competitors.

BOCs have available a number of strategies and tactics beyond cross-subsidization which provide a fully-equipped arsenal of potential responses to entry in local exchange markets, and ample funding for their own entry into adjacent markets. BOCs possess both the incentive and the ability to dictate many of the conditions that would-be rivals will confront as they seek to compete with the incumbent dominant local carriers. Thus, the precise extent to which competitively-supplied services will be viable as practical substitutes for BOC offerings will be strongly influenced by BOC strategic behavior, which can be both proactive and reactive in nature. BOCs have historically been very aggressive in employing strategies and tactics designed to repel entry. These have included each and all of the following:

Potential LEC Responses to Competitive Entry

- Outright prohibition and highly restrictive interconnection policies;
- Access discrimination — denial, delay, overpricing and inferior access;
- Restrictions and prohibitions against resale of services;
- Strategic pricing targeted at services subject to actual or potential entry;
- Strategic cost allocation devices designed to support pricing tactics;
- Strategic use of depreciation and capital budgeting processes to supply capital for entry into future competitive markets;
- "Incentive regulation" schemes that lock in historically high price levels and thereby insulate BOC monopoly services from reflecting technology-driven cost decreases;
- Strategic investments in new technologies financed largely or entirely with revenues from core monopoly services;
- Strategically-timed transfers of business segments from regulated to non-regulated status at a point where start-up costs and losses are replaced by profits; and
- Political strategies aimed at achieving reduced regulation and increased flexibility to pursue a wide range of strategic behavior.