NRRI 96-23

Rights-of-Way and Other Customer-Access Facilities: Issues, Policies, and Options for Regulators

Edwin A. Rosenberg, Ph.D.
Senior Research Specialist

and

Stella Rubia, Esq.
Senior Research Associate

September 1996

The National Regulatory Research Institute
The Ohio State University
1080 Carmack Road
Columbus, Ohio 43210-1002
(614) 292-9404

This report was prepared by The National Regulatory Research Institute (NRRI) with funding provided by the participating member commissions of the National Association of Regulatory Utility Commissioners (NARUC). The views and opinions of the authors, as expressed herein, do not necessarily reflect the views, opinions, or policies of the NRRI, NARUC, or any member commissions of NARUC.

Executive Summary

As a result of changes in technology and an increased faith in the ability of competitive forces to benefit consumers, a desire to promote competition in telecommunications, including the local exchange market is, arguably, the most important force in telecommunications policy today. Along the route to competition, rights-of-way access is a "last mile" issue, which encompasses all customer-access facilities, including poles, conduits, risers, ducts, utility closets, and equipment vaults. The concept may even be viewed as including access to existing copper or fiber lines used to connect customers with vertical facilities necessary to provide telecommunications services. Although some competition will be in the form of resale, effective local competition requires viable facilities-based providers for whom the ability to obtain a physical connection to potential customers is an indispensable factor in determining whether they will be viable.

The perspective of this report is that the ultimate policy goal is to provide maximum benefits to consumers. Thus, to the extent that consumers benefit from having real choices of their supplier of telecommunications services, competition is a plus, and policies that enable competition should be favored. Therefore, policy should aim at facilitating real choices among competitive suppliers. Such consumer choice can be furthered by policies that encourage access to rights-of-way by all providers, incumbents and entrants alike. In order to benefit consumers, policy should facilitate competition, but it should neither favor nor discriminate against particular competitors.

The NRRI surveyed state commissions regarding rights-of-way policies. At the time of the survey, which was conducted prior to passage of The Telecommunications Act of 1996, rights-of-way access was not an issue before most commissions. Subsequently, some states have adopted policies regarding rights-of-way access as part of the process of implementing local competition. In addition, rights-of-way provide interesting policy challenges, because many rights-of-way facilities are located on public rights-of-way that are under the jurisdiction of local governments, which want to exert control over use of the public rights-of-way.

With respect to rights-of-way access, as with many other current issues in telecommunications policy, The Telecommunications Act of 1996 (the 1996 Act) is the "800 pound gorilla." The 1996 Act provides that existing local exchange carriers and other parties that control rights-of-way facilities must provide access to those facilities on nondiscriminatory terms and at reasonable rates to all carriers. However, many of the details of implementing the provisions of the Act are left to the respective state regulatory commissions, and local government authority over public rights-of-way are preserved, so long as they provide nondiscriminatory access on publicly disclosed terms. Affirmative legal barriers to competitive entry in local telecommunications have generally been removed through a combination of state and federal actions. Providing access to rights-of-way is one of the implementation issues necessary to remove *de facto* barriers to local competition.

Affirmative legal barriers to competitive entry in local telecommunications have generally been removed through a combination of state and federal actions. Providing access to rights-of-way is one of the implementation issues necessary to remove de facto barriers to local competition.

The 1996 Act contemplates three methods for competitive entry into local telecommunications markets. They are resale of of the incumbent local exchange carrier's retail services, unbundled access to the incumbent's network elements and facilities, and facilities-based entry. Each of these entry methods can be applied to rights-of-way access. Moreover, some entrants will use each method, and some entrants may use a combination of methods to enter local telecommunications markets. Separate and apart from the 1996 Act, access to rights-of-way facilities can be based on common carriage principles, on the essential facilities doctrine, or on the concept of indefeasible rights of use.

To further facilities-based competition, the 1996 Act contains provisions that open both public and private rights-of-way to entrants, but there is much room for coordination by the states and local authorities to ensure an optimal implementation of these rights-of-way provisions. Even though state regulators may not have jurisdiction over local governments, they can establish joint planning processes so that incumbents, others with existing or planned rights-of-way facilities, entrants, and local authorities can work together to plan for orderly use of rights-of-way and associated facilities. Indeed,

the 1996 Act and the Federal Communications Commission's implementation of the 1996 Act recognize the importance of state implementation of rights-of-way access rules.

In addition, although the 1996 Act contemplates good faith negotiation between parties controlling rights-of-way facilities and parties desiring access to them, state commissions undoubtedly will be required to perform mediation and arbitration in cases where the parties cannot reach an agreement. These situations will arise because parties differ over the estimated cost of providing access and the timeliness with which access is to be provided. The parties will also differ over the determination of capacity limits of facilities and how much spare capacity can be reserved for future use by the controlling party.

State commissions will have responsibility for ensuring that prices for access to rights-of-way facilities are reasonable. The price of access should cover the incremental cost of providing that access, including reasonable make-ready costs, and the price should also include some contribution to the facility owner's common costs. However, the markup over incremental cost should not be excessive. Since rights-of-way access is part of the overall question of unbundled access to network elements, a common markup (or a range of acceptable markups) over incremental cost should be developed for collocation at central offices, unbundled provision of network elements, and access to rights-of-way facilities.

State commissions will have responsibility for ensuring that prices for access to rights-of-way facilities are reasonable.

In developing policies to implement rights-of-way access, one of the factors to consider is the implicit network model that underlies policy, because policy can be conditioned by the network model that is adopted. The traditional model may be described as a "parallel networks model." In that model, a single telephone network and a single cable television network co-existed, but there was no competition or interconnection between them. Although The Pole Attachment Act of 1978 allowed cable television providers to use poles owned by LECs or others to carry their wires, a combination of regulatory and technological firewalls separated them. However, forces of technology created market pressures that led to revisions of the law, and rendered the parallel networks view largely obsolete, at least for policy purposes.

The emerging view is that local telecommunications should resemble a network-of-networks. In that view there will be multiple physical networks connecting customers to carriers and carriers to each other. There are two variants of the network-of-networks view. The first is the "linchpin model" that envisions a future with one or two core or focal networks and a number of fringe networks, which generally would be connected to the core networks, but not necessarily to each other.

The emerging view is that local telecommunications should resemble a network-of-networks.

The linchpin model is closest to the likely short- or intermediate-term evolution of local competition. The linchpin network will have interconnection obligations, including making its rights-of-way facilities available, that do not necessarily apply to others. The principal networks will provide access and interconnection to the fringe networks on a "carriers' carrier" basis. The fringe networks will be customers of the linchpin networks, and asymmetric regulation of the linchpin network will ensure that incumbents do not use their position as supplier to their competitors to gain undue advantage.

Further evolution of the network-of-networks could lead to the "intermeshed networks" model, which is based on the concept of there being no single core network. The linchpin network's core network will be replaced by multiple interconnected networks, which, when combined, will provide an interoperable platform over which a wide range of services will be available. If the intermeshed networks model becomes a realistic view, the special obligations imposed on core networks will no longer be needed. Instead, reciprocal interconnection and common use of facilities will be the norm. All network owners will be under symmetric obligations to make their facilities available to other carriers, and carriers will treat each other as equals rather than as customers.

It will be some time before the transition to an intermeshed network-of-networks model. Nevertheless, regulators should consider its implications, because the type of regulatory oversight applied should transition with the evolution of the networks.

At present, we are moving away from the parallel networks model into the linchpin network-of-networks model. Although it will likely be some time before the transition to an intermeshed network-of-networks model, regulators should consider its implications, because the type of regulatory oversight

applied should transition with the evolution of the networks. One transition that will accompany the evolution of networks is the transition from treating non-LEC carriers as the LEC's customers to treating them as equal co-carriers in that customer access facilities may be shared by several service providers. The features of the parallel networks, linchpin network-of-networks, and intermeshed networks models and some of the differences in possible regulatory treatment under the three models is shown in Table ES-1.

Table ES-1
Network Models and Policy Options

Network Model and Relationship Between LEC and Other Providers	Policy Options
Parallel Networks cable network and telephone network deployed; no direct competition between networks; customer or owner/tenant relationship between LEC and cable system.	pole attachment rules allow cable systems to use LEC poles when desired.
Linchpin Network of Networks limited network deployment by cable systems and by other CAPs; possible co-carrier status for CAPs; other networks interconnected with LEC but not necessarily with each other; competition between carriers, but only one or two physical networks; customer or owner/tenant relationship between LEC and other carriers.	asymmetric regulation of LEC relative to other carriers—LEC's facilities treated as essential, and it is required to provide access, others not required to do so; resale of loop services including local loop links (which include rights-of-way facilities); unbundled access to rights-of-way facilities at points chosen by CAP (subject to feasibility and safety constraints); collocation of CAPs' equipment on LEC's rights-of-way under lease arrangement; just and reasonable pricing standards imposed.
Intermeshed Network of Networks multiple networks deployed by LECs and others; CAPs; other carriers interconnect with LEC and with each other; significant amounts of traffic do not use LEC network; LECs and others are co-equals, LECs may use others' facilities as needed, and there is joint planning of rights-of-way facilities.	more-or-less symmetric regulation of all carriers with networks—all have equivalent obligation to allow others access through resale, unbundled access, or collocation; shared or joint ownership and control of rights-of-way facilities — similar to existing agreements between electrics and LECs; carriers can purchase indefeasible right of use interests in rights-of-way facilities originally deployed by others.

Source: Authors' construct.

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont.)

TABLE OF CONTENTS (Cont.)

List of Tables

Foreword

One of the most important issues facing state regulators today is how to implement the rules governing competition in local telecommunications services. Although some competition will derive from the resale of incumbent local exchange carrier's services, true competition cannot be said to exist unless and until facilities-based options are available to consumers. One of the important steps in promoting or enabling facilities-based competition is to ensure that all carriers can obtain physical access to their customers, and providing for them to use existing rights-of-way facilities is an essential part of giving them that access. This report considers several means of providing that access.

Douglas N. Jones
Director
August 1996

Acknowledgments

Although only two names appear on the title page, this report would not have been possible without the assistance and input of several individuals. Valuable comments and guidance were provided by the NRRI's Director, Dr. Douglas N. Jones and by the NRRI's Associate Director for Telecommunications and Water, Dr. Raymond W. Lawton. Mr. Dennis Taratus of the New York Public Service Commission and Professor John W. Mayo of the University of Tennessee were reviewers on behalf of the NRRI's Research Advisory Committee. We would also like to thank the individuals who responded to the NRRI's survey on rights-of-way policy on behalf of their respective state regulatory commissions. The authors are also grateful for the research assistance provided by NRRI Graduate Research Associates Catherine Reed, Nancy Zearfoss, and Michael Clements. The final manuscript was prepared by Ms. Linda Schmidt, whose dedication, attention to detail, and patience are greatly appreciated. Although each of the individuals named above contributed to making this report better than it would have been without their assistance, the authors are responsible for whatever errors remain.

CHAPTER 1

INTRODUCTION

Why should state regulators and other decision makers be concerned with access to utility rights-of-way and associated customer-access facilities such as poles, conduits, ducts, risers, trenches, and utility vaults and closets? The answer is competition. A commitment to facilitate competition in telecommunications, including the local exchange market, is, arguably, the most important force in telecommunications policy today. A number of states have taken actions to open local markets to competition, and national policy is also focused on competition in telecommunications markets. At the Federal level, the Telecommunications Act of 1996[1] was signed into law on February 8, 1996; it extended and amended the Communications Act of 1934, and has as its stated intent:

> To promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.

One action necessary to facilitate competition in telecommunications is to provide for rights-of-way use by all competitors on equitable terms. Although some competition will be in the form of resale, effective local competition requires viable facilities-based providers for whom the ability to obtain a physical connection to potential customers is an important factor in determining whether they will be viable. Given the current view that embraces competition as the best method of serving the consumer, and the emergence of new providers, it is essential to determine how rights-of-way should be used and who should benefit from their control.

---

[1] The Telecommunications Act of 1996 (Public Law 104-104, 110 Stat. 56, to be codified at 47 U.S.C. §§ 151, *et. seq.*) will be referred to as " the 1996 Act." The Communications Act of 1934 and its subsequent amendments prior to passage of the 1996 Act will be referred to as "the 1934 Act."

This report considers factors associated with the control and pricing of access to utility rights-of-way[2] that either promote or inhibit competition in telecommunications. To this end, the current framework within which rights-of-way are controlled is examined, and policies are suggested that facilitate rights-of-way use by all telecommunications providers.

The Importance of Rights-of-Way Access

Rights-of-way were initially acquired by electric, gas, water, and telephone utilities at a time when the question of whether utilities were natural monopolies was of mainly academic concern. Extension of utility facilities was needed to promote universal service, and acquisition and use of rights-of-way by telephone companies and other utilities was generally a routine matter. Furthermore, a utility franchise typically conferred eminent domain powers, which could be asserted to obtain private property for rights-of-way, and franchised utilities were generally able to use public rights-of-way controlled by various local government units or local franchising authorities (LFAs).[3]

Rights-of-way policy should facilitate competition, but it should neither favor nor discriminate against particular competition.

Rights-of-way access is a "last mile" issue. Establishing rules for rights-of-way access is a means of ensuring that all providers who desire to do so are able to obtain physical connections to potential customers. It is assumed that the ultimate policy goal

---

[2] As used in this report, "rights-of-way" refers to physical facilities used by LECs and other telecommunications carriers to deliver services from their premises to consumers' premises. These physical facilities include poles, ducts, conduits, trenches, vaults, risers, equipment rooms, and telephone closets. The facilities may be located on property owned by governmental units, by various utilities including local exchange companies (LECs), and on private property.

[3] Another view of right-of-way is that it is often a condition of use rather than property, *per se*. In this view, right-of-way can result from ownership of property or from the force of law—as in the case of an eminent domain acquisition of a right-of-way. In many cases, utilities do not own the property upon which their poles are placed or in which their cables are laid. Instead, they are granted right-of-way to use the property for certain purposes, and the owner is thereby compelled to allow them to use the property.

is to provide maximum benefits to consumers. Thus, to the extent that consumers benefit from having real choices of their supplier of telecommunications services, competition is a plus, and policies that enable competition are favored. Therefore, policy should aim at providing consumers with real choices among competitive suppliers, and real choice can be facilitated by policies that provide for access to rights-of-way by all providers, incumbents and entrants alike. Moreover, in order to benefit consumers, policy should facilitate competition, but it should neither favor nor discriminate against particular competitors.

The Imperative of Competition

Absent competition, there would be little reason to be concerned with rights-of-way and associated facilities. However, developing policies that ensure equitable access to and pricing of rights-of-way for all providers is one of the crucial steps in facilitating viable competition in local telecommunications. Other important steps include providing for continued support of universal service, establishing plans for number portability (at least among carriers) and numbering plan administration, setting technical standards for interconnection, instituting inter-carrier compensation for call termination, determining the appropriate degree to which the incumbent's network and services should be unbundled, setting prices for unbundled services, providing for carriers to maintain combined or linked databases and directories, and ensuring the privacy of customer information.[4]

Two major factors have resulted in the movement to allow competition in telecommunications markets. The first is technological innovation that made competitive entry economically feasible. The second is an enhanced faith in the ability of competition to result in greater efficiency and consumer benefits, including provision of advanced technology, than were attainable under the traditional franchised regulated

[4] These issues are discussed in TerKeurst, McCarter, *et al.* 1996 and in Bernt, Kruse, and Landsbergen 1992.

monopoly model.[5] In that model a single local exchange carrier (LEC) was authorized to offer local telephone services, the LEC's prices and services were closely regulated under cost-of-service or ratebase regulation, and other firms were forbidden to enter the market. In addition, the LEC was kept out of other markets such as cable television.

The Emergence of Competition and the Transformation of Regulation

As a result of technological innovation and increased faith in competition, the traditional model of telephone regulation has been substantially modified and, in some cases, largely discarded. Various forms of alternative regulation, including price cap regulation of monopoly services combined with greater pricing flexibility for the LEC's competitive services, have been instituted in many states.[6] Moreover, prior to and independent of the 1996 Act's mandate to open markets to competition, the adoption of alternative forms of regulation often has been

Adoption of alternative forms of regulation often has been accompanied by lowering or removing the legal barriers to competitive entry in local telecommunications markets.

---

[5] Some of the criticisms of the traditional regulatory model are discussed in Lawton, *et al.* 1994, pp.115-126 and in Shepherd 1992. The increased faith in competition is not unique to telecommunications. It is also seen in other utility sectors, including electricity and natural gas, and in the transportation, banking, and financial service industries, which have been deregulated in large part.

There has been a trend towards greater reliance on market forces in a number of industry sectors. Winston 1993, p.1286 concluded that:

> ... microeconomists' predictions that deregulation would produce substantial benefits for Americans have been generally accurate ...

He also stated (at n.48) that:

> In practice, the choice is between some form of imperfect competition or imperfect regulation. Given this choice, the accumulated evidence ... suggests that the burden of proof should be on those who argue price and entry competition is not workable.

Discussion of the requirements for workable competition may be found in Lawton, *et al.* 1994, pp.153-178 and Chessler 1996, pp.55-84.

[6] Aspects of the trend away from the traditional model of regulation and toward competition are discussed in Davis 1995 and in Davis, Zearfoss, and Reed 1995.

accompanied by lowering or removing the legal barriers to competitive entry in local telecommunications markets.

As a result of lowered legal and regulatory barriers, nontraditional telecommunications providers including cable television systems, competitive access providers, electric utilities (or their holding companies), interexchange carriers (IXCs), and wireless providers are either offering or planning to offer a wide variety of communications services including switched local access. These non-LEC providers are referred to as alternative local exchange carriers (ALECs) or competitive local exchange carriers (CLECs). In addition, a number of LECs (or their parent companies) are planning to offer video services. In general, various providers have adopted plans or strategies to enhance their relationships with their customers and be "one-stop" providers of all a consumer's telecommunications services. Services they plan to provide include: local and long-distance access; enhanced or value-added services such as centrex services and CLASS features such as voice mail, call waiting, call forwarding, and caller-ID; information access services such as internet gateway connections; and entertainment and video services of various kinds including interactive games. This market is large and growing. Indeed, the market may be as much as two hundred dollars per month for many residential customers when local and toll telephone service is combined with video and information services.[7]

The most efficient access to potential customers may require new facilities-based providers to cross or use existing rights-of-way, owned or controlled by incumbent utilities. Although it is increasingly feasible to deploy a local loop based on wireless technology, the potential for deployment of such a loop does not totally obviate rights-of-way

The most efficient access to potential customers may require new facilities-based providers to cross or use existing rights-of-way, owned or controlled by incumbent utilities.

[7] This estimate was given by Edward Young, Vice President and Associate General Counsel of Bell Atlantic, during a presentation at the NARUC Winter Meetings, Washington, D.C., February 1996.

questions, as firms proposing to deploy wireless loops may find it necessary to locate some of their facilities on existing rights-of-way.[8]

Effective competition is more likely to develop if all providers have substantially equal access to rights-of-way.

Effective competition in local telecommunications—broadly defined to include voice, data or information, and video services—is more likely to develop if all providers have substantially equal access to rights-of-way. Thus, one action that can facilitate competitive entry, and create potential benefits for consumers, is to adopt policies that ensure nondiscriminatory access to rights-of-way for all providers, incumbents and entrants alike. As noted above, such access is one of the important details that must be addressed as markets are opened to competition. Conversely, if access to rights-of-way is not available to entrants or is available only under unfavorable terms and conditions, the process of competition will be hampered, and the welfare of consumers will be negatively affected. In order to encourage competition, the ability of incumbents and others to use control over rights-of-way and associated facilities to create strategic advantages for themselves must be constrained. However, it must be noted that, to benefit consumers, policy should be pro-competition rather than pro-competitor. No particular type of carrier should be given special treatment.

To benefit consumers, policy should be pro-competition rather than pro-competitor.

[8] The potential impact of wireless and other non-LEC providers on the local loop is considered in Davis, Kruse, Pollard, and Reed 1994, Bernt 1994, and Bernt, Kruse, and Landsbergen 1992. The cost effectiveness of wireless local loops is discussed in Palmer 1996, which analyzed wireless access loops, that replace all or parts of the traditional wired loops with wireless equipment optimized for providing service to fixed locations, and finds it to be increasingly competitive. Wireless technology offers the potential for faster deployment and lower capital and operating costs, especially in areas where local access is nonexistent or insufficient.

Network Models [9]

When there was no competition in telecommunications, there was only one network. Of course, that network had many subparts including the local loop, local central offices, interoffice trunks and switches, and long-distance circuits and switches. The various parts were interconnected and interoperable in the sense that traffic could be originated in one location, be switched and transported over great distances, and be terminated at a remote location. But, in any given location, there was only one physical telecommunications network, the public switched network. Competition in telecommunications, especially facilities-based competition, implies perforce the existence of multiple physical telecommunications networks. Three models of the organization of multiple networks are the parallel networks model and two versions of the network-of-networks model—the linchpin network-of-networks model and the intermeshed network-of-networks model.

When there was no competition in telecommunications, there was only one network.

Three models of the organization of multiple networks are the parallel networks model and two versions of the network-of-networks model—the linchpin network-of-networks model and the intermeshed network-of-networks model.

The Parallel Networks Model

The parallel networks model is the traditional model of networks and services being separated by regulation and technology. For example, cable television and traditional telephone service have been treated as being totally unrelated for regulatory purposes. Because they delivered different services, which were not substitutes, and

[9] See Bernt 1994 for a fuller discussion of these models.

because technologies and network architecture differed, the cable network was seen as separate and distinct from the telephone network. The telephone network was on one side of the line, and cable network was on the other. Notwithstanding that cable systems often attach their wires to telephone poles, a Euclidian axiom that parallel networks never meet was applied to the two systems. In addition, although the services provided are similar, because the technology was different, wireless telephone services have been regulated under different rules than wireline services. Furthermore, telephone services were put into different regulatory boxes depending on whether they were local or long-distance, intra- or interLATA, and intra- or interstate.

The parallel networks model is the traditional model of networks and services being separated by regulation and technology.

As technology converges, the desirability and feasibility of maintaining distinctions in regulatory treatment must be questioned. Indeed, technological advancement and convergence have created opportunities for competition that did not heretofore exist. With proper hardware and software attached at both ends, a single wire can deliver services that blur if not obliterate traditional boundaries and distinctions.

Network-of-Networks Models

It has been suggested that telecommunications will evolve from parallel networks to become a network-of-networks. Similar services will be offered by multiple providers; networks will interconnect with one another; and providers will offer multiple services that cross traditional regulatory boundaries. There are two visions of what a network-of-networks might look and operate like. One vision is hierarchical—one network is treated as the

Networks will interconnect with one another; and providers will offer multiple services that cross traditional regulatory boundaries.

core or linchpin network, and other networks connect with it, but they do not necessarily connect with each other. The other vision is non-hierarchical—multiple networks will be interconnected with each other at multiple points, so that it will be difficult to say that one network serves as the core. In this model interconnection and interoperability would mean that a customer could purchase services from one provider, and service would be delivered over that provider's network or over networks partially controlled by other providers. In an extended view of this model, consumers would have almost total freedom to mix and match services and providers, purchasing a variety of services from a range of providers. In an extended network-of-networks model, the fact that one entity owns the wire to a home or business would not constrain the consumer's choice of providers or services.

The fact that one entity owns the wire to a home or business would not constrain the consumer's choice of providers or services.

The Linchpin Network-of-Networks Model

The linchpin model treats one network as being the core of the network-of-networks and other networks interconnect to it but not necessarily to each other. The telephone side of the traditional parallel network model exhibited the main features of the linchpin model. The LEC's network was the linchpin: other telephone networks were fringe providers that interconnected with the LEC but they

The linchpin model treats one network as being the core of the network-of-networks and other networks interconnect to it but not necessarily to each other. Asymmetrical regulatory treatment of the linchpin network is justified.

Proposals by Ameritech and Rochester Telephone Co. to open their network platforms to others fit the linchpin model.

were not always interconnected with each other.[10] For example, wireless providers interconnect with the LEC's network, but they may not have a direct connection with IXCs. IXCs interconnect with the LECs and with some private networks, but they do not have direct connections to customers. In addition, CAPs provide direct connections to IXCs, bypassing the LEC, but they are not generally interconnected with other carriers. The LEC's network serves as the common core facility; so long as the various non-LEC networks interconnect with the LEC, they can exchange traffic with each other, even though there is no physical link between them. In the linchpin model, although networks may have different technologies, interconnection and interoperability are maintained because each independent network is interconnected to the core. The current linchpin model relies on the LEC to coordinate interconnection so that interoperability and service quality standards are met.

In telecommunications, the short- or intermediate-run path of competition and regulation is most likely moving from the parallel model to a linchpin network-of-networks model. In that model, the entity controlling the core network has a special position and may be vested with additional rights and responsibilities. For a time, the LEC's network will be the core network, at least for telephony, and other networks will be connected to it. Because of its role as the core network, asymmetrical regulatory treatment of the linchpin network is justified. For example, the 1996 Act places obligations on LECs that are not on other carriers. These obligations include requirements that they offer their retail services for resale and provide other carriers with nondiscriminatory interconnection and unbundled access to their network facilities.

It is possible that other linchpin networks will develop, possibly those of cable providers. If that happens, there will be two, or more, core networks that are interconnected with each other, and fringe providers would interconnect with one or both of the linchpin networks, but they would have limited obligations to interconnect with each other and would do so only if it were in their mutual interest to do so.

---

[10] Proposals by Ameritech and Rochester Telephone Co. to open their network platforms to others fit the linchpin model.

The Intermeshed Network-of-Networks Model

The linchpin network-of-networks model presumes that there will be a core network. In contrast, the intermeshed network-of-networks model is based on the belief that there may come a time when there is no single core network. Rather, the core network will be replaced by multiple interconnected networks, which, when combined, will provide an interoperable platform over which a wide range of services will be available. This could happen if one or more carriers deploy networks that become as ubiquitous as the LEC's. Without a linchpin, there must still be some means of providing coordination so that the combined intermeshed network will be seamlessly interoperable.[11] Technical coordination and rules requiring nondiscriminatory interconnection and reciprocal common carriage of traffic are needed, and these functions can be performed by industry groups, by regulators, or by both.

In the intermeshed model, there is no reason for policy to give any particular carrier special obligations or privileges; all carriers would have symmetric responsibilities. Continued oversight to ensure that no group of carriers forms a coalition that recreates the linchpin and that interconnection continues to be offered on a nondiscriminatory basis. Creating a truly competitive marketplace means that, in addition to allowing entry, provisions must be made for the exit of carriers. Universal service goals are also important, and plans must be in place for ensuring that the exit of a carrier does not result in a loss of access by customers.

In the intermeshed model, there is no reason for policy to give any particular carrier special obligations or privileges; all carriers would have symmetric responsibilities. The intermeshed model is based on the belief that there may be no single core network.

[11] Seamless interoperability might imply that consumers have no reason to be concerned about which network is carrying traffic that they originate or terminate.

Network Models and Rights-of-Way

The choice of policy towards rights-of-way access depends on the network model that describes the situation faced by regulators and carriers.

The choice of policy towards rights-of-way access depends on the network model that describes the situation faced by regulators and carriers. Suppose that the parallel networks model is appropriate. In that case there is no direct competition between networks, and there is little reason to expect significant amounts of strategic behavior between carriers—except that the facility owner may try to extract economic rents from a potential user.[12] Relatively simple rules regarding the sharing of facilities are needed, and existing pole attachment rules are examples.

If the linchpin model is appropriate, policies should aim to ensure that the LEC provides nondiscriminatory access at prices that are close to the incremental costs of that access. Also, to give interconnectors freedom to configure their own networks and services as they desire, policies that favor giving interconnecting carriers options as to the nature of their access are appropriate. Such policies as allowing lease and resale of the LEC's physical local loop links, allowing other carriers to collocate equipment on rights-of-way facilities, and requiring LECs to offer unbundled access to rights-of-way facilities, are consistent with the linchpin model.[13] If the LEC is the linchpin, its facilities may become the platform through which other carriers deliver

If the LEC is the linchpin, when faced with capacity constraints in its rights-of-way facilities, it could be required to expand or upgrade its facilities.

[12] The facility owner will have an incentive to price access at a level that the other provider would be almost indifferent between buying access to the facility or not. Such behavior is not anticompetitive, because there is no competition between the parties, but it would tend to lower social welfare, as too little of the other service would be provided.

[13] Such access would, of course, be subject to reasonable capacity, safety, and reliability constraints.

services. Under certain circumstances, the LEC's obligations as the linchpin could include requirements that, when faced with capacity constraints in its rights-of-way facilities, the LEC would have to expand or upgrade its facilities. It could, however, charge carriers necessitating the expansion or upgrade appropriately.

If the intermeshed model is appropriate, all carriers that have rights-of-way facilities would be under symmetric and reciprocal obligations to one another and to other carriers who want a physical link to customers. If, for example, there are multiple physical networks that interconnect at various points, all the networks would be under equivalent obligations to provide access.

Results of the NRRI Survey on Rights-of-Way

A right-of-way usually refers to access to a portion of a side of a street or an easement on private property granted to a utility, usually an electric, gas, or telecommunications company. Having a right-of-way allows the utility to construct, install, and maintain poles, towers, pipes, conduits, lines, raceways, and other facilities, so that service may be provided to the public. There are two types of rights-of-way: private and public, and rights-of-way may be granted by state legislation, municipal ordinances, public utility commissions, or obtained from a private party.

A right-of-way usually refers to access to a portion of a side of a street or an easement on private property granted to a utility, usually an electric, gas, or telecommunications company.

In the spring of 1995, the NRRI surveyed state commissions regarding the status of their jurisdiction over rights-of-way and issues that had arisen in their jurisdictions. Survey forms were sent to all fifty states and to the District of Columbia. A compilation of the thirty-seven responses is presented below.

Private Rights-of-Way

Private rights-of-way are owned by utilities or have been granted to utilities by way of easement.

Private rights-of-way are owned by utilities or have been granted to utilities by way of easement. Table 1-1 summarizes the responses to the questions that dealt with access to utility-owned or controlled rights-of-way, including poles, ducts, and conduits.

At the time of the survey, only seven of the thirty-seven respondents, or about 19 percent, had specific statutes, rules, or regulations regarding access by non-LEC communications companies to utility-owned rights-of-way, utility poles, ducts, and conduits. Thus, only seven states have *de facto* jurisdiction over private rights-of-way. However, there are no intrinsic impediments for the other states to have jurisdiction to private rights-of-way, and, with passage of the Telecommunications Act of 1996, non-LEC communications companies will undoubtedly seek access to private rights-of-way. State action to adopt appropriate statutes, rules, or regulations can be expected as part of local competition undertakings.

Table 1-1

State Commission Regulation of Private Rights-of-Way

		Yes	No	Don't Know	No Answer	Total
1. Does your state have specific statutes governing access to						
a.	utility-owned rights-of-way?	7	29	1	0	37
b.	utility poles, ducts, and conduits?	7	26	1	3	37
2. Does your Commission have specific rules or regulations regarding access to						
a.	utility-owned rights-of-way?	2	16	0	19	37
b.	utility poles, ducts, and conduits?	1	15	21	0	37
3. Do the statutes, rules, and regulations mentioned in questions 1 and 2 provide for different treatment of LECs, CATV providers, IXCs, or CAPs with respect to access to utility-owned rights-of-way, poles, ducts, and conduits?		12	25	0	0	37
4. Have any LECs in your state proposed or put into effect policies that set forth the conditions and terms under which they will allow other providers to access their rights-of-way, poles, conduits, and ducts?		5	29	0	3	37
5. Are you aware of any complaint, allegation, or proceeding before your Commission in the past five years in which it was claimed that a LEC or other utility refused to give other providers (CATV or CAPs, for example) access to its rights-of-way, poles, ducts, or conduits?		0	37	0	0	37

Table 1-1 (continued)

State Commission Regulation of Private Rights-of-Way

6. Have any complaints or allegations of possible anti-competitive practices by LECs or other providers been brought to the attention of the Commission within the past five years relative to access to rights-of-way, poles, ducts, or conduits?					
	Yes	No	Don't Know	No Answer	Total
	7	28	2	0	37
7. Does your Commission have specific regulatory accounting rules for revenues derived from the lease of utility rights-of-way, poles, ducts, or conduits?					
	Yes	No	Don't Know	No Answer	Total
	7	30	0	0	37
8. Does your Commission regulate or review the rates charged for access to utility rights-of-way, poles, ducts, or conduits?					
	Yes	No	Don't Know	No Answer	Total
	7	28	0	2	37
9. Are non-utility providers required to obtain certification from your Commission in order to obtain access to utility rights-of-way, poles, ducts, or conduits?					
	Yes	No	Don't Know	No Answer	Total
	9	27	0	1	37

Source: Authors' construct from responses to the February 1995 NRRI survey of rights-of-way policies.

Public Rights-of-Way

Public rights-of-way are owned or controlled by states, counties, cities and other municipalities. Table 1-2 summarizes the responses to the questions that dealt with state commissions' oversight of public rights-of-way.

Table 1-2

State Commission Regulation of Public Rights-of-Way

	Yes	No	Don't Know	No Answer	Total
1. Does your state have specific statutes governing access to public rights-of-way?	23	10	1	3	37
2. Does your Commission have specific rules regarding access to public rights-of-way?	3	34	0	0	37
3. Is public utility status required to obtain access to public rights-of-way?	19	8	7	3	37
4. Do cities or municipalities in your state have specific ordinances governing access to public rights-of-way?	15	2	20	0	37
5. Have city, municipal, county, or state governments in your state adopted a comprehensive plan – or instituted a planning process – to set access polices for public rights-of-way?	2	12	22	0	37
6. Do cities and municipalities in your state apply different rules and regulations to investor-owned utilities and municipal-owned utilities concerning access to public rights-of-way?	4	4	29	0	37
7. Have any complaints or allegations of anti-competitive practices regarding the use of public rights-of-way by cities and municipalities or the denial of use of public rights-of-way to providers of communications services been brought to the attention of your Commission within the last five years?	3	34	0	0	37
8. Does your Commission regulate or review rates regarding municipal leasing of rights-of-way?	1	36	0	0	37

Source: Authors' construct from responses to the February 1995 NRRI survey of rights-of-way policies.

More attention has been devoted to public rights-of-way compared to private rights-of-way.

Twenty-three states responded that they have specific statutes governing access to *public* rights-of-way. This is more than three times the number of states with specific statutes, rules, or regulations governing access to *private* rights-of-way. Relatively more attention has been devoted to public rights-of-way compared to private rights-of-way. However, only three state commissions have specific rules regarding access to public rights-of-way, and most of the rights-of-way processes and procedures are embedded in statutes.

In fifteen responses, state commissions believed that cities or municipalities had specific ordinances governing access to public rights-of-way. Only two commissions reported that there is a comprehensive plan or a planning process in place to set access policies at the city, municipal, county, or state level. Thirteen reported that none is in place, and twenty-two did not know.

It appears that state commissions have had little reason to be concerned with city and municipality ordinances regarding rights-of-way. Twenty-nine commissions did not know whether cities and municipalities apply different rules and regulations to investor-owned utilities than to municipal-owned utilities. This lack of knowledge may be largely a result of the fact that state commissions have little or no jurisdiction over local ordinances. The lack of jurisdiction may result in a lack of predisposition for a "need-to-know."

Cities and municipalities have the power to grant franchises, and they enact ordinances governing access to their rights-of-way. In some, municipal control extends to the location of telephone lines and poles only. As local exchange markets are opened to competition, there will be requests from CAPs to municipalities to allow the CAPs the use of rights-of-way that are presently used by LECs.

There are some informal indications that some municipalities might impose a franchise fee on CAPs, whereas LECs have traditionally used rights-of-way for free. Because there are so many local government units, there is potential for great differences in the way various cities and municipalities provide CAPs and others with access to the rights-of-way in their jurisdictions. Undue variation in rules may impede

competitive entry. Greater benefits to the public can be expected if there is state-wide coordination and planning with respect to rights-of-way. Although cities, counties, and municipalities must retain a significant role in this matter, state public utility commissions can be in a coordinating role in advancing a comprehensive plan for rights-of-way.

Greater benefits to the public can be expected if there is state-wide coordination and planning with respect to rights-of-way. Although cities, counties, and municipalities must retain a significant role in this matter, state public utility commissions can be in a coordinating role in advancing a comprehensive plan for rights-of-way.

Only three commissions report complaints of anti-competitive practices or denial of use of access to public rights-of-way that have been brought to their attention within the last five years. One commission reported that there had been informal complaints from CAPs having to pay CATV-like franchise fees. Another commission reported that there had been occasional complaints, mostly from CATV operators, but no details were given. A third commission reported that it had information about a municipality trying to impose a franchise fee on a CAP for use of a public right-of-way when the LEC uses the rights-of-way free of charge. Only one of the 37 responding commissions regulates or reviews rates regarding municipal leasing of rights-of-way; it reviews and approves local franchising payments.

Other State Actions

Since the time of the NRRI's survey, several states have taken actions on rights-of-way access issues. Descriptions of some of these state actions follow:

Colorado[14]

The Public Utilities Commission (CPUC) adopted regulations that incorporate the provisions of the Federal Telecommunications Act of 1996. In Docket 95R-556T, the CPUC adopted rules for interconnection and unbundling that provided for all

[14] See *Wireless Word*, June 17, 1996.

telecommunications providers to interconnect with other requesting providers at any technically viable point and to allow physical collocation where possible. Moreover, interconnection must be offered at just, reasonable, and nondiscriminatory rates, and on nondiscriminatory terms, and conditions. In addition, upon request by another provider, all telecommunications providers must provide access to their poles, ducts, conduits, and rights-of-way, if the requested access is feasible. The CPUC's regulations also call for incumbent telecommunications providers to provide essential facilities, including loop facilities, to others on an unbundled basis, and they must file tariffs for such unbundled elements.

Hawaii

Subsection 6-80-68 of Hawaii Administrative Rules requires telecommunications carriers to provide, upon a *bona fide* request, other carriers with nondiscriminatory access to poles, ducts, conduits, and rights-of-way owned or controlled by the carrier, provided that the access is technically feasible, physically and legally possible, and economically reasonable. The carrier requesting access and other parties involved are to negotiate the terms and conditions of access. If they cannot reach an agreement, the requesting carrier can notify the Public Utilities Commission (PUC), which can take actions to resolve the dispute or direct the parties to resume negotiation. If it deems it to be necessary, the PUC can require the filing of a cost-based tariff for access.

Michigan[15]

The Legislature passed and the Governor signed a new Telecommunications Act which contained language relating to the management of public rights-of-way, when they are used for various telecommunications services, including cable television. The right of local government to franchise cable television operators, who use public rights-of-way, was retained. In addition, other telecommunications providers must obtain local franchises, if they want to offer cable television services. Providers of

[15] See Nicholas P. Miller and Amy Davis, "Michigan Telecommunications Act: An Example of State-Local Relations," *State and Local Communications Report*, January 26, 1996, 12-14.

telecommunications services, whether regulated or unregulated, need a local permit to access and use of public rights-of-way. Local governments must issue permits on a nondiscriminatory basis, act on requests within ninety days, and cannot charge fees and assessments in excess of the fixed and variable costs of granting the permit and maintaining rights-of-way.

Ohio[16]

The Public Utilities Commission of Ohio (PUCO) issued rules on rights-of-way access as part of an investigation of and rulemaking on local competition issues. The PUCO noted a number of rights-of-way issues that had been raised by various parties. Municipalities expressed concern that proposed rules would affect their ability to regulate the public right-of-way within their jurisdictions. LECs expressed concern regarding the ability of poles and conduit to hold more capacity, and claimed that the FCC's pole attachment formula is not appropriate for determining the amount to charge competitive providers for pole attachments. MFS, Inc., a CAP, asserted that the FCC's pole attachment formula should be maintained and that rates for conduit space and access to rights-of-way not exceed long-run service incremental cost (LRSIC).[17]

---

[16] This discussion is adapted from Public Utilities Commission of Ohio, Case No. 95-845-TP-COI "In the Matter of the Commission Investigation Relative to the Establishment of Local Exchange Competition and Other Competitive Issues," *Finding and Order* and *Appendix A: Local Service Guidelines* (June 12, 1996).

[17] LRSIC is a measure of the total cost of adding a service to a firm's product mix, keeping the quantity of all other services constant. LRSIC is the difference between the *minimum* total cost of producing a product mix, including an assumed quantity of the service in question, and the *minimum* total cost of producing the product mix without that service. LRSIC calculations do not include any contribution to the firm's joint and common overhead costs. LRSIC is generally viewed as being synonymous with total service long-run incremental cost (TSLRIC). Sometimes, however, both LRSIC and TSLRIC may be used as measures of "per-unit" or *average* incremental cost.

LRSIC may differ significantly from calculations based on the embedded cost of current plant and equipment. One reason is that LRSIC is "forward-looking"—the estimates of the minimum cost of producing the product mix with and without the service in question are based on the assumption that all inputs are freely variable. This means that physical and human resources are assumed to be optimized to produce the product mix with and without the service in question, and that the most efficient currently available technology will be used. In some calculations of LRSIC the assumption of total variability of facilities is relaxed, and it is assumed that basic network nodes such as cental offices remain in fixed locations.

In adopting its guidelines, the PUCO noted that the FCC may not promulgate its rules on compensation for rights-of-way access until early 1998, so interim rules are needed. Therefore, as part of its local competition guidelines, the PUCO:

1. required LECs to provide other authorized carriers with nondiscriminatory access to their rights-of-way facilities, and to do so on rates, terms, and conditions established through interconnection arrangements or tariffs.
2. directed that access to poles, ducts, conduits, and right-of-way shall be on a first-come, first-serve basis subject to space limitation and taking into consideration a demonstration of the LEC's own future needs.
3. stated that prices for ducts, conduit space, and access to right-of-way shall be set at a level that allows the providing LEC to recover its LRSIC for providing ducts, conduit space, and access to right-of-way plus a reasonable contribution to the providing LEC's joint and common costs. However, unless the pole owner can demonstrate the need to deviate from it, prices for pole attachments shall be set based upon the prevailing FCC's formula.
4. recognized that private rights-of-way are subject to negotiated agreements with property owners, exclusive of eminent domain considerations. However, any arrangement whereby telecommunications carriers are provided exclusive use of private building riser space, conduit, and/or closet space is anti-competitive and unlawful.
5. directed LECs to coordinate their right-of-way construction activity with the affected municipalities and landowners.
6. provided that disputes concerning compensation, conditions of use, or joint use of equipment may be brought to the PUCO for resolution.

Organization of This Report

This chapter has provided an introduction to the importance of the issues raised in this report. Specifically the main issue is the need to enact policies that ensure all providers of telecommunications services (broadly defined to include voice, data or information, enhanced or vertical services, and entertainment services such as video) have equitable rights of access to rights-of-way facilities. This must be done to facilitate the development of truly competitive markets. This chapter has also provided a brief discussion of three networks models: the parallel network model; the linchpin network-

of-networks model; and the intermeshed network-of networks model. This chapter has also presented the results of a survey of state commission rights-of-way policies and a description of some recent state policy actions.

Chapter 2, Economic Issues and Interest Groups, examines the ability of those who control access to rights-of-way or other bottleneck facilities to create barriers to effective competition through the use of strategic pricing or other means. It also discusses the importance of control of rights-of-way access and pricing to various groups including incumbent LECs, other utilities, entrants, and local governments.

Chapter 3, Rights-of-Way Provisions in the Telecommunications Act of 1996, contains a presentation and some discussion of the rights-of-way access provisions in the Telecommunications Act of 1996 and FCC's implementation of the provisions of the Act.

Chapter 4, Rights-of-way Policy and Pricing Models, examines various models of access and pricing that might be applied. The implication of the essential facilities doctrine, common carriage, and indefeasible right of use are applied to rights-of-way. Also, pricing models including fully allocated cost, the efficient components pricing rule, and incremental cost are considered.

Finally, Chapter 5, Summary and Conclusions, presents the authors' views as to appropriate policy considerations regarding rights-of-way access and use.

CHAPTER 2

ECONOMIC ISSUES AND INTEREST GROUPS

Rights-of-way are important because they are scarce resources.

The first part of this chapter examines rights-of-way as strategic assets and analyzes the ability of those who control access to rights-of-way to affect competitive entry and viability. The maintained view is that if any firm in a market is in a position to influence its rivals' ability to enter a market or their cost of doing business, it has an incentive to use that influence to enhance its position to the detriment both of its rivals and consumers. A firm in a position to do so can erect barriers that deter entry by competitors. The second part of this chapter examines the concerns of various groups with interests in rights-of-way policy. Rights-of-way are important to these groups because they provide the means to reach potential customers, and, because rights-of-way do not have infinite capacity, they are scarce resources. Groups with interests in rights-of-way include the incumbent LECs, other firms that control rights-of-way, other telecommunications carriers wishing to use rights-of-way, and local governments, who control public rights of way.

Barriers to Entry [1]

If a telecommunications carrier finds itself unable to obtain physical access to potential customers on reasonable terms, it may feel that it has encountered a barrier to entry. The question of what constitutes a barrier to entry is not easy to answer. One definition states that a barrier to entry is

> . . . a cost of producing (at some or every rate of output) which must be borne by a firm that seeks to enter an industry but which is not borne by firms already in the industry. [2]

---

[1] See Chessler 1996, pp. 29-36, for a fuller discussion of barriers to entry.

[2] Stigler 1968, p. 67.

A somewhat broader, but also somewhat circular, view is that the existence of long-run monopoly profits is evidence of barriers to entry or of some impediment to the free flow of capital into an industry. [3]

Barriers may include brand loyalty, patents, and control of inputs or distribution channels. The potential reaction of an incumbent faced with entry may also deter entry (though it doesn't come under Stigler's definition). A barrier may also result from the "first mover advantage" that accrues to an incumbent firm, as the very existence of an established firm may make it difficult for others to enter the market. This is especially true when entry is costly in terms of sunk costs that must be incurred to gain a market presence. [4] Legal restrictions on entry may create a barrier, and it may be possible for a firm to make strategic use of regulatory processes to impede or deter entry into its markets.

A distinction may also be made between a barrier to entry and a barrier to competition. The existence of economies of scale in the production of a good or service does not, by itself, create a barrier to entry. Economies of scale, may however, create a barrier to competition, if the market cannot support multiple producers, each of whom is able to produce at a level of output compatible with minimizing the average cost of production. [5]

Also, note that there is a distinction between anticompetitive pricing and socially optimal pricing of rights-of-way access. The owner of rights-of-way facilities, even one with no anticompetitive incentives, will find it optimal to price access to rights-of-way at the private profit-maximizing level. That is, the owner of any resource that is not easily

---

[3] The competitive model suggests that, absent barriers to entry and exit, profits will tend towards some normal risk-adjusted competitive level—i.e., there will be no "economic profits." Unless there are barriers to entry, high profits will attract capital inflows, and low profits will lead to capital outflows. The model of profit-maximizing monopoly behavior suggests that prices will be above marginal costs and that the monopolist *may* earn a relatively high rate of profit. Thus, profits persistently above the normal risk-adjusted competitive level may lead to the inference of the existence of barriers to entry, market power, or both.

[4] Potential sunk costs include advertising and marketing expenses necessary to attract customers and the costs of whatever physical facilities are required to serve the market, less any salvage value should the entrant withdraw.

[5] One of the justifications for traditional public utility regulation was the belief that substantial economies of scale existed in traditional utility industries—within a single geographic market, at least.

replicated will apply monopoly pricing rules.[6] In turn, monopoly pricing will lead to inefficient use of the resource (e.g., rights-of-way), thus too few services will be produced. So, one question is whether the pricing of access to rights-of-way should be a private or a public decision.

One question is whether the pricing of access to rights-of-way should be a private or a public decision.

Bottlenecks and Vertical Control

Many products are produced and delivered to end users through a multi-step process that starts with raw materials, progresses through various stages of manufacture of the final product, then goes into the distribution process for sale and delivery. Telecommunications services are produced and delivered to consumers through a multi-step process that includes the loop connection to the customers location, routing of traffic by switches at central offices, and transporting traffic between switches. Although these functions can be performed by vertically integrated firms, they are somewhat separable. Especially since the divestiture of the Bell System and the advent of interLATA competition, it is common for several firms (the LECs at either end and the IXC in the middle) to be involved in a call made by a party in one city to a party in another city.

Unless they are served entirely by a wireless carrier, customers must be connected physically to the telephone network, and that physical connection makes use of various public and private rights-of-way. Moreover, even a wireless local loop provider must, at some point, interconnect with the wired network, and may find it useful to place some of its facilities on rights-of-way. Any entity that is in a position to determine who has access to rights-of-way, and the price of that access, will be in a

Even if access policies and prices are not consciously exclusionary, they may not be optimal.

[6] The efficiency-maximizing price would equal the marginal cost of providing access to rights-of-way. A profit-maximizing monopolist will price rights-of-way access above marginal cost; moreover, the spread above marginal cost will be inversely related to the elasticity of demand for access.

position to exert that control to disadvantage other participants in the market. Control over rights-of-way can be used to impede entry, limit the services a rival is able to offer, or limit the customers a rival is able to serve. Tactics aimed at limiting a rival's ability to compete may be termed "exclusionary behavior," but, as noted above, unless constrained by regulation, anyone who controls a bottleneck may have an incentive to act like a monopolist. Thus, even if access policies and prices are not consciously exclusionary, they may not be optimal. [7]

Sources of Bottlenecks

Bottlenecks arise from control of strategic resources, which include sources of raw materials and product distribution channel such as rights-of-way facilities. Bottlenecks can also result from government policy.

One potential source of bottlenecks is a patent. During its life, a patent gives its holder a monopoly on the product or process that the patent controls. [8] Moreover, when one firm owns a patent, it generally has no legal obligation to allow potential rivals to share it. If it so chooses, however, the patent owner *may* license one or more other producers to use its patent, but it is, thus, in a position to control its rivals' costs and possibly limit their actions through the licensing agreement. Ultimately, however, the patent owner's decision to license others depends on whether it believes it will be better off with or without licensing. [9]

---

[7] Of course, as in the case of other monopolists, few bottlenecks cannot be worked around. Unless there are strong legal sanctions against doing so, people will attempt to find ways around the bottleneck.

[8] Although the existence of patents has the potential to create monopolies, patents are not undesirable. Patents have finite lives, and rivals are often able to work around them. Indeed, patents may give rise to positive behavior, because the ability to obtain a patent increases incentives to develop new products and processes. Furthermore, the process of working around existing patents creates a dynamism that leads to patents generally being only a temporary impediment to competition.

[9] Sometimes, firms choose not to license and regret it. One example is Apple Computer, which kept its Macintosh operating system proprietary and resisted efforts to develop Macintosh "clones." This behavior maintained Apple's monopoly in Macintoshes, and allowed Apple to maintain relatively high profit margins, as compared to the more competitive IBM-PC clone market. Over time, however, possibly as a result of attempts to maintain high margins and being unwilling to license its operating system, Apple lost market share in the overall personal computer market. A similar occurrence happened earlier in the video cassette recorder market. Sony's proprietary Betamax machines lost out to lower quality VHS format machines, which had been licensed for production by multiple manufacturers.

Another source of vertical bottlenecks arises from control of strategic resources, which include sources of raw materials and product distribution channel such as rights-of-way facilities. Suppose that a producer gains control of the raw materials involved in a product and/or the principal distribution channels (either by ownership or through exclusive contracts). If allowed to do so, it may be in a position to increase its rivals' costs or exclude them from the market.[10] Bottlenecks can also result from government policy. In the specific case of utilities, the traditional view that it was wasteful of resources to duplicate facilities led to the establishment of regulated monopolies that were granted exclusive geographic franchises. The regulated monopolies then deployed rights-of-way facilities that may now be viewed as bottlenecks in a competitive environment.

Exploiting Bottlenecks[11]

The existence of bottlenecks, however derived, can lead to market power, the exercise of which creates inefficient outcomes. There are several types of behavior —including refusal to deal, strategic pricing, and bundled sales—that may lead to inefficient outcomes in the sense that competitors costs are increased or that they do not enter the market. In either case, consumer choice is likely to be reduced and prices will be above the competitive level.

Refusing to Deal and Pricing Strategically

If the owner of a bottleneck is allowed to refuse potential rivals access (effectively putting a very high price on the bottleneck), it can make it difficult or impossible for rivals to enter the market.

If the owner of a bottleneck is allowed to refuse potential rivals access (effectively putting a very high price on the bottleneck), it can make it difficult or impossible for rivals to enter the market.

[10] If the purpose of such control, gained either through ownership or contract, is to exclude rivals, such arrangements would likely be deemed illegal under the Sherman Antitrust Act of 1890 (15 U.S.C. 1-7).

[11] Limiting the ability to exploit bottlenecks has long been an important part of antitrust analysis and enforcement. For a recent discussion applying antitrust principles to utilities, see Meeks 1996.

As a less extreme example, suppose that Firm X controls a bottleneck resource used in the production of a final product and that Firm Y must obtain access to the bottleneck in order to enter the market. X can put Y in a price squeeze by setting the resource price so that Firm X is indifferent between producing the final product itself or providing the resource to Firm Y. That is, Firm X can price access to the bottleneck at a level that includes both its marginal cost of providing Y with access to the bottleneck and whatever net contribution to profits it would have received from the sales it loses to Y. Alternatively, X can price the bottleneck at a level that makes Y's entry into the market unprofitable. [12]

Bundling Requirements

Another way the owner of a bottleneck resource may attempt to influence rivals is to attempt to impose a form of tie-in sales requirement on them. Suppose that in addition to acquiring the bottleneck resource from X, the rival, Y, is required to buy other services, which may be related or unrelated [13] to the bottleneck but which Y does not want to buy from X. In the language of telephony, Y wants to buy unbundled access to the bottleneck facility, but X is willing to sell Y access only as part of a bundled package that contains some functions that Y does not wish to obtain from X.

Remedies for Bottlenecks

If a bottleneck is found to act against some important public interest, or if a bottleneck is exploited in a way that harms consumers (i.e., if a bottleneck raises unacceptable barriers to entry or to competition), policy intervention may be used to correct the problem. A policy intervention may aim at either controlling the behavior of

[12] Whether these two prices are the same depends on the relationship between X's cost structure and Y's.

[13] If a firm uses monopoly power or control of a bottleneck in one market to influence another market in which it does not have a monopoly or control a bottleneck, the behavior is referred to as "leveraging" the monopoly. Whether such leveraging violates antitrust laws depends on whether there is a reasonable business justification for the tying arrangement and on the effect of the leveraging on competition in the other market. See Sullivan 1977, pp. 431-71 for further discussion.

the controlling firm or eliminating the bottleneck. For example, anticompetitive exploitation of a bottleneck may lead to application of the antitrust laws.[14] However, in the electricity, natural gas, and telephone industries, the traditional policy intervention is aimed not at breaking the bottleneck but at regulating the behavior of the controlling firm and limiting its ability to use control of a bottleneck to exploit its customers.[15] Indeed, in the traditional model, regulators controlled a monopolist's ability to exploit bottlenecks to the detriment of its consumers, and the power of government was used to keep competitors from entering the market. Now, however, affirmative legal barriers to entry have been removed from most markets, and policy reflects a desire to facilitate competitive entry.

If a bottleneck is found to act against some important public interest, or policy may aim at either controlling the behavior of the controlling firm or eliminating the bottleneck, anticompetitive exploitation of a bottleneck may lead to application of the antitrust laws.

There are a number remedies that might be applied to break bottlenecks. The most effective is to break the bottleneck by reducing or eliminating the controlling firm's ability to exploit the bottleneck to the detriment of competition and consumers. One method of breaking a bottleneck is to require the controlling party to provide others with access to the facility.[16] In providing access to bottlenecks such as rights-of-way facilities, policymakers will be confronted with the conflict between the concerns and interests of various stakeholder groups.

One method of breaking a bottleneck is to require the controlling party to provide others with access to the facility.

[14] See Meeks 1996, pp. 36-39 and 49-90. Also see the discussion of the essential facility doctrine in Chapter 4, below.

[15] Bottlenecks include the transmission and distribution grid in electricity, the distribution network in natural gas, and the local loop in telecommunications.

[16] Some of the theories under which such access is granted are discussed in Chapter 4, below.

Rights-of-Way Stakeholders and Interests

Rights-of-way are important components of the physical systems that deliver telecommunications services to consumers. Moreover, the market for those services—which include traditional voice and data transmission, enhanced or vertical services, information services, and entertainment services—is growing as a result of both a technology-driven explosion of services deliverable over telecommunications networks and increasing demand for those services.

Rights-of-way are, thus, increasingly valuable assets, and maintaining control of or gaining access to rights-of-way is important to a number of stakeholders, including incumbent LECs,[17] other utility firms, CLECs, and local governments. There are large dollar amounts at stake, and the conflicting interests and concerns of the various groups will create some tensions and disputes. Also, rights-of-way have some limits on the numbers of facilities they can accommodate. Thus, they are limited or scarce resources, and cannot be used by an infinite number of service providers. Various entities may attempt to "warehouse" rights-of-way for future use and withhold them from other users.

Convergence

Technology is creating a convergence of formerly separate businesses and markets, and the distinctions between electron flows that carry voice, data, information, and entertainment may no longer be valid, as the same facilities can deliver them all. Businesses that have been separated by technology and by regulatory treatment are becoming more similar than dissimilar. LECs have operated as public utilities and have been franchised and regulated at the state level. They typically have paid either no or only token local franchise fees, but they often have paid state taxes on their gross receipts. In some states, utility property has been treated differently for tax purposes

[17] In this discussion, the term "LEC" refers to the LEC itself and its affiliates, including its parent company's subsidiaries.

than that of non-utility firms. Cable television operators have not been public utilities; they have operated under local franchises and have paid franchise fees to the local governments. Now, a likely scenario is that each will offer services that compete for the other's core business. In addition, other providers will likely enter both telephone and video markets. And every entity that proposes to deliver facilities-based services will have some interest in rights-of-way.

Regulation and taxation must, at some point, treat equivalent services the same, without regard to the provider.

Just as formerly separated industries are converging, regulation and taxation must, at some point, treat equivalent services the same, without regard to the provider. Telephone service is telephone service, and video is video, whether provided by a LEC, a cable television provider, or some other entity. Regulation, franchise fees, and taxation may legitimately discriminate among services but not among providers. A legitimate exception to this occurs when policymakers determine that the public interest is best served by maintaining some form of asymmetric regulation for dominant firms.

Interest Groups

The control, use, and pricing of rights-of-way facilities is an important issue for many groups including incumbent LECs, other firms that control rights-of-way, potential entrants that desire access to rights-of-way facilities, cable television operators that already have access to rights of way, and local governments that control the public rights-of-way.

Incumbent LECs

LECs traditionally have used public rights-of-way as a result of their utility status and state franchise, and they have had the power of eminent domain available to obtain rights-of-way or easements on private property. Also LECs and electric utilities have

often cooperated in placing poles and other facilities that can be used in common. LECs have some concerns that LFAs will impose additional fees or restrictions on their use of public rights-of-way. Although, in some locales, they operate under local franchises granted decades ago, LECs operate mainly under state franchise, and payments to the LFAs under those franchises, if required at all, are minimal. LECs do not want to operate under a myriad of different local rules with respect to rights-of-way, and they may also feel threatened by LFA actions to build their own telecommunications networks or enter into partnerships with other firms to do so.

As public utilities, LECs often are required to pay state taxes on their gross receipts. Moreover, even if they upgrade their networks to deliver video services, they believe that their existing right to use public rights-of-way to deliver telephone services extends to whatever other services they might choose to offer. LECs may oppose being made to pay the local franchise fees imposed on cable television providers, which often pay as much as five percent of gross revenues to LFAs as franchise payments, and they would certainly oppose paying those fees on telephone services. [18]

The 1996 Act obliges them to give competing providers access to their poles, ducts, conduits, and rights-of-way. [19] As a result of the provisions of the 1996 ACT, LECs will undoubtedly be faced with multiple requests for access to various rights-of-way facilities. Nevertheless, LECs have a strong interest in maintaining control over their rights-of-way facilities.

LECs may be concerned about allowing other carriers to collocate equipment on their rights-of-way facilities. These concerns relate to the effect on their own lines and equipment, thus service quality and reliability. LECs are upgrading their own networks and have plans to provide video services in some markets. Therefore, they want to be able to reserve rights-of-way capacity for their future needs, and LECs do not want competitors to acquire capacity that they see as necessary to their future business needs. They also tend to resist suggestions that they must add capacity to meet the

[18] Some of the potential areas of dispute between LECs and the LFAs will undoubtedly have to be settled in the courts.

[19] 47 U.S.C. 251(b)(4).

needs of their competitors. LECs may also raise concerns about their ability to allow others access to their rights-of-way facilities located on private property. The have questioned whether easements they have been granted can be extended to other carriers. [20]

It is possible that rights-of-way facilities will become not something to protect but, rather, a separate profit center.

In providing access to competitors, LECs have several options. Some LECs may choose to use their rights-of-way facilities and entrée to customers to recast their business. It is possible that rights-of-way facilities will become not something to protect but, rather, a separate profit center. Choosing not to provide video and information services themselves; they may provide a platform via which others will deliver those services. They may lease capacity on their network to other carriers, who will deliver video, and information services. In some cases, LECs may be partners in delivery, and they may sell services such as billing, collection, marketing, installation, and repair to other carriers.

Furthermore, LECs may attempt to price rights-of-way access to collect a substantial contribution to joint and common costs over the incremental cost of providing that access. They may even propose to price rights-of-way access charges that recover the estimated lost contribution from customers they no longer expect to serve. Also, LECs may also be concerned that allowing other entities to place and maintain facilities on their rights-of-way will have a deleterious effect on their service quality.

On the other hand, one important group of LECs (i.e., the BOCs) want permission to enter new markets (e.g., in-region interLATA toll service), and one of the items in the 1996 Act's "competitive checklist" requires them to provide

[20] See, for example,"Access to Rights of Way: Managing Scarce Resources," presented by Lori Ortenstone, Senior Counsel, Pacific Telesis Legal Group, to the NARUC Staff Subcommittee's Workshop on Rights-of-Way, Los Angeles, California, July 19, 1996.

> (n)on discriminatory access to the poles, ducts, conduits, and rights-of-way owned or controlled . . . at just and reasonable rates . . . .[21]

Thus, BOCs, especially, have a conflicting incentive to provide access to their rights-of-way facilities.

Other Utilities

Other utility firms, including electric and possibly gas and water utilities, already have access to rights-of-way and may create profit opportunities by providing rights-of-way access to CLECs.[22] Alternatively, they may use their rights-of-way to deploy their own networks and either provide services directly (through their parent company) or offer to lease capacity on their network to other providers' who will use that capacity to deliver services.[23]

Already, utility holding companies have begun to request FCC determinations that they qualify as Exempt Telecommunications Companies (ETCs) under Section 103 of the 1996 Act, which amends the Public Utility Holding Company Act of 1935[24] to allow qualifying firms to provide telecommunications services, information services, and other services under FCC jurisdiction. Both electric and gas holding companies have filed for ETC determination.[25]

---

[21] 47 U.S.C. 271(c)(2)(B)(iii).

[22] As an example, Sierra Pacific Power Co. will allow Brooks Fiber Communications to install fiber-optic cables to be installed along 27 miles of its distribution network. See "Electric Utility Joins Fiber-Optic Metropolitan Service," *Electric Utility Business & Finance*, 2, no 6 (March 25, 1996): 2.

[23] CAPs often work with local utilities. The arrangements range from gaining rights-of-way for poles and conduits to joint ventures in building networks and sharing revenues. The typical electric, gas, or water company may be unlikely to go into the telecom business on its own. It is more likely that the utility would work with a telecommunications provider. See Gale Lawyer, "By Any Means Necessary: Utility Cos. Go After Telecom Market," *State Telephone Regulation Report,* 14, no. 5 (March 5, 1996): 12.

[24] 15 U.S.C. 79 ff.

[25] For example, *NECA Washington Watch Monthly* (May 1996) reports that CSW Communications, Inc. (a subsidiary of an electric utility holding company) received an ETC determination, and *NECA Washington Watch* (July 1, 1996) reported that Columbia Network Services Corporation (a subsidiary of Columbia Gas System) had requested an ETC determination.

The ability of other utilities, especially the electrics, to enter telecommunications markets should not be overlooked. The competition movement has spread into their core markets, so rapidly growing telecommunications markets may be attractive to them. Moreover, although they would need to make large investments to deploy a switched communications network, they already have relationships with the customers—indeed, the electricity's residential penetration rate is greater than telephone's.

There is an existing model for utility entry into telecommunications markets: WilTel, a second-tier IXC (behind AT&T, MCI, and Sprint) developed from the Williams Companies, which, among other things, operate an interstate gas pipeline. Sprint, itself, provides a model of entry from an unrelated business, as one of its corporate parents was the Southern Pacific Railroad. In the cases of both WilTel and Sprint, ready access to existing rights-of-way controlled by their corporate parents was exploited in their startup phase.

Some electric utilities have participated in consortia that bid on PCS licenses in the FCC's auction process. Thus, if they so choose, other utilities (or their affiliates) can enter the telecommunications market directly as a service provider or indirectly as a network provider by leasing capacity or acting as a carriers' carrier. In either case, although the 1996 Act requires all utilities to provide access to their rights-of-way facilities on nondiscriminatory terms,[26] they may have incentives to exploit their control of rights-of-way in a manner that hinders competition.

Entrants

Entrants in the local telecommunications markets include CLECs such as competitive access providers (CAPs), cable television companies, IXCs, and wireless providers. One option is for CLECs to overbuild the existing telephone network and use

[26] Section 703 (Pole Attachments) of the 1996 Act amends 47 U.S.C. 224 (Regulation of Pole Attachments) to include anyone who owns or controls rights-of-way facilities used to provide wire communications, and extends to all telecommunications carriers rights previously granted cable television systems.

existing rights-of-way to create a physical connection to their customers. Another option open to CLECs is to lease unbundled loop facilities—including the physical connection to the customer premises—from the LEC, or from a third party (e.g., an electric utility or a municipality that has deployed a network). Some CLECs may find it useful to obtain loop facilities from the LEC on a resale or unbundled access basis; others will choose to deploy their own networks, at least in some locations.[27] Moreover when they choose to deploy their own networks, CAPs will almost certainly want to place some of their facilities on existing pathways.

An example of a CLEC leasing unbundled physical connections to customers is seen in a recent interconnection agreement between Ameritech and MFS under which MFS will lease some of Ameritech's local loops. MFS will sell local phone services to business and residential customers using Ameritech's lines to reach prospective customers, but it will not use other Ameritech services such as switching.

CAPs have already deployed some facilities to serve large customers, especially to connect them with IXCs in order to bypass the LEC's switches. However, if CAPs choose to enter the small business and/or residential markets or provide switched local service, they will have to expand their local loop facilities or lease the loop facilities of existing providers. CAPs argue that they have greater difficulty gaining access to their customers than do LECs. For example, some building owners have been reluctant to allow CAPs to access potential customers in the building or have attempted to charge CAPs access fees not charged to incumbent LECs. In addition, CAPs have asserted that, in regard to fees and permits for using public rights-of-way, some municipalities treat them differently than they do traditional carriers.[28]

As they extend their networks to be more ubiquitous, CLECs will run into more problems with rights-of-way. For example, Teleport Communications Group (TCG), asked the New Jersey Board of Public Utilities for permission to "condemn" space on

---

[27] See *NECA Washington Watch*, (MAY 23, 1996).

[28] See "With Passage of Telecom Law, ALTs Members Shift Focus to Business Plans, New Markets," *Telecommunications Reports* 62, no. 18 (May 6, 1996): 1 ff.

poles owned or controlled by Bell Atlantic.[29] TCG asserted that Bell Atlantic was creating unreasonable delays in acting on its requests to install fiber optics on Bell Atlantic's poles or quote a price for such installation; TCG thus sought its own power of eminent domain over Bell Atlantic's property. Bell Atlantic responded that attaching new items on existing poles could affect all the poles' current users, and time was needed to consider the various impacts.

In the entrants' ideal view, they would have the option of purchasing unbundled interconnection at whatever point on the incumbent LEC's network they desire, and the unbundled services and functions they purchase—including rights-of-way access— would be priced at, or close to, total service long-run incremental cost (TSLRIC).[30] However, LECs object to pricing unbundled services at TSLRIC because TSLRIC does not include an allowance for joint and common costs, and may not cover embedded costs of existing plant.[31]

LECs object to pricing unbundled services at TSLRIC because TSLRIC does not include an allowance for joint and common costs, and may not cover embedded costs of existing plant.

Other things CLECs want include requirements that place the burden on LECs actively to accommodate them. The 1996 Act does require LECs and others to make

---

[29] See Herb Kirchoff, "Lay It On The Line: Pole Attachment Issues Pending in N.J., Mich," *State Telephone Regulation Report (October 19, 1995): 7-8*

[30] Total service long-run incremental cost (TSLRIC) is a forward-looking measure of the incremental cost of providing a given quantity of a service. TSLRIC is the minimum total additional cost associated with providing a forecasted quantity of a service, assuming that all other services continue to be produced. TSLRIC calculations are based on the least-cost, most efficient technology capable of being implemented at the time the calculation is made. TSLRIC is a long-run concept and is calculated based on the assumption that the planning period is long enough to make plant and equipment freely variable, except that some TSLRIC calculations allow network nodes to be fixed.

TSLRIC will generally be below fully allocated cost, because joint and common costs are excluded in calculating TSLRIC. Moreover, TSLRIC may be below the embedded direct cost of providing the service using existing facilities, if technology has lowered the cost of new facilities below the historic cost of existing facilities. TSLRIC may be stated on an average per-unit basis by dividing the total TSLRIC by the forecasted quantity of the service. This average per-unit TSLRIC will, generally, differ from an estimate of the incremental cost of an additional unit of the service.

[31] See Herb Kirchoff, "Telcos, CAPs, States Wrangle in FCC Connection Reply Round," *State Telephone Regulation Report* (June 13, 1996): 8-9.

rights-of-way facilities, including excess capacity, available to entrants, but the CLECs would like policies that include: [32]

1. freeing existing underutilized capacity and adding capacity by upgrading poles and conduit;
2. designing reasonable reliability and safety standards for evaluating capacity limits of rights-of-way facilities;
3. making unused or added capacity (including dark fiber) available to CAPs on terms equivalent to those available to the LEC or its affiliates;
4. sharing easements on public and private property;
5. allowing all users of a facility (including the LEC) to reserve spare capacity for future use based on a reasonable planning period; [33]
6. limiting the LEC's ability to assert first-use rights for added capacity; and
7. requiring LECs to install and maintain the CLECs' facilities in locations where the LEC has exclusive access;

These suggestions would make the LEC's rights-of-way facilities into a common carriage facilities and give other users rights largely equivalent to the LEC's.

These are strong suggestions, and LECs and other owners of rights-of-way facilities almost certainly oppose them. In effect, these suggestions would make the LEC's rights-of-way facilities into a common carriage facilities and give other users rights largely equivalent to the LEC's. The above suggestions are also asymmetrical, as CLECs are not generally willing to bear reciprocal obligations.

Cable television systems are a special type of entrant. Although their networks must be modified to deliver switched telephone services, cable television companies already have physical connections to many customers, often obtained by virtue of a franchise from an LFA, and their connections often use of rights-of-way facilities (poles, etc.) controlled by LECs or by electric utilities. When there was no direct competition

[32] These steps are derived from a presentation by Rick Witherington, Law and Public Policy Director of AT&T, to the NARUC Staff Subcommittee on Communications' Workshop on Rights-of-Way, Los Angeles, California, July 19, 1996.

[33] For example, existing excess capacity that a LEC or other owner does not have definite plans to use within a fixed time period (a year, perhaps) could be reserved by a another telecommunications firm that does plan to use it within that period.

among the various entities, reasonable amounts of cooperation was normal behavior. However, cable systems are planning to offer telephone services, and LECs are planning to provide video services, so the various entities are likely to be wary of each others' actions and motives. If the cable provider attaches its lines to the LEC's poles, it may find that the LEC appears to be slow to make arrangements so that the cable network can be upgraded—even while the LEC or an affiliate is upgrading its own network to deliver video services. In addition, disagreements are likely to arise over the capacity of rights-of-way facilities and the cost of needed upgrades to utility poles, etc. Some of these issues have reached the attention of the FCC. For example, the FCC's Common Carrier Bureau cautioned owners of utility poles regarding allegations that

> . . . utility pole owners may be unreasonably preventing cable operators from 'overlashing' fiber to their existing lines by failing to process a request to overlash fiber within a reasonable time and/or unreasonably denying the request. [34]

Cable television operators also want to avoid paying local franchise fees on revenues derived from providing telephone services. In addition, they may also be concerned about fair treatment from LFAs that have become involved, either directly or indirectly, in building a network or delivering telecommunications services.

Various carriers will want access to rights-of-way facilities. They can gain that access by reselling the incumbent's local loop services, by leasing unbundled loop facilities from the LEC, by obtaining loop facilities from another party that has deployed a network (e.g., an electric utility, a cable provider, or a municipality), or by deploying their own loop facilities. It is likely that each of these customer access arrangements will be used by some carriers, and some carriers will use all of these arrangements in various locations. If entrants choose to depend on the LEC—or another potential competitor—they will have some concern about whether the facilities provided to them will receive equivalent construction, maintenance, and repair priority as the LEC's own

[34] FCC Common Carrier Bureau, Public Notice DA 95-35, January 11, 1995. "Overlashing" refers to adding new wires to existing cable attachments.

facilities. Each provider, therefore, will have legitimate reasons to want to be in a position to control its own loop facilities, or at least not to depend on a competitor.

Local Governments

Local governments (cities, towns, and counties) control public rights-of-way and have granted utilities and cable television providers franchises and permission to use their rights-of-way. Especially in the case of cable television systems, LFAs derive substantial franchise fees and concessions, which often include provision of public access, educational, and government access channels (known as PEG channels) and connection of government facilities, schools and libraries.

LFAs have legitimate reasons to be concerned over control of the public rights-of-way within their respective jurisdictions. LFAs believe that they must have the ability to exercise reasonable control over who uses public rights-of-way and the purposes for which they are used. First, as stewards of public property, they worry that uncoordinated placement of facilities or digging of multiple trenches may unduly disturb the rights-of-way, create aesthetic problems, disrupt other services, and increase maintenance requirements due to increased trenching of paved streets and roads. LFAs are also concerned that, in a competitive shakeout, some providers will exit the market, leaving both abandoned facilities in the public rights-of-way and abandoned customers.

Second, local governments have come to depend on revenues and other concessions obtained from cable systems, and one worry derives from a concern that these revenues may be reduced if LECs, or others, deliver video services without making equivalent payments.[35] There is also some concern about the ability to obtain PEG access and other concessions from other providers. There is also an awakening interest in considering the issue of whether other users of public rights-of-way should

[35] Although financial aspects are not the only issue, they cannot be overlooked, as there may be billions of dollars at stake. It has been reported that the National Association. of Counties' Legislative Conference was told that they might generate an additional $19 billion annually from proper management of their rights-of-way. See "County Govt. Told They Need to Use Local Authority Over Telecom Providers," *Warren's Telecom Regulation Monitor* 1, no. 5 (March 11, 1996): 6.

also pay something for that use. Especially in states that do not prohibit local government from charging utilities, LFAs are questioning whether there is a compelling reason for profit-making companies to receive free access to public rights-of-way. As might be expected, existing electric, gas, telephone, and water utilities are concerned by these questions.

Third, some local governments may choose to participate in rapidly growing markets by deploying and operating their own telecommunications networks, competing with existing cable systems, LECs, and others. Alternatively, local governments may contract with private firms to provide services on a joint-venture basis. Either of these actions puts them in the position of being both landlord to and competitor with various telecommunications providers, and it may be difficult to treat all providers in an even-handed manner. [36]

Fourth, because they recognize that telecommunications networks are part of the infrastructure necessary for economic development, and because they hope to ensure that their communities do not become stragglers on the march to the information age, many local governments are taking a more active role in designing the telecommunications system. LFAs recognize that their rights-of-way are valuable assets, and they want to continue to exercise control over who uses them and what they are used for. LFAs are grappling with the question of whether granting permission for a firm to use the public rights-of-way for one purpose allows it to use the rights-of-way for other purposes. That is, if a LEC offers video service, if a cable television

LFAs are grappling with the question of whether granting permission for a firm to use the public rights-of-way for one purpose allows it to use the rights-of-way for other purposes and they are concerned about both federal and state preemption.

[36] This, of course, is the same position the LECs find themselves in with respect to CLECs. An example of potential conflicts may be seen in a recent report that Stillwell, Oklahoma has been sued by the Justice Department for antitrust violations. It is alleged that Stillwell refused water and sewer service to an apartment complex that purchased electricity from the municipal electric utility's competitor. See Bryan Gruley, "Power Play: Little Town Becomes First Municipality Sued By U.S. for Antitrust," *The Wall Street Journal* (June 3, 1996): A1, ff. The alleged behavior is also an example of monopoly leveraging or tying as discussed above.

system offers telephone service, or if an electric utility builds a telecommunications network, does the new use of the right-of-way require the approval of and/or additional compensation to the LFA?

Finally, just as state regulators are concerned about federal preemption, local governments are concerned about both federal and state preemption. One local government official proposed a model of "harmonized cooperation" among the various levels of government.[37] Her view of the federal government's role is that it should set a direction, establish technical and market standards, and promote diversity. State governments can guide and direct on a larger scale than local governments, and they can be testing grounds— refining standards to suit their needs and demonstrating by their diversity that what works for some may not work for others. Local governments can implement federal and state policy and exploit their proximal advantage to adapt state and local standards to suit local conditions.

Local Government Actions[38]

Local government bodies have taken a variety of approaches to use or exert control over public rights-of-way. Many local governments recognize their strategic role in ensuring low-cost, high-quality telecommunications services. Those local governments that are already providing electricity are in especially advantageous positions, as their existing rights-of-way, ducts, and poles are valuable assets that can be utilized to facilitate entry or leased to others. Some cities with existing municipal electric utilities have identified competitive and strategic advantages

Local governments that are already providing electricity are in especially advantageous positions, as their existing rights-of-way, ducts, and poles are valuable assets that can be utilized to facilitate entry or leased to others.

[37] Trainor 1995.

[38] Much of this section is adapted from City of Palo Alto (California), *Telecommunications Strategy Study - Interim Report and Continuation Request,* (February 26, 1996). Some LFA positions with respect to cellular and PCS tower siting is described in John J. Keller, "With Cellular Towers Sprouting All Over, Towns Begin to Rebel," *The Wall Street Journal* (July 2, 1996): A1, ff.

and are moving forward to provide or facilitate provision of telecommunications services in their communities. Others are promoting telecommunications development by the private sector. Some have chosen to participate in partnerships to deploy networks; others have authorized private firms to deploy networks within their jurisdictions. Examples of various actions taken by large and small communities are given below:

Anaheim, California

The city has installed a fifty-mile fiber-optic backbone network to support the needs of their municipal electric utility and other city functions. In 1995, Anaheim issued a Request for Proposals (RFP) for potential partnerships to utilize this network to provide telecommunications services. In January 1996, the city council authorized negotiations with SpectraNet International development of a public-private universal telecommunications system.

Burbank, California

The city is installing a twenty-mile fiber-optic backbone network to support the needs of the municipal electric utility and other functions. In response to significant interest from the entertainment industry, Burbank plans to lease bandwidth on this network to other users. The city's electric utility has submitted a proposal to provide interconnection between two buildings for a major studio that is expanding to an additional location.

Los Angeles, California

The Department of Water and Power (LADWP) has installed over 160 miles of fiber-optic cable in its service territory. The city is seeking potential partners to help the city expand upon LADWP's existing fiber-optic system to provide telecommunications services.

Milpitas, California

The city approved a plan that calls for the phased construction of a series of fiber rings, spanning about ten miles, to interconnect all major city facilities. The construction will take advantage of trenching already planned for a water reclamation project. The city is considering leasing access on the fiber-optic network to interested businesses. The plan also recommends guidelines for use of the public rights-of-way for telecommunications development.

Palo Alto, California

In May 1995, the city council authorized The ICT Group to begin a study to identify the City telecommunications strategy that will best serve the citizens and businesses of Palo Alto and develop a practical plan for implementing it. In February 1996, the city staff recommended that the council authorize the staff proceeding with a detailed evaluation of two potential telecommunications strategies. One strategy would be to develop a network (independently or with partners) and lease access. In this strategy, the city would develop a new telecommunications network and leases access on a non-discriminatory basis to all interested service providers. The city would limit its role to that of providing links between customers and service providers. The other strategy would be to lease existing infrastructure (e.g., duct and pole space) to private telecommunications network developers and/or companies interested in establishing point-to-point communication links.

The two strategies are to be evaluated based upon the extent to which they achieve the city's primary objectives which include:

accelerated deployment of advanced broadband services to all citizens and businesses;

decreased costs for both conventional and advanced services;

high quality for both conventional and advanced services;

enhanced competition among telecommunications service providers and increased telecommunications choices for consumers;

limited or no financial risk exposure to the city.

San Bruno, California

The city has successfully operated a municipal cable television system since 1970. Following a recent SRI International study, San Bruno is planning to upgrade its system by adding fiber-optic cabling and new coaxial cabling by 1997. San Bruno is also exploring potential partnerships that would enable them to introduce new services such as Internet access and telephone service.

San Diego, California

San Diego Data Processing Corporation (SDDPC), a nonprofit public benefit corporation formed by the city, has received responses to an RFP seeking a strategic partnership for design, construction, implementation, and operation of an advanced telecommunications network. Proposals were sought to integrate and expand existing city networks, create a private network to meet capable of meeting increasing city government telecommunications demands, and develop a regional network to replace existing networks operated by SDDPC and provide the ability to deliver voice, data, cable, and video-conferencing services to every home, business, school, and public office in the San Diego/Baja region.

San Jose, California

Pacific Bell has proposed to deploy a broadband telecommunications network. The original plan called for 200,000 homes to be reached with cable television via a hybrid fiber-coax network in the first half of 1996. However, only about 250 test customers were served as of January 1996.

San Jose is also developing new ordinances to deal with deployment of telecommunications infrastructure on public and private property and reviewing responses to an RFP for development of a fiber-optic conduit system along a water reclamation project's sixty miles of transmission and distribution lines. The plan calls for placing empty conduits in the project trenches and joining with one or more companies to construct a telecommunications network to provide two-way voice, data, video, and multimedia communication capabilities to residents, businesses, and

institutions. The city also is examining its ordinances to ensure that taxes are applied consistently and fairly to all telecommunications services.

Santa Clara, California

The 1994/1995 capital improvement budget approved appropriations for development of a broadband telecommunications system. The city council approved an agreement for SpectraNet International to design a utility backbone network to expand an existing six-mile fiber-optic cable into a thirty-mile backbone that will support the needs of the municipal electric utility. When that is done, general government utilization of the network will be demonstrated, and the city will consider deployment of an enterprise network, using surplus capacity to serve residents and businesses.

Sunnyvale, California

The city has developed a plan to promote private development while protecting public rights-of-way. In 1996, Sunnyvale will become the first commercial testbed for high-speed Internet access over a cable television system utilizing cable modems and a network concept developed by @Home, a subsidiary of TCI, Sunnyvale's cable television provider.

Lakeland, Florida

A 120-mile fiber-optic backbone network has been installed to support the needs of the municipal electric and water utilities and other city functions. Some schools are connected to the network and a plan is in place to connect the rest. Lakeland is examining expansion of its service into the business and residential markets and is promoting competition in all areas of telecommunications whether the city becomes a competitor or not.

Winnetka, Illinois

Ameritech has been negotiating with the village of Winnetka over placement of a cellular tower. Ameritech wants to put the tower at the highest possible point in the village—the roof of a church. The church is happy to have the tower and the rent payments, but the village trustees have not approved it because of aesthetic considerations.

Cedar Falls, Iowa

An October 1994 referendum approved forming a municipal telecommunications utility in addition to the existing municipal electric, gas, and water utilities. The city has since built a hybrid fiber-coax system to provide video, voice, and data services to every resident and business. For large customers, the city has started providing links between remote facilities enabling them to interconnect their computer and phone networks. The city introduced cable television service at the end of February 1996 and will develop both a residential, Ethernet-based computer network and a commercial, fiber optic-based computer network, both of which will provide the ability to access the Internet. Eventually, the city plans to either provide telephone service directly or lease capacity to one or more telephone service providers.

Glasgow, Kentucky

The city has operated a coaxial cable telecommunications system for about six years and plans to upgrade it with fiber-optic super-trunks in the near future. The system meets the telecommunications needs of the municipal electric utility and municipal government, provides cable television service in competition with the local cable television provider, and interconnects Glasgow's schools on a local area network (LAN) capable of transporting video for distance-learning applications. Glasgow has experimented with providing telephone service on the network, but is currently more interested in expanding LAN services and Internet access.

Redwood Falls, Minnesota[39]

The city created ordinances requiring U S West to pay a permitting fee, and either encase newly constructed facilities in concrete or indemnify the city in the event the city causes damage to U S West facilities. U S West sought a permanent injunction against these ordinances and asserted that the ordinances effectively prevented it from upgrading its facilities. U S West argued that state law gave the Minnesota Public Utilities Commission (PUC) "exclusive jurisdiction over substantive regulation of rights-of-way." The case was dismissed on substantive grounds prior to trial in the Redwood County District Court, Fifth Judicial District, which stated that "the public utility commission regulates telephone companies, not cities ... the Minnesota Legislature has not divested Minnesota Cities of their right to impose reasonable regulations and to charge a reasonable franchise fee for the use of their streets and services."

Prior to filing suit against Redwood Falls, U S West petitioned the PUC to exercise its exclusive authority and preempt all municipal ordinances in the state which "substantively regulate" rights-of-ways. Although the PUC rejected U S West's petition, it found that it had some, though not absolute, authority over local rights-of-way, and it asked carriers to notify the PUC when they felt a municipality was imposing restrictions that infringed on the PUC's jurisdiction over rights-of-way.[40]

Springfield, Missouri

An extensive fiber-optic network is used to meet all the city's telecommunications needs. The city considered providing telecommunications services to local businesses, but met substantial resistance from their local telephone company, Southwestern Bell. Springfield, reportedly, will reconsider using the network to provide services to businesses and residents after state and federal telecommunications legislation issues are resolved.

---

[39] Some of this information was supplied by Robert Vose, Esq., Bernick and Lifson, PA, Minneapolis, Minnesota.

[40] See "Minn. PUC Rejects US West's Right-of-Way Plea," *Telecommunications Reports* 62, no. 28 (July 15, 1996): 17; and "Right-of-Way Plea Rejected," *State Telephone Regulation Report* (July 25, 1996): 15.

Upper Arlington, Ohio[41]

In September 1994, Upper Arlington entered into a contract with a private firm, IMN, Inc., to construct and operate a fiber backbone network that will be connected to every residence, business, and civic location. IMN will sell capacity on the network to third parties, who will provide entertainment, information, and other services (possibly including telephone service) to residences and businesses in Upper Arlington. The fiber backbone network will ultimately become the property of the city, but IMN will have responsibility for operation and maintenance. IMN has not begun construction, but it has entered into an agreement with a subsidiary of American Electric Power to obtain financing for the project.

Austin, Texas

The city is reviewing responses to a Request for Strategic Partners (RFSP) to build, operate, and market a public broadband network featuring high bandwidth connectivity on a point-to-point network. However, a state law prohibits Texas cities from providing telecommunications services.

In order to make efficient use of rights-of-way resources and facilitate competitive entry, Austin has proposed that CAPs and others installing new cables in rights-of-way install excess capacity, which can be leased to new entrants. Conversely, Austin has proposed that entrants lease existing facilities rather than build their own, provided that there is excess capacity.

San Antonio, Texas

City Public Service (CPS), a municipal electric and gas utility serves San Antonio and twenty-three other cities. CPS has constructed sixty miles of a 306-mile fiber-optic backbone network and plans to lease dark fiber to IntelCom Group (ICG), a competitive access provider. CPS and ICG face a legal battle with Southwestern Bell, who claims

[41] Author's phone conversation with Dan Moore, Assistant City Attorney, City of Upper Arlington. July 22, 1996.

that this project violates state law prohibiting cities from providing telecommunications services.

Blacksburg, Virginia

The city encouraged Bell Atlantic and Virginia Tech to create the Blacksburg Electronic Village (BEV), a non-profit organization that developed and currently administers a computer network using Bell Atlantic's infrastructure and linking businesses and residents to the Internet. Startup costs were essentially donated by Bell Atlantic and Virginia Tech.

Medina, Washington

Sprint Express (SE) brought a case against Medina. SE wanted to locate a PCS mast in Medina, a community on Lake Washington, but Medina denied it the site zoning permission to do so. SE argued that the 1996 Act overrode the local jurisdictions' ability to constrain radio operators from locating masts based on zoning considerations. Federal District Judge Dwyer ruled otherwise and stated that one of the fundamental power of cities is the power to regulate land use within their jurisdictions.[42]

Seattle, Washington

The city issued a RFP seeking investors and/or developers to build and operate a broadband telecommunications network to provide access to two-way voice, video, and data services to residents and businesses. The City rejected the proposals it received because they were based upon technology that had not been successfully demonstrated, and high market penetrations were needed for economic viability. In addition, several firms did not respond because they were not ready to make commitments. Seattle renegotiated its cable franchises with TCI and Viacom and have garnered commitments for pilot high-speed Internet access projects in 1996.

---

[42] Although section 704 of the 1996 Act (see Chapter 3, below) enjoins cities from refusing to allow cellular and PCS towers, local zoning powers may be used to restrict them or to get concessions from the carriers.

Tacoma, Washington

The city held a competitive RFP process and selected SRI International to evaluate telecommunications strategy. Tacoma must add some telecommunications services for their municipal electric utility and currently has a fifteen-mile fiber optic ring to interconnect city facilities. The city is considering an additional fiber-optic network to meet electric utility needs and deliver telecommunications services to residents and businesses. Tacoma is exploring full and partial system ownership, varying buildout scenarios, and municipal and private service provision.

League of California Cities[43]

In 1994 the League of California Cities adopted a Model Telecommunications Policy, which affirms the cities' role in the determination of the conditions and fees charged for access to public rights-of-way.

The Model Policy states that the deployment of advanced telecommunications networks will have considerable impact on the economic development and vitality of communities and impact local infrastructure. It also supports preservation of local authority over matters of local impact, including: construction standards, permitting, scheduling, and cost recovery; negative impact on local infrastructure and cost recovery; city use of telecommunications resources (local Public / Education / Government access, I-Nets); and method of installation (pedestals, overhead, under-ground).

If legal barriers to entry are removed, local powers to protect the interests of their communities should be retained.

The Model policy also notes that the traditional right of franchising, which includes the power of a city to choose who may enter the market by granting or withholding a franchise, may raise implicit legal barriers to market entry, and such barriers may be inconsistent with the policy of an open and competitive market.

[43] League of California Cities, *Model Telecommunications Policy* (Adopted April, 1994). Provided by Brian Moura, Assistant City Manager, San Carlos, California.

However, the Model Policy suggests that, if legal barriers to entry are removed, local powers to protect the interests of their communities should be retained.

The Model Policy suggests that one means of protecting local interests is to impose a mechanism for right-of-way compensation. Therefore, it recommends that, in addition to compensation for use of right-of-way, cities receive compensation for the short- and long-term negative impacts of installing fiber-optic and other telecommunications wire. Impacts include street degradation and the increased maintenance costs that occur when streets are opened. One policy statement is that:

> . . . use of public streets and rights-of-way via the installation of pipes, conduits and wires to engage in private, for profit enterprise demands a fair payment for the use of the public's asset. The League supports a symmetrical application of right-of-way fees for all users of the public right-of-way, including telecommunications service providers. Cities should also receive compensation for the short- and long-term negative impacts of installing fiber-optic and other telecommunications wire in city streets and other locations in the public right-of-way. [44]

Summary

Large amounts of money are at stake, and several groups have important interests in controlling or gaining access to rights-of-way.

Rights-of-way facilities are scarce resources. Due to technological and market convergence, they can be used to deliver an expanding variety of telecommunications services. Thus, as with any scarce resource facing increased demand, they are increasing in importance and value. Large amounts of money are at stake, and several groups have important interests in controlling or gaining access to rights-of-way. These groups include the incumbent LECs, other utilities, entrants such as CAPs and cable television operators, and local franchising authorities, who control public rights-of-way.

---

[44] League of California Cities, *op. cit.*

There may be some advantage to being there first or, at the least, being early to get a piece of the rights-of-way pie.

Because there are some limits as to the numbers of providers that can place dedicated facilities in rights-of-way, there may be some advantage to being there first or, at the least, being early to get a piece of the rights-of-way pie. Incumbents want to maintain as much control of their existing rights-of-way as possible, and they want to price access to their facilities at something above TSLRIC. Entrants want to gain access to rights-of-way to place their own equipment. They also want to be able to use existing rights-of-way facilities at prices as low as TSLRIC. Other utility firms with access to rights-of-way have an interest in deploying networks and offering other providers connections to customers.

Local franchising authorities want to retain control over their rights-of-way. They want to have some control over who uses public rights-of-way and what they are used for. Some LFAs may even want to deploy their own networks. They have an interest in ensuring that they are compensated appropriately for allowing providers to use their rights-of-way, especially as they become more valuable. The existence of divergent interests create inevitable conflicts among the parties.

CHAPTER 3

RIGHTS-OF-WAY PROVISIONS IN THE TELECOMMUNICATIONS ACT OF 1996

There are three ways the 1996 Act provides for access to rights-of-way. They are: interconnecting; unbundled access, including collocation; and resale.

The 1996 Act contains a number of provisions that relate directly or indirectly to the question of providing for all telecommunications carriers to have access to rights-of-way facilities. There are several, somewhat overlapping, ways of looking at rights-of-way access. One way is as a subset of interconnection issues. The 1996 Act contains very specific provisions requiring all telecommunications carriers to interconnect with one another. In addition, the 1996 Act also directs LECs and others to provide all telecommunications carriers with nondiscriminatory access to poles, ducts, conduits, and rights-of-way that they own or control, if such facilities are used to provide wire communications.[1] In essence, these provisions extend the concept of collocation to include customer access facilities as well as central offices.

Although not specifically mentioned in the resale provisions, in an extended view of resale, rights-of-way facilities may fall under requirements for wholesale provision of services for resale.

In addition to requiring direct access to rights-of-way facilities, rights-of-way facilities may be viewed as providing services that might be made available for resale. So, although not specifically mentioned in the resale provisions, in an extended view of resale, rights-of-way facilities may fall under requirements for wholesale provision of services for resale. Another, and somewhat related, view of rights-of-way facilities is that they are part of the LEC's functions or elements that must be offered to competitors on an unbundled basis.

The 1996 Act also addresses the question of access to public rights-of-way. Cities and municipalities are required to provide nondiscriminatory access to their public rights-of-way (see section 253, below). Several provisions in the 1996 Act bear on the

[1] 47 U.S.C. 224 (a)(1), as amended by the 1996 Act.

question of rights-of-way access, and they are excerpted below. The final section of this chapter discusses the results of recent FCC proceedings directed toward implementation of the 1996 Act. These include the FCC's *Order* in CS Docket No. 96-166, "In the Matter of Implementation of Section 703 of the Telecommunications Act of 1996: Amendments and Additions to the Commission's Rules Governing Pole Attachments"[2] and the FCC's *First Report and Order* in CC Docket No. 96-98, "In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996," and CC Docket No. 95-185, "Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers."[3]

Section 251: Interconnection

LECs are required to provide competing carriers with access to their rights-of-way.

Section 251 provides telecommunications carriers with broad responsibilities to interconnect with other carriers. All LECs are required to provide competing carriers with access to their rights-of-way. In addition, incumbent LECs are required to allow other carriers to resell their services and offer unbundled access to their networks, provided that such access is technically feasible, and subsection 251(c)(6) specifically provides authority for collocation where feasible.[4] Moreover, interconnection, resale provisions and unbundled access, including access to rights-of-way must be nondiscriminatory among telecommunications carriers. Exemptions exist for cases where providing such access is not technically feasible, and there are exemptions (see subsection (f), below) for rural LECs, which are not initially subject to the same

interconnection, resale provisions and unbundled access, including access to rights-of-way must be nondiscriminatory among telecommunications carriers.

[2] FCC 96-327, released August 6, 1996.

[3] FCC 96-325, released August 8, 1996.

[4] This subsection is important, as whether the FCC could order collocation was a subject of some controversy.

interconnection, resale, and unbundling requirements. The provisions of section 251 are:

(a) GENERAL DUTY OF TELECOMMUNICATIONS CARRIERS- Each telecommunications carrier has the duty--

(1) to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers;

(b) OBLIGATIONS OF ALL LOCAL EXCHANGE CARRIERS- Each local exchange carrier has the following duties:

(1) RESALE- The duty not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of its telecommunications services.

(4) ACCESS TO RIGHTS-OF-WAY- The duty to afford access to the poles, ducts, conduits, and rights-of-way of such carrier to competing providers of telecommunications services on rates, terms, and conditions that are consistent with section 224.[5]

(c) ADDITIONAL OBLIGATIONS OF INCUMBENT LOCAL EXCHANGE CARRIERS- In addition to the duties contained in subsection (b), each incumbent local exchange carrier has the following duties:

(1) DUTY TO NEGOTIATE- The duty to negotiate in good faith in accordance with section 252[6] the particular terms and conditions . . . . The requesting telecommunications carrier also has the duty to negotiate in good faith . . . .

(2) INTERCONNECTION- The duty to provide, for the facilities and equipment of any requesting telecommunications carrier, interconnection with the local exchange carrier's network--

(A) for the transmission and routing of telephone exchange service and exchange access;

(B) at any technically feasible point within the carrier's network;

(C) that is at least equal in quality to that provided by the local exchange carrier to itself or to any subsidiary, affiliate, or any other party to which the carrier provides interconnection; and

---

[5] Section 224 deals with cable pole attachments. See the discussion, below.

[6] Section 252 deals with procedures for negotiation, arbitration, and approval of interconnection agreements between carriers.

(D) on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, . . .

(3) UNBUNDLED ACCESS- The duty to provide, to any requesting telecommunications carrier for the provision of telecommunications service, nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory . . . . An incumbent local exchange carrier shall provide such unbundled network elements in a manner that allows requesting carriers to combine such elements in order to provide such telecommunications service.

(4) RESALE- The duty--

(A) to offer for resale at wholesale rates any telecommunications service that the carrier provides at retail to subscribers who are not telecommunications carriers; and

(B) not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of such telecommunications service, except that a State commission may, consistent with regulations prescribed by the [FCC] under this section, prohibit a reseller that obtains at wholesale rates a telecommunications service that is available at retail only to a category of subscribers from offering such service to a different category of subscribers.

(5) NOTICE OF CHANGES- The duty to provide reasonable public notice of changes . . . . that would affect the interoperability of those facilities and networks.

(6) COLLOCATION- The duty to provide, on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, for physical collocation of equipment necessary for interconnection or access to unbundled network elements at the premises of the local exchange carrier, except that the carrier may provide for virtual collocation if the local exchange carrier demonstrates to the State commission that physical collocation is not practical for technical reasons or because of space limitations.

(d) IMPLEMENTATION-

(1) IN GENERAL- Within 6 months after the date of enactment of the Telecommunications Act of 1996, the [FCC] shall complete all actions necessary to establish regulations to implement the requirements of this section.[7]

[7] FCC 96-325, which was released on August 8, 1996, provided the rules for implementing interconnection.

(2) ACCESS STANDARDS- In determining what network elements should be made available for purposes of subsection (c)(3), the [FCC] shall consider, at a minimum, whether--

(A) access to such network elements as are proprietary in nature is necessary; and

(B) the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer.

(3) PRESERVATION OF STATE ACCESS REGULATIONS- In prescribing and enforcing regulations to implement the requirements of this section, the [FCC] shall not preclude the enforcement of any regulation, order, or policy of a State commission that--

(A) establishes access and interconnection obligations of local exchange carriers;

(B) is consistent with the requirements of this section; and

(C) does not substantially prevent implementation of the requirements of this section and the purposes of this part.

(f) EXEMPTIONS, SUSPENSIONS, AND MODIFICATIONS-

(1) EXEMPTION FOR CERTAIN RURAL TELEPHONE COMPANIES-

(A) EXEMPTION- Subsection (c) of this section shall not apply to a rural telephone company until

(i) such company has received a *bona fide* request for interconnection, services, or network elements, and

(ii) the State commission determines (under subparagraph (B)) that such request is not unduly economically burdensome, is technically feasible, and is consistent with section 254 . . . . [8]

(B) STATE TERMINATION OF EXEMPTION AND IMPLEMENTATION SCHEDULE- The party making a bona fide request of a rural telephone company for interconnection, services, or network elements shall submit a notice . . . to the State commission. The State commission shall conduct an inquiry . . . [and] . . . terminate the exemption if the request is not unduly economically burdensome, is technically feasible, and is consistent with section 254 . . . . Upon termination of

[8] Section 254 deals with provisions for universal service.

the exemption, a State commission shall establish an implementation schedule . . . that is consistent in time and manner with [FCC] regulations.

(C) LIMITATION ON EXEMPTION- The exemption provided by this paragraph shall not apply with respect to a request under subsection (c) from a cable operator providing video programming, and seeking to provide any telecommunications service, in the area in which the rural telephone company provides video programming. The limitation contained in this subparagraph shall not apply to a rural telephone company that is providing video programming on the date of enactment of the Telecommunications Act of 1996.

(2) SUSPENSIONS AND MODIFICATIONS FOR RURAL CARRIERS- A local exchange carrier with fewer than 2 percent of the Nation's subscriber lines installed in the aggregate nationwide may petition a State commission for a suspension or modification of the application of a requirement or requirements of subsection (b) or (c) to telephone exchange service facilities specified in such petition. The State commission shall grant such petition to the extent that, and for such duration as, the State commission determines that such suspension or modification--

(A) is necessary--

(i) to avoid a significant adverse economic impact on users of telecommunications services generally;

(ii) to avoid imposing a requirement that is unduly economically burdensome; or

(iii) to avoid imposing a requirement that is technically infeasible; and

(B) is consistent with the public interest, convenience, and necessity. The State commission shall act . . . within 180 days after receiving such petition. . . . [and] . . . may suspend enforcement of the requirement or requirements to which the petition applies with respect to the petitioning carrier or carriers.

Section 253: Removal of Barriers to Entry

State and local authority is preserved, unless it has the effect of creating barriers to entry.

As noted in Chapter 1, one of the stated purposes of the 1996 Act is to promote competition. To further that goal, section 251 requires carriers to interconnect, and it requires that LECs open rights-of-way facilities to competitors, allow

resale of their services, and offer unbundled access. Section 253 makes a sweeping attempt to remove as many barriers to entry as possible. State and local authority is preserved, unless it has the effect of creating barriers to entry. Also, subsection 253(c) recognizes state and local authority over access to public rights-of-way, provided that such access is made available on a nondiscriminatory basis and that compensation provisions are publicly disclosed. If, however, state or local rules or regulations constitute unnecessary barriers to entry, subsection 253(d) provides for FCC preemption.[9] The provisions of section 253 are:

(a) IN GENERAL- No State or local statute or regulation, or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.

(b) STATE REGULATORY AUTHORITY- Nothing in this section shall affect the ability of a State to impose, on a competitively neutral basis and consistent with section 254, requirements necessary to preserve and advance universal service, protect the public safety and welfare, ensure the continued quality of telecommunications services, and safeguard the rights of consumers.

(c) STATE AND LOCAL GOVERNMENT AUTHORITY- Nothing in this section affects the authority of a State or local government to manage the public rights-of-way or to require fair and reasonable compensation from telecommunications providers, on a competitively neutral and nondiscriminatory basis, for use of public rights-of-way on a nondiscriminatory basis, if the compensation required is publicly disclosed by such government.

(d) PREEMPTION- If, after notice and an opportunity for public comment, the [FCC] determines that a State or local government has permitted or imposed any statute, regulation, or legal requirement that violates subsection (a) or (b), the [FCC] shall preempt the enforcement of such statute, regulation, or legal requirement to the extent necessary to correct such violation or inconsistency.

(e) COMMERCIAL MOBILE SERVICE PROVIDERS- Nothing in this section shall affect the application of section 332(c)(3) to commercial mobile service providers.[10]

(f) RURAL MARKETS- It shall not be a violation of this section for a State to require a telecommunications carrier that seeks to provide telephone exchange service or

---

[9] A layman's reading of this section leads to the conclusion that reasonable restrictions imposed on entry by state and local authorities will not be preempted. These would include reasonable licensing procedures and rules that ensure the technical and financial competence of potential entrants.

[10] Subsection 332(c) deals with regulatory treatment of mobile services.

exchange access in a service area served by a rural telephone company to meet the requirements in section 214(e)(1) for designation as an eligible telecommunications carrier for that area before being permitted to provide such service. This subsection shall not apply--

(1) to a service area served by a rural telephone company that has obtained an exemption, suspension, or modification of section 251(c)(4) that effectively prevents a competitor from meeting the requirements of section 214(e)(1); and

(2) to a provider of commercial mobile services.

Section 271: Bell Operating Company Entry into InterLATA Services

In order for the BOCs to obtain permission to offer interLATA services, they must demonstrate to the state commissions that facilities-based competitors exist and that they have provided competitors in the local and intraLATA markets with interconnection, including access to rights-of-way facilities, and resale opportunities.

In addition to opening local exchange markets to competition, the 1996 Act provides for entry into interLATA markets by the BOCs, who were kept out of those markets under the provisions of the Modified Final Judgement that resulted from the Justice Department's 1974 antitrust suit against AT&T. In order for the BOCs to obtain permission to offer interLATA services, they must demonstrate to the state commissions that facilities-based competitors exist and that they have provided competitors in the local and intraLATA markets with interconnection, including access to rights-of-way facilities, and resale opportunities. One of the items contained in the "Competitive Checklist," specifically, subsection (c)(2)(B)(iii), contains a requirement that rights-of-way facilities be made available to others on nondiscriminatory terms at prices that are just, reasonable, and consistent with the provisions of section 224, which deals with pole attachments. Subsections (c)(2)(B)(iv) and (xiv) can be interpreted as requiring unbundled access to physical loop connections and resale of loop connections, respectively. These two provisions result in a BOC being required to allow competitors to use its lines, which is one means of

acquiring rights-of-way access for providers who do not wish to deploy a physical network. The relevant provisions of section 271 are:

(c) REQUIREMENTS FOR PROVIDING CERTAIN IN-REGION INTERLATA SERVICES-

(1) AGREEMENT OR STATEMENT- A Bell operating company meets the requirements of this paragraph if it meets the requirements of subparagraph (A) or subparagraph (B) of this paragraph for each State for which the authorization is sought.

(A) PRESENCE OF A FACILITIES-BASED COMPETITOR- A Bell operating company meets the requirements of this subparagraph if it has entered into one or more binding agreements that have been approved under section 252 specifying the terms and conditions under which the Bell operating company is providing access and interconnection to its network facilities for the network facilities of one or more unaffiliated competing providers of telephone exchange service (as defined in section 3(47)(A), but excluding exchange access) to residential and business subscribers. For the purpose of this subparagraph, such telephone exchange service may be offered by such competing providers either exclusively over their own telephone exchange service facilities or predominantly over their own telephone exchange service facilities in combination with the resale of the telecommunications services of another carrier. For the purpose of this subparagraph, services provided pursuant to subpart K of part 22 of the [FCC's] regulations (47 C.F.R. 22.901 et seq.) shall not be considered to be telephone exchange services.

(B) FAILURE TO REQUEST ACCESS- A Bell operating company meets the requirements of this subparagraph if, after 10 months after the date of enactment of the Telecommunications Act of 1996, no such provider has requested the access and interconnection described in subparagraph (A) before the date which is 3 months before the date the company makes its application under subsection (d)(1), and a statement of the terms and conditions that the company generally offers to provide such access and interconnection has been approved or permitted to take effect by the State commission under section 252(f). For purposes of this subparagraph, a Bell operating company shall be considered not to have received any request for access and interconnection if the State commission of such State certifies that the only provider or providers making such a request have (i) failed to negotiate in good faith as required by section 252, or (ii) violated the terms of an agreement approved under section 252 by the provider's failure to comply, within a reasonable period of time, with the implementation schedule contained in such agreement.

(2) SPECIFIC INTERCONNECTION REQUIREMENTS-

(A) AGREEMENT REQUIRED- A Bell operating company meets the requirements of this paragraph if, within the State for which the authorization is sought--

(i)

(I) such company is providing access and interconnection pursuant to one or more agreements described in paragraph (1)(A), or

(II) such company is generally offering access and interconnection pursuant to a statement described in paragraph (1)(B), and

(ii) such access and interconnection meets the requirements of subparagraph (B) of this paragraph.

(B) COMPETITIVE CHECKLIST- Access or interconnection provided or generally offered by a Bell operating company to other telecommunications carriers meets the requirements of this subparagraph if such access and interconnection includes each of the following:

(i) Interconnection in accordance with the requirements of sections 251(c)(2) and 252(d)(1).

(ii) Nondiscriminatory access to network elements in accordance with the requirements of sections 251(c)(3) and 252(d)(1).

(iii) Nondiscriminatory access to the poles, ducts, conduits, and rights-of-way owned or controlled by the Bell operating company at just and reasonable rates in accordance with the requirements of section 224.

(iv) Local loop transmission from the central office to the customer's premises, unbundled from local switching or other services.

(xiv) Telecommunications services are available for resale in accordance with the requirements of sections 251(c)(4) and 252(d)(3).

Section 703: Pole Attachments

Until passage of the 1996 Act, the main means of obtaining access to rights-of-way was through the provisions in section 224, which was also known as the "Pole Attachment Act." Section 224 had previously provided for cable television operators to attach their lines to poles. Section 224, as amended by section 703, is shown below. Provisions of section 224 that were deleted by the 1996 Act are shown as ~~strikeout text~~

and the amendments that section 703 of the 1996 Act added to section 224 are shown as ***bold italic text***.

Section 224: Pole Attachments

(a) DEFINITIONS - As used in this section:

(1) ~~The term "utility" means any person whose rates or charges are regulated by the Federal Government or a State and who owns or controls poles, ducts, conduits, or rights-of-way used, in whole or in part, for wire communication.~~ ***The term `utility' means any person who is a local exchange carrier or an electric, gas, water, steam, or other public utility, and who owns or controls poles, ducts, conduits, or rights-of-way used, in whole or in part, for any wire communications.*** Such term does not include any railroad, any person who is cooperatively organized, or any person owned by the Federal Government or any State.

(4) The term "pole attachment" means any attachment by a cable television system ***or provider of telecommunications service*** to a pole, duct, conduit, or right-of-way owned or controlled by a utility.

(5) For purposes of this section, the term `telecommunications carrier' (as defined in section 3 of Act) does not include any incumbent local exchange carrier defined in section 251(h).

(b) Authority of [the FCC] to regulate rates, terms, and conditions; enforcement powers; promulgation of regulations -

(1) Subject to the provisions of subsection (c) of this section, the [FCC] shall regulate the rates, terms, and conditions for pole attachments to provide that such rates, terms, and conditions are just and reasonable, and shall adopt procedures necessary and appropriate to hear and resolve complaints concerning such rates, terms, and conditions. For purposes of enforcing any determinations resulting from complaint procedures established pursuant to this subsection, the [FCC] shall take such action as it deems appropriate and necessary, including issuing cease and desist orders, as authorized by section 312(b) of this title.

(c) State regulatory authority over rates, terms, and conditions; preemption; certification; circumstances constituting State regulation -

(1) Nothing in this section shall be construed to apply to, or to give the [FCC] jurisdiction with respect to rates, terms, and conditions***, or access to poles, ducts, conduits, and rights-of-way as provided in subsection (f)*** for pole attachments in any case where such matters are regulated by a State.

(2) Each State which regulates the rates, terms, and conditions for pole attachments shall certify to the [FCC] that -

(A) it regulates such rates, terms, and conditions; and

(B) in so regulating such rates, terms, and conditions, the State has the authority to consider and does consider the interests of the subscribers of ~~cable television services~~ ***the services offered via such attachments***, as well as the interests of the consumers of the utility services.

(3) For purposes of this subsection, a State shall not be considered to regulate the rates, terms, and conditions for pole attachments -

(A) unless the State has issued and made effective rules and regulations implementing the State's regulatory authority over pole attachments; and

(B) with respect to any individual matter, unless the State takes final action on a complaint regarding such matter -

(i) within 180 days after the complaint is filed with the State, or

(ii) within the applicable period prescribed for such final action in such rules and regulations of the State, if the prescribed period does not extend beyond 360 days after the filing of such complaint.

(d) Determination of just and reasonable rates; "usable space" defined

(1) For purposes of subsection (b) of this section, a rate is just and reasonable if it assures a utility the recovery of not less than the additional costs of providing pole attachments, nor more than an amount determined by multiplying the percentage of the total usable space, or the percentage of the total duct or conduit capacity, which is occupied by the pole attachment by the sum of the operating expenses and actual capital costs of the utility attributable to the entire pole, duct, conduit, or right-of-way.

(2) As used in this subsection, the term "usable space" means the space above the minimum grade level which can be used for the attachment of wires, cables, and associated equipment.

(3) This subsection shall apply to the rate for any pole attachment used by a cable television system solely to provide cable service. Until the effective date of the regulations required under subsection (e), this subsection shall also apply to the rate for any pole attachment used by a cable system or any telecommunications carrier (to the extent such carrier is not a party to a pole attachment agreement) to provide any telecommunications service.

(e)

(1) The [FCC] shall, no later than 2 years after the date of enactment of the Telecommunications Act of 1996,[11] prescribe regulations in accordance with this subsection to govern the charges for pole attachments used by telecommunications carriers to provide telecommunications services, when the parties fail to resolve a dispute over such charges. Such regulations shall ensure that a utility charges just, reasonable, and nondiscriminatory rates for pole attachments.

(2) A utility shall apportion the cost of providing space on a pole, duct, conduit, or right-of-way other than the usable space among entities so that such apportionment equals two-thirds of the costs of providing space other than the usable space that would be allocated to such entity under an equal apportionment of such costs among all attaching entities.

(3) A utility shall apportion the cost of providing usable space among all entities according to the percentage of usable space required for each entity.

(4) The regulations required under paragraph (1) shall become effective 5 years after the date of enactment of the Telecommunications Act of 1996.[12] Any increase in the rates for pole attachments that result from the adoption of the regulations required by this subsection shall be phased in equal annual increments over a period of 5 years beginning on the effective date of such regulations.

f)

(1) A utility shall provide a cable television system or any telecommunications carrier with nondiscriminatory access to any pole, duct, conduit, or right-of-way owned or controlled by it.

(2) Notwithstanding paragraph (1), a utility providing electric service may deny a cable television system or any telecommunications carrier access to its poles, ducts, conduits, or rights-of-way, on a non-discriminatory basis where there is insufficient capacity and for reasons of safety, reliability and generally applicable engineering purposes.

(g) A utility that engages in the provision of telecommunications services or cable services shall impute to its costs of providing such services (and charge any affiliate, subsidiary, or associate company engaged in the provision of such services) an equal amount to the pole attachment rate for which such company would be liable under this section.

---

[11] I.e., by February 8, 1998.

[12] I.e., by February 8, 2001.

(h) Whenever the owner of a pole, duct, conduit, or right-of-way intends to modify or alter such pole, duct, conduit, or right-of-way, the owner shall provide written notification of such action to any entity that has obtained an attachment to such conduit or right-of-way so that such entity may have a reasonable opportunity to add to or modify its existing attachment. Any entity that adds to or modifies its existing attachment after receiving such notification shall bear a proportionate share of the costs incurred by the owner in making such pole, duct, conduit, or right-of-way accessible.

(i) An entity that obtains an attachment to a pole, conduit, or right-of-way shall not be required to bear any of the costs of rearranging or replacing its attachment, if such rearrangement or replacement is required as a result of an additional attachment or the modification of an existing attachment sought by any other entity (including the owner of such pole, duct, conduit, or right-of-way).

Discussion

As can be seen from the above strikeouts and deletions, section 703 of the 1996 Act made considerable changes to the prior provisions of section 224 regarding pole attachments. One major change was that the rights previously accorded cable television systems were extended to cover all telecommunications carriers, and the class of owners of rights-of-way facilities covered under the pole attachment provisions was broadened, as well.

For example, section 251(b)(4) imposes upon LECs the duty to provide competing carriers with access to its rights-of-way facilities and states that the rates, terms, and conditions for the access are to be consistent with section 224. As it existed prior to the 1996 Act, section 224 governed pole attachments by cable television systems and stated that rates, terms, and conditions should be just and reasonable. Section 251(b)(4) establishes an additional requirement for LECs to provide access to poles, ducts, conduits, and rights-of-way, consistent with the requirements in section 224. Moreover, amendments to section 224(a)(1) state expressly that LECs are subject to the requirements of section 224. Thus, section 251(a)(4), in conjunction with section 224, requires LECs to provide access to poles, ducts, conduits, and rights-of-way on just and reasonable rates, terms, and conditions. This provision is vital to the

development of local competition, because it ensures that competitive providers can obtain access to facilities necessary to offer service.

States that have asserted jurisdiction over pole attachment rates under the prior law appear to be able to retain jurisdiction over the expanded rights-of-way access under the new law, provided that they continue to consider the interests of the users of the services provided via the pole attachments and other facilities. [13]

Owners of rights-of-way facilities are required to provide all telecommunications carriers with nondiscriminatory access to their facilities at just and reasonable rates, provided that the facilities have the available physical capacity to provide the access safely. Moreover, the owner of the facilities must impute charges equivalent to those it charges other carriers into the prices it charges its own affiliates or customers.

One interesting provision of this section is that parties controlling rights-of-way are not required to provide access to incumbent LECs under the provisions of this section, because the definition of "telecommunications carrier" used in this section, specifically excludes all incumbent LECs. [14] Thus, a LEC has no obligation to let neighboring LECs use its rights-of-way facilities. Conversely, a LEC cannot require neighboring LECs to let it use their rights-of-way facilities.

In general, telecommunications providers seeking to access rights-of-way facilities are treated as customers of the owner of the facilities. Carriers requesting access are responsible for the costs the owner incurs as a result of providing access, but the owner must give others notice of changes it plans to make to the facilities. Undoubtedly there will be some disputes over proposed "make ready" expenses and over the speed with which access is provided. Parties requesting access will claim that delays are too long and that the cost of provisioning is too high. Facility owners will

---

[13] Under the Pole Attachment Act of 1978 (47 U.S.C. 224), states are permitted to regulate pole attachment rates so long as they conform with federal guidelines. The Act is administered under section 1.1414(b) of the FCC's rules on cable pole attachment, which requires states to consider the interests of both cable subscribers and utility customers in setting pole attachment rates.

Recently, twenty-one states indicated that they regulated pole attachment rates. See Karon Bauer, ed. *Utility Regulatory Policy in the United States and Canada: Compilation 1994-1995* (Washington, D.C.: National Association of Regulatory Utility Commissioners, 1995): Table 87, p. 201.

[14] See the new subsection 224(a)(5), above.

argue that safety and reliability must be ensured and that providing access to multiple parties requires thorough analysis and causes great expense.

Section 704, Facilities Siting; Radio Frequency Emission Standards

State and local zoning authority over placement of wireless facilities, including towers is maintained.

Another section of the 1996 Act with some implications for rights-of-way access policies is section 704, which deals with provisions for siting wireless facilities. This section preserves state and local zoning authority over placement of wireless facilities, including towers. Although such facilities cannot be banned, outright, state and local governments have the right to control their location and construction, provide that they do so in a nondiscriminatory manner. It is not clear whether some local governments will choose to use their zoning authority to maintain substantial influence over who uses their rights-of-way, and what goes on their rights of way. The provisions of section 704 are:

(a) National Wireless Telecommunications Siting Policy: Section 332(c) (47 U.S.C. 332(c)) is amended by adding at the end the following new paragraph:

(7) Preservation of local zoning authority:

(A) General authority: Except as provided in this paragraph, nothing in this Act shall limit or affect the authority of a State or local government or instrumentality thereof over decisions regarding the placement, construction, and modification of personal wireless service facilities.

(B) Limitations:

(i) The regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or instrumentality thereof--

(I) shall not unreasonably discriminate among providers of functionally equivalent services; and

(II) shall not prohibit or have the effect of prohibiting the provision of personal wireless services.

(ii) A State or local government or instrumentality thereof shall act on any request for authorization to place, construct, or modify personal wireless

service facilities within a reasonable period of time . . . taking into account the nature and scope of such request.

(iii) Any decision by a State or local government or instrumentality thereof to deny a request to place, construct, or modify personal wireless service facilities shall be in writing and supported by substantial evidence contained in a written record.

(iv) No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions.

(v) Any person adversely affected by any final action or failure to act by a State or local government or any instrumentality thereof that is inconsistent with this subparagraph may, within 30 days after such action or failure to act, commence an action in any court of competent jurisdiction. The court shall hear and decide such action on an expedited basis. Any person adversely affected by an act or failure to act by a State or local government or any instrumentality thereof that is inconsistent with clause (iv) may petition the Commission for relief.

(C) Definitions: For purposes of this paragraph--

(i) the term 'personal wireless services' means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services;

(ii) the term 'personal wireless service facilities' means facilities for the provision of personal wireless services; and

(iii) the term 'unlicensed wireless service' means the offering of telecommunications services using duly authorized devices which do not require individual licenses, but does not mean the provision of direct-to-home satellite services (as defined in section 303(v)).'.

(b) Radio Frequency Emissions: Within 180 days after the enactment of this Act, the Commission shall complete action in ET Docket 93-62 to prescribe and make effective rules regarding the environmental effects of radio frequency emissions.

(c) Availability of Property: Within 180 days of the enactment of this Act, the President or his designee shall prescribe procedures by which Federal departments and agencies may make available on a fair, reasonable, and nondiscriminatory basis, property, rights-of-way, and easements under their control for the placement of new telecommunications services that are dependent, in whole or in part, upon the utilization of Federal spectrum rights for the transmission or reception of such services. These procedures may establish a presumption that requests for the use of property,

rights-of-way, and easements by duly authorized providers should be granted absent unavoidable direct conflict with the department or agency's mission, or the current or planned use of the property, rights-of-way, and easements in question. Reasonable fees may be charged to providers of such telecommunications services for use of property, rights-of-way, and easements. The Commission shall provide technical support to States to encourage them to make property, rights-of-way, and easements under their jurisdiction available for such purposes.

Implementation of the 1996 Act

The 1996 Act explicitly provides for access to the rights-of-way facilities owned or controlled by incumbent LECs and others by new telecommunications providers. LECs are required to provide access to their poles, ducts, conduits, and right-of-way to competing carrier on rates, terms, and conditions consistent with section 224. Moreover, both the terms and conditions of access to poles, ducts, conduits, and rights-of-way by a competing carrier shall be resolved through negotiation. Further, when the parties fail to resolve a dispute on their own, new subsection 224(e)(1) directs the FCC to prescribe regulations and to resolve compensation matters.

Although the requirements are fairly explicit, many of the details are open to interpretation, and a number of implementation questions must be answered. For example, will access to rights-of-way facilities be based on a provider-customer model that views the carrier requesting access as a customer of the owner of the facility or on a co-provider model that views each carrier as having equal status? The former model leads to access on a resale or unbundled element basis. The latter model leads to collocation-type rules, or to shared or neutral ownership of facilities.

The 1996 Act provides a set of general policies for access to rights-of-way facilities. Nevertheless, there are many issues that must be settled in the implementation phase.

The 1996 Act provides a set of general policies for access to rights-of-way facilities. Nevertheless, there are many issues that must be settled in the

implementation phase.[15] As noted above, section 703 of the 1996 Act, added to and amended the provisions of section 224, and rules must be established to implement the changes. For example, subsection 224(f) provides that a utility shall provide a cable television system or any telecommunications carrier with nondiscriminatory access to any rights-of-way facilities it owns or controls. The nondiscriminatory access provisions imply that LECs and others must provide access to rights-of-way facilities on similar terms to all requesting carriers. However, one of the implementation issues is to determine whether LECs must provide access to other carriers on exactly the same terms and conditions they apply to themselves or their affiliates. In other words, is it permissible for a LEC to distinguish between the way it provides access to its rights-of-way facilities for internal uses and the way it provides competing carriers with access?

One of the implementation issues is to determine whether LECs must provide access to other carriers on exactly the same terms and conditions they apply to themselves or their affiliates.

The 1996 Act provides that an electric utility may deny access to rights-of-way facilities where there is insufficient capacity or where there are safety, reliability, or other engineering concerns. Thus, another implementation issue for regulators involves establishing standards for determining when such considerations allow a LEC or another entity to deny a carrier's request for access to its rights-of-way facilities. Moreover, there is the question of whether the party requesting access or the party seeking to deny access bear the burden of proof when disputes arise. Another question is how should limited access rights be allocated among requesting carriers, if multiple requests for access tend, *in toto*, to raise concerns regarding capacity, safety, reliability, etc.?

An implementation issue for regulators involves establishing standards for determining when such considerations allow a LEC or another entity to deny a carrier's request for access to its rights-of-way facilities.

[15] The FCC began consideration of these issues shortly after the 1996 Act was enacted. See FCC 96-182, *Notice of Proposed Rulemaking*, in CC Docket 96-98, "In the Matter of Implementation of Local Competition Provisions in the Telecommunications Act of 1996," (released April 19, 1996): paras. 220-225. Also, see below for some discussion of the rights-of-way provisions contained in the *First Report and Order* in that Docket.

Another implementation issue arises from the provision in subsection 224(h) that the owner of rights-of-way facilities must notify other carriers using the facility regarding any alterations it intends to make so that they have a reasonable opportunity to add to or modify their existing attachments. That subsection also provides for carriers that add to or modify their existing attachments after receiving such a notification to bear proportionate shares of the costs the owner incurs in making the right-of-way facility accessible. As a result, the amount of notice required and the means of determining proportionate shares must be determined.

FCC Implementation Actions

The basic premise contained in these orders is that implementation of the 1996 Act should be actively pro-competitive and serve to offset the market power of the incumbent LECs.

After the 1996 Act was enacted, the FCC opened dockets to consider implementation issues, including rights-of-way access. As a result, the FCC issued two orders that relate directly to the question of developing rules for access to rights-of-way facilities.[16] The basic premise contained in these orders is that implementation of the 1996 Act should be actively pro-competitive and serve to offset the market power of the incumbent LECs. Specifically, in its *First Report and Order* in Docket 96-98, the FCC stated that:

> . . . removal of statutory and regulatory barriers to entry into the local exchange and exchange access markets, while a necessary precondition to competition, is not sufficient to ensure that competition will supplant monopolies. . . . Because an incumbent LEC currently serves virtually all subscribers in its local serving area, [it] has little economic incentive to assist new entrants in their efforts to secure a greater share of that market. . . . incumbent LECs have economies of density, connectivity, and scale; traditionally, these have been viewed as creating a natural monopoly. . . . the local competition provisions of the [1996] Act require that these economies be shared with entrants. . . .The Act contemplates three paths of entry into

[16] See FCC 96-325, *First Report and Order* in CC Docket No. 96-98, "In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996," and CC Docket No. 95-185, "Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers," (released August 8, 1996) and FCC 96-327, *Order* in CS Docket No. 96-166, "In the Matter of Implementation of Section 703 of the Telecommunications Act of 1996: Amendments and Additions to the Commission's Rules Governing Pole Attachments," (released August 6, 1996).

> the local market -- the construction of new networks, the use of unbundled elements of the incumbent's network, and resale. . . . our obligation in this proceeding is to establish rules that will ensure that all pro-competitive entry strategies may be explored. [17]

FCC 96-325

FCC 96-325 deals with interconnection issues, generally, and rights-of-way issues were considered in that context. In its discussion of access to rights-of-way facilities, the FCC adopted a number of strong and procompetitive provisions and imposed obligations on LECs and others who control rights-of-way facilities to provide nondiscriminatory access to all telecommunications carriers. Specifically, section XI(B) [18] sets forth the FCC's rules for such access. The FCC noted that its intent was to ensure that no party could use control of rights-of-way facilities to impede, inadvertently or otherwise, competition in telecommunications services, including cable services. [19]

State and Federal Responsibilities

The FCC considered its mandate was to:

> . . . institute an expeditious procedure for determining just and reasonable pole attachment rates with a minimum of administrative costs and consistent with fair and efficient regulation. [20]

The FCC did not attempt to set detailed rules for access to rights-of-way. Instead, it left the rules to state and local authorities and stated that it would defer to them so long as their rules are nondiscriminatory, do not prohibit competitive entry, or require excessive

The FCC did not attempt to set detailed rules for access to rights-of-way. Instead, it left the rules to state and local authorities and stated that it would defer to them so long as their rules are nondiscriminatory, do not prohibit competitive entry, or require excessive compensation.

[17] FCC 96-325, paras. 10-12.

[18] Ibid., paras. 1119-1186.

[19] Ibid., para. 1123.

[20] Ibid., para. 1122.

compensation. Federal responsibilities are limited to cases in which a direct conflict with federal policy is shown by the complainant. States retain primary responsibility for determining appropriate rules for access to rights-of-way in their respective jurisdictions, subject to federal oversight.

The rationale for division of responsibilities is that local conditions are too diverse to develop a single set of access rules.

The rationale for division of responsibilities is that local conditions are too diverse to develop a single set of access rules. States are closer to local conditions, and, so long as their rules further the goal of providing access to all telecommunications carriers, they should have the authority to devise rules to suit varying conditions.

Rules and Guidelines

The FCC recognized that comprehensive rules for access to rights-of-way facilities were not possible and concluded that questions as to whether particular access conditions were reasonable should be resolved on a case-specific basis. The inability to promulgate comprehensive rules resulted from the fact that there are millions of utility poles and miles of conduit, so there are simply too many variables to permit comprehensive or all-inclusive rules. The FCC found that no single set of rules can take into account all of the issues that arise in the context of a single installation or attachment. Moreover, the FCC further concluded that there were so many variables involved, including engineering standards and locational and climatological variations, that it would be impossible to identify and account for them in order to prescribe uniform standards and requirements.[21]

The FCC decided against issuing comprehensive rules. Instead, it established a few rules supplemented by certain guidelines and presumptions.

Therefore, the FCC decided against issuing comprehensive rules. Instead, it established a few rules supplemented by certain guidelines and presumptions. The FCC did indicate,

[21] Ibid., paras. 1143-1149.

however, that it will monitor the effect of this approach and would propose more specific rules at a later date if more specific rules are necessary to facilitate access and the development of competition in telecommunications and cable services.[22] The general rules regarding access to rights-of-way adopted by the FCC are:[23]

1. Deference to Industry Safety Codes and Other Rules
   a. In evaluating a request for access, a utility may continue to rely on the National Electric Safety Code (NESC) and other industry codes to prescribe standards with respect to capacity, safety, reliability, and general engineering principles. Other industry codes also will be presumed reasonable.
   b. In addition, Federal requirements, such as those imposed by the Federal Energy Regulatory Commission and the Occupational Safety and Health Administration, will continue to apply to requests for attachments to utility facilities.
2. Deference to State and Local Requirements
   a. Even if the state has not sought to preempt federal regulations under subsection 224(c), state and local requirements affecting attachments are entitled to deference.
   b. State and local requirements should be presumed reasonable unless a complainant can show a direct conflict with federal policy.
   c. If a local requirement directly conflicts with a federal rule or guideline, the federal rules will prevail, but a state requirement that is more restrictive than the corresponding NESC standard may still apply.
3. Nondiscrimination
   a. Where access is mandated, the rates, terms, and conditions of access must be uniformly applied to all telecommunications carriers and cable operators that have access or seek access.
   b. The utility must charge all parties an attachment rate that does not exceed the maximum amount permitted by the formula devised for such use. Other terms and conditions also must be applied on a nondiscriminatory basis, and a utility may not favor itself over other parties with respect to the provision of telecommunications or video programming services.

[22] Ibid.

[23] Ibid., paras. 1151-1157.

The FCC recognized that subsection 253(c) of the 1996 Act specifically recognizes the authority of state and local governments to manage public rights-of-way and to require fair and reasonable compensation for the use of such rights-of-way. The FCC also noted that a state is not prohibited from imposing competitively neutral requirements that are consistent with section 254 and that are necessary to preserve and advance universal service, protect the public safety and welfare, ensure the continued quality of telecommunications services, and safeguard the rights of consumers.[24] Nevertheless, the FCC noted that the discretion of state and local authorities is limited by subsection 253(a), which invalidates state or local legal requirements that prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.

The 1996 Act specifically recognizes the authority of state and local governments to manage public rights-of-way and to require fair and reasonable compensation for the use of such rights-of-way.

The discretion of state and local authorities is limited by subsection 253(a), which invalidates state or local legal requirements that prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.

The FCC indicated that it would not adopt specific rules to determine when access may be denied because of concerns about capacity, safety, reliability, or engineering.[25] Moreover, the FCC rejected some utilities' contention that they should be the primary arbiters of such concerns, or that their determinations should be presumed reasonable. In particular, the FCC found that subsection 224(f)(1) reflects Congressional intent that

Utilities must be prepared to accommodate requests for access to rights-of-way facilities by telecommunications carriers and cable operators.

[24] Ibid., para. 1155.

[25] Ibid., para. 1158.

utilities must be prepared to accommodate requests for access to rights-of-way facilities by telecommunications carriers and cable operators. [26]

The FCC also stated that it was providing general ground rules that would be used by parties involved in disputes to implement pro-competitive attachment polices and procedures. Moreover, the FCC indicated its preference that parties settle disputes through arms-length negotiations and not resort to complaint and adjudication procedures before the FCC or other forums. [27]

The FCC indicated its preference that parties settle disputes through arms-length negotiations and not resort to complaint and adjudication procedures before the FCC or other forums.

Who is required to provide access?

The FCC noted that subsection 224(f) imposes access obligations on any "utility," which is defined as a LEC or an electric, gas, water, steam, or other public utility, that owns or controls poles, ducts, conduits, or other rights-of-way used, in whole or in part, for any wire communications. [28] Specifically excluded from the definition of "utility" and, thus, from the obligation to provide access are railroads, cooperatives, and agencies of the federal or a state government.

Because denial of access to all discriminates against none, the FCC concluded that a provider of utility service is not required to provide access, if it has refused to permit *any* wired communications use of its rights-of-way facilities. [29] However, the FCC also concluded that access obligations would be triggered if an electric utility used its rights-of-way for its own internal communications, even if it has not allowed any other provider of wired communications to use its rights-of-way facilities. [30]

---

[26] Ibid.

[27] Ibid., para. 1159.

[28] 47 U.S.C. 224 (a)(1).

[29] FCC 96-325, paras. 1172-1173.

[30] Ibid., para. 1174.

Capacity expansion

The FCC concluded that, if a utility is able to expand capacity if necessary to meet its own needs, the principle of nondiscrimination established by subsection 224(f)(1) requires that it do likewise to meet the needs of telecommunications carriers and cable operators.

The FCC's guidelines on capacity expansion are pro-competitive, especially with respect to the interpretation of nondiscrimination requirements. Capacity limits notwithstanding, the FCC concluded that, if a utility is able to expand capacity if necessary to meet its own needs, the principle of nondiscrimination established by subsection 224(f)(1) requires that it do likewise to meet the needs of telecommunications carriers and cable operators. [31]

A lack of capacity on a particular facility does not necessarily mean there is no capacity in the underlying right-of-way. The FCC indicated that a lack of capacity on a particular facility does not automatically entitle a utility to deny a request for access.

The guidelines note that when it cannot accommodate a request for access because the facility in question lacks available space, a utility often must modify the facility to increase its capacity. [32] The FCC further noted that subsection 224(f)(1) mandates access not only to physical facilities (*i.e.*, poles, ducts, and conduit), but also to the rights-of-way themselves. Thus, a lack of capacity on a particular facility does not necessarily mean there is no capacity in the underlying right-of-way. Noting that modification costs will be borne only by the parties directly benefitting from the modification and that neither the utility nor its ratepayers will be harmed, the FCC indicated that a lack of capacity on a particular facility does not automatically entitle a utility to deny a request for access. [33]

---

[31] Ibid., para. 1162.

[32] Ibid., para. 1161.

[33] Ibid.

Before it can deny a request for access based on a lack of capacity, a utility must explore potential accommodations in good faith with the requesting party.

The FCC recognized that circumstances and the amount of effort required to provide requested access are highly variable and might require replacing or expanding an existing facility. As a result, the FCC stated that it would not attempt to have a specific rule listing circumstances in which a utility either must accommodate or may deny a request.[34] Nevertheless, the FCC's interpretation of subsections 224(f)(1) and (f)(2) led to a requirement that utilities take all reasonable steps necessary to accommodate requests for access. Therefore, before it can deny a request for access based on a lack of capacity, a utility must explore potential accommodations in good faith with the requesting party.[35]

Carriers requesting access should be able to choose the form of access they are provided, even it necessitates modification or expansion of a facility.

Finally, the FCC noted that, although resale will be an important element in the development of competition, facilities-based competition has additional benefits and should not be discouraged by access rules. Therefore, carriers requesting access should be able to choose the form of access they are provided, even if it necessitates modification or expansion of a facility. As a result, the FCC's guidelines do not require the requesting carrier to use existing facilities on a leased or resale basis, even if they are available.[36]

Reservation of space by utility

The extent to which LECs or other parties who control rights-of-way facilities can reserve currently unused capacity for future use is another implementation issue, and, as in the case of capacity expansion, the FCC interpreted the nondiscrimination principle in a pro-competitive way. The FCC recognized that it is routine practice for

[34] Ibid., para. 1163.

[35] Ibid.

[36] Ibid., para. 1164.

treatment of all utilities; rather, it requires nondiscriminatory treatment of all telecommunications and video providers."[43]

Safety Issues

Where electricity is involved, there is increased concern over issues involving capacity, safety, reliability and engineering practices, because electricity is inherently more dangerous than telecommunications services.

Subsection 224(f)(2) allows a utility to deny access based on safety, reliability, and generally applicable engineering practices. The FCC found that, where electricity is involved, there is increased concern over issues involving capacity, safety, reliability and engineering practices, because electricity is inherently more dangerous than telecommunications services.[44] The FCC concluded that it is permissible for electric utilities to require that individuals who work on or near electric lines have the same qualifications, in terms of training, as the utility's own workers, but the party seeking access will be able to use any individual workers who meet these criteria.[45] The FCC further concluded that safety and reliability concerns may be greater where a right-of-way site is part of an electric transmission (high-voltage) grid, as contrasted with a site that is part of the electric distribution (low-voltage) network. The FCC found that, where transmission facilities were involved, it is permissible to impose stricter conditions on access or to deny access if legitimate safety or reliability concerns cannot be reasonably accommodated.[46] With respect to safety issues raised by non-electric utilities, the FCC indicated that they will be

Where transmission facilities were involved, it is permissible to impose stricter conditions on access or to deny access if legitimate safety or reliability concerns cannot be reasonably accommodated.

[43] Ibid.

[44] Ibid., para. 1177.

[45] Ibid., para. 1182.

[46] Ibid., para. 1184.

scrutinized very carefully, particularly when the parties concerned have a competitive relationship.[47]

Access to property of third-party owners

Some rights-of-way facilities are sited on property owned by entities that are not obliged to provide access — *i.e.*, by non-utilities. The FCC considered its authority to mandate access to private property, and concluded that the extent of a utility's ownership or control of an easement or right-of-way is a matter of state law, and that it could not issue general rules on access requirements because the extent of a utility's ownership and control depends upon many unknown and case-specific factors. As a result, the FCC reiterated that a utility incurs access obligations when, as a matter of state law, it owns or controls the right-of-way to an extent sufficient for it to permit access.[48]

A utility incurs access obligations when, as a matter of state law, it owns or controls the right-of-way to an extent sufficient for it to permit access.

The FCC also concluded that subsection 621(a)(2) of the 1934 Act already authorizes a franchised cable operator to construct facilities in public rights-of-way and easements so long as they have been dedicated for compatible uses.[49] Thus, to the extent that access to easements is permitted, a cable operator must be allowed to attach to utility poles, ducts, and conduits within such easements in accordance with subsection 224(f). Moreover, the FCC adopted an stronger rule. It stated that, if necessary to accommodate a request for access, a utility should be expected to exercise its eminent domain authority to expand an existing right-of-way over private property. The FCC stated that a utility is required to use its eminent domain power to accommodate others

If necessary to accommodate a request for access, a utility should be expected to exercise its eminent domain authority to expand an existing right-of-way over private property.

[47] Ibid., para. 1177.

[48] Ibid., para. 1179.

[49] Codified at 47 U.S.C. 541(a)(2).

just as it would in order to modify its poles or conduits for its own uses.[50] This is another strong interpretation and application of the principle of nondiscrimination.

Utilities are not required to grant access to every piece of equipment or real property they own or control.

Although the FCC adopted broad standards for access to rights-of-way facilities, it also provided limits to that access. It concluded that Congress intended subsection 224(f) to permit cable operators and telecommunications carriers to "piggyback" along distribution networks owned or controlled by utilities, but that utilities are not required to grant access to every piece of equipment or real property they own or control. Furthermore, the FCC noted that the size, weight, and other characteristics of proposed attachments must be considered in determining the capacity, reliability, and engineering constraints of a particular site. As a result, the FCC did not provide a list equipment or property to which access must be provided and noted that the question of access should be decided based on those factors.[51]

Rules

In order to implement its guidelines for rights-of-way access, the FCC adopted several amendments to Part 1 of Title 47 of the Code of Federal Regulations (C.F.R.). §1.1403 provides that, upon a written request for access, a utility shall provide a cable television system or any telecommunications carrier with nondiscriminatory access to any pole, duct, conduit, or right-of-way that it owns or controls. A utility may, however, deny access on a nondiscriminatory basis where there is insufficient capacity or for reasons of safety, reliability and generally applicable engineering purposes. The request for access must be in writing, and if access is not granted within 45 days of the request, the

Upon a written request for access, a utility shall provide a cable television system or any telecommunications carrier with nondiscriminatory access to any pole, duct, conduit, or right-of-way that it owns or controls. A utility may, however, deny access on a nondiscriminatory basis where there is insufficient capacity or for reasons of safety, reliability and generally applicable engineering purposes.

[50] FCC 96-325, paras. 1180-1181.

[51] Ibid., paras. 1185-1186.

utility must provide specific reasons for the denial, including relevant evidence and supporting information. A utility shall provide a cable television system operator or telecommunications carrier no less than 60 days written notice prior to any removal of facilities, termination of service, increase in pole attachment rates, or modification of facilities—other than routine maintenance and responses to emergencies.[52]

§1.1404 provides procedures for handling disputes between parties. The complaining party must allege that the rate, terms, or conditions of access, including denial of access, is unjust or unreasonable, and the complaining party must show that the state commission has not asserted jurisdiction. The complaint must be filed within 30 days of such denial, and must include supporting information—including the basis for claims that the denial of access is improper—and the remedy sought.[53]

§1.1409 provides for the FCC to consider complaints and states that the complaining party has the burden of establishing a *prima facie* case that the rate, term, or condition is not just and reasonable or that the denial of access violates subsection 224(f). However, once a *prima facie* case has been established, a utility has the burden of proof to show that its rate, terms, and condition of access was reasonable. Furthermore, if the complaint involves denial of access, the utility has the burden of proving that its denial was lawful.[54]

The complaining party has the burden of establishing a prima facie case. However, once a prima facie case has been established, a utility has the burden of proof.

Costs of modification shall be borne by all parties that obtain access as a result of or that directly benefit from a modification. Moreover, each benefiting party shall bear a proportionate share of the cost of modification.

§1.1416 deals with responsibility for the cost of modifying a facility to accommodate a cable television system operator or telecommunications carrier. It provides that such costs shall be borne by all parties that obtain access as a result of or that directly benefit from a modification. Moreover, each benefiting party shall bear a proportionate share of the cost of modification, except that a party with a

[52] 47 C.F.R. §1.1403. See FCC 96-325, Appendix B, para. 6.

[53] 47 C.F.R. §1.1404. See FCC 96-325, Appendix B, para. 7.

[54] 47 C.F.R. §1.1409. See FCC 96-325, Appendix B, para. 8.

preexisting attachment to a pole, conduit, duct or right-of-way shall not bear any part of the cost of modifications necessary to accommodate another party. However, a party that adds to or modifies its attachment after receiving notice of the modification shall be considered to directly benefit. Finally, if a modification made its attachment possible, a party that attaches to a facility afterwards shall bear a proportionate share of the cost. [55]

FCC 96-327

In FCC 96-327, the FCC implemented Section 703 of the 1996 Act by amending its rules relating to pole attachments. The FCC stated that the 1996 Act was intended to

> accelerate . . . private sector deployment of advanced telecommunications and information technologies and services to all Americans by opening all telecommunication markets to competition. [56]

As contrasted with FCC-325, which was issued after a process that included issuing FCC 96-182, *Notice of Proposed Rulemaking* (NOPR) [57] and consideration of comments and reply comments to the NOPR, FCC 96-327 was issued without a comment period. The FCC indicated that it did so because the modifications did not involve discretionary action. Instead, the modifications simply conform existing rules with the provisions of the 1996 Act, which made notice and comment procedures unnecessary. [58]

The just and reasonable standard required that pole attachment rates fall between the minimum standard of incremental cost and the maximum standard of fully allocated cost.

In discussing pole attachment rates, The FCC stated that the just and reasonable standard required that pole attachment rates fall between the minimum standard of incremental cost

---

[55] 47 C.F.R. §1.1416(b). See FCC 96-325, Appendix B, para 9.

[56] FCC 96-327, para. 1, quoting *Telecommunications Act of 1996 Conference Report,* Senate Conference Report 230, 104th Cong., 2nd Sess. 113 (1996).

[57] Cf., note 15, above.

[58] FCC 96-327, para. 2.

and the maximum standard of fully allocated cost.[59] Moreover, the FCC noted that incremental costs might include make-ready and change-out costs incurred in preparing for cable attachments, but indicated that pole attachment rates based on incremental costs should be low, because utilities generally recover make-ready or change-out charges directly from cable operators.[60]

The FCC observed that the 1996 Act expanded the scope of Section 224 to include telecommunications carriers in addition to cable operators, who had previously been covered.[61] In addition, the FCC noted that the existing maximum just and reasonable pole attachment rate formulas would be temporarily applicable to telecommunications carriers and cable operators providing telecommunications services. It noted that the 1996 Act also created a distinction between pole attachments used by cable operators solely to provide cable service and pole attachments used by cable operators or by any telecommunication carrier to provide any telecommunications service. Specifically, the FCC indicated that the 1996 Act prescribed a new methodology for determining pole attachment rates for the latter group. The new methodology requires that, in addition to paying their share of a pole's usable space, telecommunications service providers must also pay their share of the fully allocated costs associated with the unusable space of the pole, duct, conduit, or right-of-way. The FCC noted the Congressional mandate that it issue new formulas for pole attachment rates within two years of enactment of the 1996 Act.[62] The FCC

---

[59] Ibid., para. 5, citing *Alabama Power Co. v. FCC*, 773 F.2d 362, 364 (D.C. Cir. 1985). Incremental costs include only those additional costs that the utility incurs as a result of the attachment to its poles. Fully allocated costs include a portion of the operating expenses and capital costs that the utility incurs in owning and maintaining poles to which other users make attachments.

[60] Ibid., citing *Amendment of Rules and Policies Governing the Attachment of Cable Television Hardware to Utility Poles*, CC Docket No. 86-212, 2 FCC Rcd 4387, 4388 (1987) *recon. denied*, 4 FCC Rcd 468 (1989); and *Senate Report No. 580, 95th congress, 1st Session (1977)* at 19.

[61] Ibid., para. 6. The FCC noted (at n. 17) that 47 U.S.C. 3(44), as amended by the 1996 Act, a telecommunication carrier is defined as "any provider of telecommunications services, except . . . aggregators . . . " and 47 U.S.C. 3(46), as amended by the 1996 Act, defines a telecommunications service as " the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used." The FCC further noted (at n. 18) that 47 U.S.C. 3(43), as amended by the 1996 Act, defines telecommunications as "the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received."

[62] Ibid., citing 47 U.S.C. 224 (a)(4), (d)(3), (e)(1), and (e)(2) as amended or added by section 703 of the 1996 Act.

further noted that its authority does not extend to access to rights-of-way facilities that are regulated by state commissions. [63]

In addition to the amendments to its rules that were adopted in FCC 96-325, [64] in FCC 96-327 the FCC adopted amendments to its rules on pole attachments. One of these, §1.1416(a), incorporates the language of the 1996 Act requiring imputation of pole attachment rates by utilities that own or control rights-of-way facilities. The 1996 Act states that:

> A utility that engages in the provision of telecommunications services or cable services shall impute to its costs of providing such services (and charge any affiliate, subsidiary, or associate company engaged in the provision of such services) an equal amount to the pole attachment rate for which such company would be liable under this section. [65]

NARUC Implementation Actions

The member commissions of NARUC are on the front lines with respect to implementing the local competition provisions of the 1996 Act, and they will be responsible for developing rules for their respective states, including rules for rights-of-way access.

The member commissions of NARUC are on the front lines with respect to implementing the local competition provisions of the 1996 Act, and they will be responsible for developing rules for their respective states, including rules for rights-of-way access. As discussed above, the FCC has recognized that state commissions are well situated to deal with rights-of-way access issues, and it has stated its intent to defer to them on these issues, provided that state actions do not raise barriers to competition.

---

[63] Ibid., para. 7, citing 47 U.S.C. 224(c)(1) as amended by section 703 of the 1996 Act.

[64] See above for discussion of the rules adopted in FCC 96-325.

[65] 47 U.S.C. 224(g), as added by section 703 of the 1996 Act. The language of the rule is identical and may be found at 47 C.F.R. 1.1416(a). See FCC 96-327, para. 10 and Appendix A, para. 8.

Recently, NARUC's Subcommittee on Communications considered a Resolution[66] that dealt with rights-of-way issues. That Resolution resulted from a recommendation by the National Conference of Regulatory Commission Engineers regarding the need for such model rules, and it noted that competition in local exchange markets could be negatively affected either by the absence of rules regarding access to rights-of-way or by rules that are overly restrictive. The Resolution also noted that consumer choice of local service providers may be hindered if there is not reasonable nondiscriminatory access to rights-of-way facilities, and it listed several principles for model rules regarding rights-of-way access. The principles are:

- non-discriminatory access to all providers;
- non discriminatory pricing to all providers in the same market;
- standardized access to facilities for multi-tenant buildings and campuses;
- standard electrical codes for construction and placement of facilities;
- guidelines for mapping rights-of-way and facilities in order to minimize outages; and
- requirements to publicly label ownership and management of facilities and contact personnel.

Finally, the Resolution called for a joint effort by NARUC, industry, and consumer groups to develop model rules or guidelines for rights-of-way access. Such joint efforts are important. Although conditions may differ among states, each state commission will confront many of the same issues, and it would be useful to have a set of coordinated policy principles, which the various state commissions could adapt to suit local conditions.

[66] "Resolution to Develop Model Rights-of-Way Rules," presented to the Subcommittee on Communications at NARUC's Summer 1996 Meetings, Los Angeles, California, July 1996.

CHAPTER 4

RIGHTS-OF-WAY POLICY AND PRICING MODELS

This chapter examines several policy models that might be applied to the question of access to rights-of-way facilities. These models include the concept of common carriage, the essential facilities doctrine, collocation, resale and unbundling, and indefeasible rights of use. Each of these models provides justification or a method of providing access to rights-of-way facilities by multiple carriers. The chapter also contains a brief discussion of pricing principles that might be applied to rights-of-way access.

Common Carriage

The concept of common carriage is at the core of access and interconnection rights in telecommunications. Indeed, the first section of Title II of the 1934 Act[1] grants the FCC statutory authority to issue interconnection orders as necessary and desirable for the public interest. Moreover, the common carriage provisions of sections 201 through 226 of Title II of the 1934 Act are often the basis for decisions involving interconnection.[2]

Common carriage obligations under Title II are derived from the common law on obligations of common carriers. Under common law, an individual engaged in a public calling (e.g., a ferry operator) was treated as a common carrier. The determinants of common carrier status have been characterized as:

> ...'holding out' (a promise, in essence, to serve all comers), and public interest in having the service performed affordably and fairly.[3]

---

[1] 47 U.S.C. 201.

[2] 47 U.S.C. 201-226.

[3] Perrit 1995, p. 66

Under Title II, a common carriers is defined as:

> . . . any person engaged as a common carrier for hire in interstate or foreign communication by wire or radio or in interstate or foreign radio transmission of energy, . . . a person engaged in radio broadcasting shall not . . . be deemed a common carrier.[4]

Common carriers have the duty:

> to furnish communication services upon reasonable request . . . establish physical connection with other carriers . . . establish through routes and charges applicable thereto . . . and . . . establish facilities and regulations for operating such through routes.[5]

The primary obligations imposed on a common carrier are nondiscrimination and interconnection.

Thus, common carriers are under an obligation to furnish interconnection to other carriers, and it is generally held that they must do so on reasonable terms. In a nutshell, the primary obligations imposed on a common carrier are nondiscrimination and interconnection.[6]

The duty to provide for connections with other carriers is not trivial. Many cases resulted from the Bell System's refusal to grant access to independent telephone companies dating back to the late 1800s, but none involved access to rights-of-way. The 1996 Act has direct language requiring access to rights-of-way facilities.[7] In addition, it may be possible to apply the principle of common carriage to questions involving access to rights-of-way facilities by CAPs, cable television providers, and others who want to offer facilities-based services in the emerging competitive local and interexchange telecommunications markets. As a matter of principle, if rights-of-way access is a communication service, if local loop facilities and appurtenances are common carriage facilities, or if rights-of-way access is deemed to fall under the rubric

---

[4] 47 U.S.C. 153(h).

[5] Perrit 1995, p. 62, citing 47 U.S.C. 201(b).

[6] 47 U.S.C. 201(a). In the past, some LECs appealed the FCC's authority to order physical collocation, a form of expanded interconnection (see the discussion, below), but the 1996 Act gives the FCC specific authority to mandate collocation.

[7] See, for example, 47 U.S.C. 251(b)(4), as added by the 1996 Act. This and other provisions of the 1996 Act regarding rights-of-way access are discussed in Chapter 3, above.

of interconnection, then common carriers are obliged to offer access to rights-of-way to other authorized carriers.

There is no doubt that available space on utility-owned conduits, poles, ducts, and rights-of-way is subject to appropriation by license or lease, provided that the appropriation will not interfere significantly with the owner's use of the facility. Some of these arrangements, which are embodied in the 1934 Act, as amended by the provisions of the Cable Communications Policy Act, allow cable television providers access to utility easements on private property. It is specifically provided that, once a competent franchising authority has granted a franchise to provide cable television service: [8]

> (2) Any franchise shall be construed to authorize the construction of a cable system over public rights-of-way, and through easements, which is within the area to be served by the cable system and which have been dedicated for compatible uses, except that in using such easements the cable operator shall ensure -
>
> (A) that the safety, functioning, and appearance of the property and the convenience and safety of other persons not be adversely affected by the installation or construction of facilities necessary for a cable system;
>
> (B) that the cost of the installation, construction, operation, or removal of such facilities be borne by the cable operator or subscriber, or a combination of both; and
>
> (C) that the owner of the property be justly compensated by the cable operator for any damages caused by the installation, construction, operation, or removal of such facilities by the cable operator.

Another means of gaining access to utility poles, ducts, conduits, and rights-of-way is by applying for state commission authorization for access to such facilities. Generally, a state commission determination of public utility status allows access to various rights-of-way facilities.

The Essential Facility Doctrine

In several court cases the courts identified situations in which a lawful monopolist refused to deal with a plaintiff who wants access to the monopolist's facility. In some of

[8] 47 U.S.C. 541(a)(2).

these cases the courts articulated and invoked a theory known as the "essential facility doctrine" or the "bottleneck monopoly theory." This doctrine provides an alternative to the intent-focused basis for the antitrust analysis of a lawful monopolist's actions or inactions. Under the essential facility doctrine, a firm with monopoly power in a market is required to deal equitably with competing firms that depend on it for essential inputs. [9]

One analysis of the doctrine was by Neale, [10] who studied a series of court decisions that shared a common pattern, which he called the "bottleneck monopoly" principle. Neale stated the principle or rule as follows:

> The Sherman Act requires that where facilities cannot practically be duplicated by would-be competitors, those in possession of them must allow them to be shared on fair terms. It is illegal restraint of trade to foreclose the scarce facility. [11]

One of the seminal cases on the essential facility doctrine cited by Neale is *United States v. Terminal Railroad Association.* [12] Neale's analysis is expressly limited to cases involving "would-be competitors;" he did not address the anticompetitive impact of the monopolist's refusal to deal with an entity operating in an upstream, downstream, or adjacent market. A further commentary was provided by Sullivan, who (without using the phrase) restated the essential facility rule as follows:

> If a group of competitors, acting in concert, operate a common facility and if due to natural advantage, custom, or restrictions of scale, it is not feasible for excluded competitors to duplicate the facility, the competitors who operate the facility must give access to the excluded competitors on reasonable, non-discriminatory terms. [13]

Sullivan provides a broad discussion of monopolists' refusal to deal, including analysis of the joint behavior of groups of competitors. However, after considering the fact that ventures by groups of competitors may lead to the capture of economies of scale not

---

[9] Dealing equitably with one's rivals may be interpreted as treating them reasonably rather than providing them with absolute equality. See Kellogg, Thorne, and Huber 1992, pp. 139-40.

[10] Neale 1970, pp. 66-70 and 127-133.

[11] Ibid., p. 67, note 1.

[12] 224 U.S. 383 (1912). Hereafter, "*Terminal Railroad.*"

[13] Sullivan 1977, p. 131. Of course, once a determination has been made the other parties are to have access on reasonable and nondiscriminatory terms, some mechanism must be in place to judge ongoing reasonableness and nondiscrimination of the terms of access.

otherwise available, he opined that the effect the ventures have on competition must be considered. Sullivan's view was that:

> If the venture is presently or potentially so powerful that loss of access will greatly reduce the competitive effectiveness of non-member firms, and if firms which want to enter are not permitted to do so on reasonable terms, elaborate analysis is not needed to support the conclusions that any gains in efficiency are outweighed by the anticompetitive effect . . . .[14]

Troy also provided a scholarly commentary and analysis of the essential facility doctrine.[15] Troy extended the doctrine to consider all monopolists' arbitrary refusal to deal when the viability of the party in need of the facility is threatened by the refusal. Troy questioned why the judge in *Hecht v. Pro-Football, Inc.*[16] cited *Otter Tail Power Co. v. United States*[17] as establishing or reaffirming the essential facility doctrine. Troy found the court's citation of *Otter Tail* as establishing the contours of the essential facility doctrine to be curious, and he stated that: "*Otter Tail* should not be cited as formulating the [essential facility] doctrine's substance."[18] He came to this view because, although the facts in *Otter Tail* were consistent with an essential facility situation, the Supreme Court—using used traditional intent-focused monopolization analysis—held that the refusal to deal by the defendant, Otter Tail Power Co., violated Section 2 of the Sherman Act.[19] Thus, the Court treated Otter Tail Power Co. as it would any other monopolist that used its market power to suppress competition in a downstream market. Therefore, Troy argued that *Otter Tail* should not be cited in analyses of case law as being an example of the application of the essential facility doctrine. After considering the precedents involving an essential facility, Troy concluded that:

---

[14] Ibid., p. 255.

[15] Troy 1983.

[16] 570 F.2d 982 (D.C. Cir., 1977), cert. denied, 436 U.S. 956 (1978). Hereafter, "*Hecht.*"

[17] 410 U.S. 366 (1973). Hereafter, "*Otter Tail.*"

[18] Troy, op. cit., p. 486, note 7.

[19] Codified at 15 U.S.C. 1-7.

> . . . refusals to deal by lawful monopolists for reasons that are not overtly anticompetitive do not fit within the *per se* rule. [20]

Although a number of cases have been decided under the *per se* rule, or on other grounds, Troy noted that, in more recent decisions, the courts relied more on a rule of reason-type inquiry. [21] Troy cited several policies that justify preference for the rule-of-reason over the *per se* rule. Those policies include the free trader doctrine, economic efficiency of allowing lawful monopolists the freedom to choose their customers, and avoidance of judicial oversight over commercial relationship. In addition, Troy proposed a three-part test that to determine whether a particular facility should be given essential facility treatment. He proposed that such treatment should be given when a facility meets the following requirements: [22]

1. access to the facility is necessary for entry into the market;
2. duplication of the facility exceeds the standard of entry; and
3. continued denial of access endangers the foreclosed party's commercial existence.

Establishing Liability Under the Essential Facility Doctrine

Troy and other scholars, together with then-extant laws, did not provide a sufficiently rich framework to apply the principle to regulated industries. In a subsequent case, the test for essentiality was articulated in *MCI Communications Corp. v. American Telephone and Telegraph Co.,* [23] which set forth four elements necessary to establish liability under the essential facilities doctrine:

1. control of the essential facility by a monopolist;

---

[20] Troy, loc. cit.

[21] The *per se* rule is based on the notion that some actions in restraint of trade (such as price fixing), in and of themselves, violate the antitrust statutes. The rule of reason is based on the notion that many actions have the effect of restraining trade to some degree, so that only those actions that unreasonably restrain trade violate the antitrust statutes. The rule of reason was advanced in *United States v. Trans-Missouri Freight Association,* 166 U.S. 290 at 346.

[22] Ibid.

[23] 708 F. 2d 1081 (7th Cir., 1983). Hereafter, *MCI.*

2. a competitor's inability practically or reasonably to duplicate the essential facility;
3. the denial of the use of the facility to a competitor; and
4. the feasibility of providing the facility.

The essential facilities doctrine has been used to decide a number of recent cases that essentially adopted the elements identified in *MCI*.[24] These tests are improvements over the three tests suggested by Troy. However, they do not explicitly include the "valid business reasons" element cited by the Supreme Court as a justification for a refusal to deal with a competitor.[25]

The current case law stating the essential facility doctrine is contained in *MCI*, and further refinements in the requirements to establish applicability of the essential facilities doctrine have been suggested by Tye.[26] In the discussion of that statement's four elements note that Tye's suggestions can be observed in the discussion presented in *MCI*.

If intent to monopolize cannot be established, the essential facility doctrine provides another basis for action under Sherman.

Antitrust complaints under the Sherman Act should first be analyzed for intent. If, however, intent cannot be established, the essential facility doctrine provides another basis for action under Sherman. In order to require a remedy, the elements listed above must be considered. The first two elements are used to determine whether the facility is, indeed, essential. Thus, to establish the essentiality of a facility, access to which is needed, the first two tests—control of the facility by a monopolist and the inability of potential competitors to duplicate it on reasonable terms—must be applied to the facility in question and determine whether the facility is essential. The last two tests—denial of

---

[24] See, e.g., *City of Anaheim v. Southern California Edison Co.*, 955 F.2d 1373, 1879-81 (9th Cir., 1992); *City of Vernon v. California Edison Co.*, 955 F.2d 1361, 1366 (9th Cir. 1992); *Alaska Airlines Inc. v. United Airlines Inc.*, 948 F.2d 536 (9th Cir., 1991); and *Ferguson v. Greater Pocatello Chamber of Commerce Inc.*, 848 F.2d 976, (9th Cir., 1988).

In a recent case, *Data General Corp. v. Grumman Systems Support Corp,* 36, F.3d 1147 (1st Cir., 1994), the U.S. Court of Appeals for the First Circuit ruled that a monopolist may be in violation of Section 2 of Sherman Act if it refuses to license copyrighted information to competitors without a valid business justification.

[25] See *Aspen Skiing Co. v. Aspen Highlands Skiing Corporation*, 472 U.S. 585 (1985).

[26] See Tye 1991, pp. 401-416.

access by the monopolist and the feasibility of the monopolist providing that access—may establish liability under the antitrust laws. These four elements, which taken together constitute the essential facilities doctrine, are discussed below.

Control of the Facility

In order to apply the essential facility doctrine, it must be determined that the facility is controlled either by a lawful monopolist or by a group of competitors who have joined to exercise monopoly power. Although the statement of the first test in *MCI* mentions monopolists only, the ensuing discussion and citing of precedents therein clearly include groups of competitors that, in combination, have monopoly powers. For example, in *Terminal Railroad* a group of railroad companies formed an association to unify their terminal facilities in St. Louis. These companies were called the proprietary companies, and other railroad companies which were not members of the association were called the non-proprietary companies. The non-proprietary companies needed access to the proprietary companies' unified terminal facilities, which was considered as a single facility and was controlled by the proprietary companies, who combined to exert monopoly powers over it. Thus the elaboration of the first test for essentiality in *MCI* contains the expanded statement of Tye's first test.

In *Otter Tail*, the Otter Tail Power Co. bought electric energy from the U.S. Bureau of Reclamation and sold it at retail to 465 towns in Minnesota, North Dakota, and South Dakota. Otter Tail also distributed electric energy at retail in towns where it held municipality-granted franchises. The essential facility in question was the transmission line system, and Otter Tail was the lawful monopolist controlling the facility. The District Court enjoined Otter Tail from refusing to sell energy at wholesale to existing and proposed municipal electric power systems in its service area, and it also enjoined Otter Tail from refusing to give access to its transmission line system to wheel electric energy from electric power suppliers to existing and proposed municipal systems in its area.

As noted above, this case was decided on an intent-focus basis rather than on the essential facility doctrine. Otter Tail argued that it was not subject to antitrust regulation with respect to its refusal to deal by reason of the Federal Power Act. The

Supreme Court disagreed with Otter Tail and stated that there was no legislative history which would support insulating electric power companies from the operation of the antitrust laws.

In *Hecht*, a group of investors sought to obtain an American Football League franchise for Washington, D.C. The group wanted to use the Robert F. Kennedy (RFK) stadium, which was operated and maintained under contract with the Department of Interior by the District of Columbia Armory Board, an unincorporated instrumentality of the District of Columbia. In turn, the Armory Board leased the stadium to Pro-Football, Inc., a franchisee of the National Football League and operator of the Washington Redskins. The lease agreement between Pro-Football, Inc. and the Armory Board contained a restrictive covenant which provided that "at no time during the term of this Lease Agreement shall the Stadium be let or rented to any professional football team other than the Washington Redskins."[27]

In *Hecht*, the essential facility was the RFK stadium, and the monopolist in control of the facility in this case was Pro-Football, Inc. The investor group contended that they had requested the District Court to instruct the jury concerning the essential facility doctrine, but the judge had failed to give the instructions. The U.S. District Court of Appeals for the District of Columbia reversed the judgment and remanded the case to the District Court for retrial. From the cases cited above, it is clear that Tye's first test is the same as that in this section which is taken from *MCI*.

Inability to Reasonably Duplicate the Facility

A competitor that is denied access to a facility can consider establishing a similar or equivalent facility. However, it may be physically impossible to construct such a facility, and, in this case, it is clear that the competitor is unable to duplicate the facility. The more likely situation is that it is

In a specific case, the plaintiff has the burden to show that it would be unable practically or reasonably to duplicate the facility. The cost of duplication is prohibitive if it is in excess of an amount that makes competitive entry possible.

[27] 570 F.2d 982 at 985.

physically possible to duplicate the facility, but the cost may be prohibitive. The cost of duplication is prohibitive if it is in excess of an amount that makes competitive entry possible. This test for essentiality boils down to a determination of what is reasonable or practical in duplicating the facility. In *Hecht,* the court defined an essential facility as one where "duplication of the facility would be economically unfeasible..."[28] This test allows for substantial latitude in determining what is practical or reasonable in the consideration of duplication of the facility. In a specific case, the plaintiff would have the burden to show that it would be unable practically or reasonably to duplicate the facility.

MCI needed access to Bell's local distribution facilities, and denial of access prevented it from offering Foreign Exchange (FX) and Command Control Switching Arrangement (CCSA) services to its customers. In its decision in *MCI*, the Court found that

> MCI could not duplicate Bell's local facilities. Given present technology, local telephone service is generally regarded as a natural monopoly and it is regulated as such. It would not be economically feasible for MCI to duplicate Bell's local distribution facilities (involving millions of miles of cable and line to individual homes and businesses), and regulatory authorization could not be obtained for such an uneconomical duplication.[29]

Thus, inability to reasonably duplicate a facility is a key element in determining whether a facility can be classified as essential.

Denial of Use of the Facility

Restrictions on access that result in poor quality of access may result in a finding that access was substantively denied.

If the facility cannot reasonably be duplicated by others, access can be ordered even if the controlling monopolist does not totally refuse access to it. If the controlling monopolist allows others to use the facility but puts limits or conditions to their access that results in substantive denial of access, a remedy may remove the restrictions. Restrictions on access such as time periods

[28] Ibid., at 991.

[29] 708 F.2d 1081 at 1133.

allowed, limited capability, cumbersome procedures for access, and poor quality of access in a number of senses, may result in a finding that access was substantively denied. However, the plaintiff has the burden of showing the negative consequences that resulted from the denial or restriction of access.

Precedent-setting cases indicate several examples of total denial. For example, in *Otter Tail*, *Hecht,* and *MCI*, the monopolist totally denied access to the facilities it controlled. Furthermore, in *Otter Tail*, the Supreme Court noted that the district court determined that Otter Tail had a strategic dominance in the transmission of power in most of its service area, and the Court indicated a concern that power in the transmission market was being used to further a monopoly in the retail distribution market. In *MCI,* the Supreme Court made an analogy to *Otter Tail* because AT&T had complete control over the local distribution facilities that MCI required. The interconnections were essential for MCI to offer FX and CCSA service. Therefore, denial of access to an essential facility in a local distribution market was deemed to be injurious to MCI in the long-distance market. Thus, the discussion in *MCI* covers the intent of Tye's third test.

Feasibility of Providing the Facility

The plaintiff has the burden to show that it is feasible for the controlling monopolist to provide access to the facility. In its case against AT&T, MCI was found to have produced sufficient evidence at trial for the jury to conclude that it was technically and economically feasible for AT&T to have provided the requested interconnections. Moreover, it was found that AT&T's refusal to provide the interconnection constituted an act of monopolization. Furthermore, the jury determined that no legitimate business or technical reason for AT&T's denial of the requested interconnections had been shown.[30] Thus, Tye's revision of the fourth test to his proposed "valid business reasons" is effectively included in the discussion of the fourth test in *MCI.* However, there can be acceptable technical or business reasons for a monopolist to deny access.

[30] Ibid.

For example, in *Gamco, Inc. v. Providence Fruit & Produce Building, Inc.,* [31] the jury accepted the defendant's denial of access to their building because of limited space. Moreover, there are other examples where a defense of infeasibility led to the same result. [32]

However, even if it is feasible for the controlling monopolist to provide access, a defense based on the concept of justifiable business reasons may succeed. For example, firms are not necessarily required to share the favorable results of risky endeavors—such as research and development activities—with their rivals. Nor are they required to limit their own use of a facility in order to benefit their rivals. [33]

Regulatory Policy Issues of the Essential Facility Doctrine

A broad application of the essential facility doctrine in telecommunications may reduce incentives for entrants to deploy their own networks, or reduce LEC's incentives to upgrade their network.

The essential facility doctrine described above is based on case law and is one basis for analysis under the antitrust laws. [34] It is also a starting point for setting some aspects of regulatory policy related to providing access to rights-of-way facilities by competing telecommunications carriers. The provisions in the 1996 Act can be read as creating a presumption that all the LEC's rights-of-way facilities are to be given essential facility treatment. However, there is a need to find a balance between wanting to "jump start" local competition, which may imply allowing other carriers to have liberal access to the LECs' rights-of-way facilities, and recognizing that true competition must be facilities-based. In some cases, designation

---

[31] 194 F.2d 484 at 487-488 and n.3 (1st Cir.), cert. denied, 344 U.S. 817, 97 L. Ed. 636, 73 S. Ct. 11 (1952).

[32] See Note, "Refusals to Deal by Vertically Integrated Monopolists," *Harvard Law Review* 87 (1974): 1720-61.

[33] See Kellogg, Thorne, and Huber 1992, pp. 139-40.

[34] The essential facility doctrine has created considerable interest and discussion, some of which may be found in Meeks 1996, pp. 86-90. Also see Werden 1987, Gerber 1988, Ratner 1988, Areeda 1990, Azcuenaga 1990, Blumenthal 1990, Gorinson 1990, Owen 1990, Reiffen and Kleit 1990, Kelly 1991, Edgar 1992, Kovacic 1992, Gundlach and Bloom 1993, Hobart 1994, Larson, Kovacic, and Mudd 1994, Hausman and Tardiff 1995, and McAndrews 1995.

of facilities as essential may not lead to an improved economic welfare.[35] A broad application of the essential facility doctrine in telecommunications may reduce incentives for entrants to deploy their own networks, or reduce LEC's incentives to upgrade their network, especially if entrants gain access on relatively favorable terms.

There are three suggested remedies for an essential facility situation in a regulated industry.[36] They are:

1. regulating access to the facility on a case-by-case basis to ensure that efficient competitors can enter, but maintaining the existing vertical integration;
2. changing the regulatory structure to eliminate the incentives or opportunities for the regulated firm to exclude competitors (possibly by requiring separate subsidiaries); and
3. requiring vertical deintegration, so that the monopolist is not in direct competition with those who want to access the facility.

Current policies for ensuring rights-of-way access rely on a combination of the first and second remedies. Access is allowed, and the owner must impute the rates it charges competitors for rights-of-way access into its own retail rates. The third remedy would lead to some form of neutral ownership of rights-of-way facilities and it has not been widely proposed.

There is a need to develop an economically efficient framework for regulatory policy for designating facilities as essential and managing access to them. Competitive access should be stimulated primarily to provide the greatest benefit to the public. Where there are multiple rights-of-way facilities, it is unclear whether the essential facility doctrine should be applied to all facility-based carriers, to the LEC alone, or to none of them. In an intermeshed network model, there might be few truly essential facilities. Suppose that one, or at most two, physical links existed to a customer's premises. Customer choice would be facilitated if the customer could designate the local carrier who would serve that link. Of course, the owner of the link would be compensated for its use. This would be equivalent to the policy allowing consumers to designate their inter-and intraLATA carriers.

---

[35] For a discussion of some of these concerns see Larson, Kovacic, and Mudd 1994.

[36] See Owen 1990, pp. 890-94.

Application of the Essential Facility Doctrine to Public Rights-of-Way

Access to public rights-of-way, which are usually on or alongside a street or are easements on private property granted to a utility (usually an electric, gas, telephone, or water company) allows construction and maintenance of poles, conduits, lines, raceways, and other facilities, so that a particular service may be provided.[37] The Pole Attachment Act[38] specifically allowed cable television companies to collocate their cable lines on utility poles. To ensure fair competition and preserve the public interest, it is important that existing arrangements for use of rights-of-way be reexamined.

One question is whether demands by potential competitors and other service providers for access to public rights-of-way may be resolved using the essential facility doctrine. It appears that there is no reason why a public right-of-way should be exempt from the essential facility doctrine, if denial of access to it severely inhibits the ability of competitors to enter the market. Following the reasoning in *Hecht*, the city or municipality that granted an exclusive right-of-way to the utility would be analogous to the District of Columbia Armory Board; Pro-Football, Inc. would be analogous to the utility; and the applicant for access would be analogous to Hecht. There may be, however, limitations and restrictions associated with the granting of the right-of-way. Typically, the right-of-way is granted for a specific type of utility service (e.g., electric service) and the city may not be allowed to grant the same right-of-way to another utility or service provider.[39]

Recent applications for joint use of a right-of-way may serve as a model. The Pacific Gas & Electric Company filed an application before the California Public Utilities Commission to "permit the use of certain of its rights-of-way and to allow use of and access to certain other of its properties and facilities by MCI Telecommunications Corporation, in accordance with the terms of a Right of Way Agreement dated as of February 19, 1992." The California Public Utilities Commission granted PG&E authority

---

[37] Note that, although the local government owns the land comprising public rights-of-way, the poles and other facilities are owned by the utilities.

[38] 47 U.S.C. 224.

[39] Note that in *Hecht* (mentioned above), the existing lease did not allow the Armory Board to provide the facility to another professional football team.

to fulfill the agreement it conditionally entered with MCI.[40] The agreement allows MCI to have fiber-optic ground wire installed on PG&E's transmission towers and permits MCI to use a portion of a fiber-optic communications network. MCI will supply the fiber-optic cables and pay for the expenses, but PG&E will design, construct, install, maintain, own, and repair the network. As part of the agreement, MCI will grant PG&E a certain amount of capacity on MCI's nationwide telecommunications system.

In another proceeding before the California PUC, Southern California Edison Company (SCE), filed an Application for Authority to Lease Underground Conduit Space to Metropolitan Fiber Systems of California, Inc. (MFS), a commission-certified interexchange telecommunication services carrier.[41]

As part of its network expansion project in Los Angeles, MFS sought a path to lay fiber-optic cables towards Beverly Hills, and SCE had an existing 5-inch conduit space running along Santa Monica Boulevard in Los Angeles extending to Beverly Hills. Edison and MFS entered into an agreement whereby MFS was to be granted a lease to use 3-inches of SCE's vacant 5-inch conduit. MFS was in charge of the installation and maintenance of its facilities. SCE was to receive title to the facilities at the completion of the construction and will receive annual lease payments from MFS. In granting SCE the requested authority the Commission indicated that it had considered the following:

1. support for the increased development of fiber optic infrastructure;
2. recognition of the fact that joint use of facilities has both economic and environmental benefits;
3. MFS's payments will flow to the benefit of SCE's customers;
4. the agreement will allow improved service to customers; and
5. residents of Los Angeles and Beverly Hills will be spared the disruptive effects associated with the tearing of the streets.

Conflicts could arise in the future if desired access to rights-of-way is denied or unreasonably restricted. Furthermore, even where there are agreements such as in the cases of PG&E and MCI and SCE and MFS, there may be other telecommunication providers needing access, and the essential facility doctrine may apply directly to the

---

[40] See California Public Utilities Commission, Decision No 93-04-019, Application No. 93-01-037, filed January 27, 1993.

[41] Pursuant to General Order 69.C., public utilities were allowed to grant easements, licenses or permits for use of their property provided that their public utility functions are not impaired.

facility in question or may be extended to the right-of-way where the definition of "essentiality" is applied.

In addition to providing access to the "essential right-of-way," another issue involves the amount of compensation provided to the city, municipality, or other political entity that granted the original right-of-way to the original occupant of the right-of-way. That is, if one lawful user of the public right-of-way grants access to its facilities to other entities, should the compensation to the LFA be changed? Also, service providers' rates should reflect the compensation to the LFA. The level of compensation to the entity that provides access to the essential facility or right-of-way may be affected by the amount of compensation required by the LFA that retains original control.

Collocation and Expanded Interconnection

Arranging for competitive access for facilities-based telecommunications carriers has been one of the most important issues in telecommunications since 1990. CAPs have grown in importance and have provided increasing competition for some of the LECs access services. Some CAPs provide local telephone service to customers; some provide private-line connections between large businesses in large cities. CAPs need to interconnect with IXCs to complete long-distance calls. Furthermore, they need to interconnect with LECs to reach customers who are not part of the CAP network. CAPs compete with LECs to provide private-line service, which is a dedicated connection between customers, between a customer's multiple locations, or between a customer and an IC's point of presence (POP). Private-line service is often routed through one or more LEC central offices, and recurring charges are imposed on CAPs. CAPs' ability to compete can be limited by the interconnection charges they pay the LEC, and they have sought to minimize these charges and improve their service quality by locating their interconnection equipment inside the central offices of LECs.

Expanded interconnection enables carriers to offer facilities-based competition for certain LEC access services by interconnecting their circuits with the LEC's at the LEC's central office through either physical or virtual collocation (discussed below). Collocation is a special form of expanded interconnection. Under it, interconnection

equipment dedicated to a CAP or IXC is located in a LEC's central office and may be owned either by the LEC or by a CAP or IXC.

There are two types of collocation: physical and virtual. Both types of collocation are intended to make the CAPs more competitive in providing facilities-based access services.

Physical Collocation

Physical collocation allows the interconnector to locate its own transmission and termination equipment inside the LEC central office. Under a physical collocation arrangement, the LEC must turn over space within its central office to an interconnecting carrier, which installs, maintains, operates, and retains complete control over its own equipment. The interconnecting carrier pays the LEC for space and other expenses resulting from its use of the LEC's central office. Physical collocation is analogous to the status of embassies: a U.S. embassy located in a host country's territory is treated as sovereign U.S. territory.

Under physical collocation, the LEC turns space within its central office over to another carrier, which installs, maintains, operates, and retains complete control over its own equipment

Virtual Collocation

Virtual collocation enables the LEC to own, or lease, and exercise exclusive physical control over the interconnector's transmission equipment located in the central office. Virtual collocation is a service provided by a LEC to another carrier. In virtual collocation, a LEC provides the interconnection equipment inside its central office, and although the equipment may be chosen by and dedicated to the exclusive use of the interconnector, the LEC owns and exercises exclusive control over the equipment. Under virtual collocation, the interconnector locates its cable to a predetermined point just outside the

Under virtual collocation, the interconnector locates its cable to a predetermined point just outside the LEC's central office.

LEC's central office; the LEC makes the connection to the interconnection equipment inside its central office and maintains the equipment.

A Brief History of Collocation

In a series of informal rulemakings, the FCC required the LECs to set aside a portion of their central offices to be occupied and used by CAPs.[42] On October 19, 1992, the FCC ordered Tier 1 LECs not participating in NECA pools to file tariffs offering special access-expanded interconnection through physical collocation.[43] In September 1993, the FCC ordered those same LECs to file tariffs for provision of switched transport-expanded interconnection service through physical collocation.[44]

The FCC based its authority on section 201(a) of the 1934 Act, which requires telecommunications carriers to establish physical connections with other competing or non-competing common carriers.[45] Invoking its authority under the above quoted provision, the FCC made physical collocation mandatory except in two cases:

1. there was a demonstration or showing by the LEC that a particular central office lacks physical space to accommodate physical collocation; and
2. the state legislatures or Public Utility Commissions issued a final decision prior to February 19, 1993 allowing virtual collocation for intrastate interconnection.

The FCC's mandatory physical collocation order was challenged in the U.S. Court of Appeals for the District of Columbia Circuit.[46] The appellants claimed that the FCC lacked statutory authority for the orders, that the orders failed to show the reasoned decisionmaking required by the Administrative Procedure Act (APA), and that (as to one aspect of the orders) the FCC flouted APA notice-and-comment procedure.

---

[42] See *Report and Order and Notice of Proposed Rulemaking (Report and Order)*, 7 F.C.C.R. 7369 (1992) and *Memorandum Opinion and Order (Memorandum Opinion)*, 8 F.C.C.R. 127 (1993) in CC Docket No. 91-141, "Expanded Interconnection with Local Telephone Company Facilities."

[43] Ibid., *Report and Order.*

[44] Ibid., *Memorandum Opinion.*

[45] 47 U.S.C. 201(a).

[46] See *Bell Atlantic Telephone Companies, et al., Petitioners v. Federal Communications Commission, et al., Respondents; Rochester Telephone Corporation, et al., Intervenors*; and *Consolidated Case Nos. 92-1620, 93-1028, 93-1053*, 24 F.3d 1441.

Furthermore, appellants alleged that, even if statutory authority did exist, any interconnection order that required LECs to offer physical collocation raised constitutional questions. It was argued that mandatory physical collocation required LECs to make space in their central offices available for equipment owned by CAPs, and gave CAPs the inalienable right of entry for maintenance and repair. The appellants viewed this as a "taking" of the LEC's property, which would violate the taking and due process clauses of the Fifth Amendment.

The Appeals Court granted the petition for review, and, on June 10, 1994 vacated the FCC's collocation orders, in part, and remanded them. In vacating the orders, the Appeals Court stated that it did not have jurisdiction to decide whether a taking occurred.[47] However, it ruled that the likelihood of a taking required construing Section 201(a) of the 1934 Act in such a way as to deny the FCC authority to order the LECs to allow physical collocation.[48] The Appeals Court held that:

> (T)he Commission's power to order 'physical connections,' undoubtedly of broad scope, does not supply a clear warrant to grant third parties a license to exclusive physical occupation of a section of the LEC's central office."[49]

In remanding the case to the FCC, the Court said that since the FCC permitted virtual collocation as a substitute for physical collocation only under two limited circumstances, the remand was necessary in order for the FCC to determine whether or not virtual collocation would be an adequate remedy to solve the problem of the LEC's special access tariffs for dedicated lines.[50]

After completion of its review of collocation issues, on July 24, 1994, the FCC adopted a virtual collocation policy, directed Tier 1 LECs to file tariffs offering expanded

---

[47] The district courts have original jurisdiction, concurrent with the United States Court of Federal Claims, to decide takings questions over $10,000. See 28 U.S.C. 1346(a)(2).

[48] 24 F. 3d 1441, at 1444.

[49] Ibid., at 1446

[50] These special access tariffs have three components: a flat-rate charge for transmission from the customer's premises to the LEC's central office; a distance-sensitive charge for transmission between the LEC's offices (if applicable): and a flat-rate charge for transmission from the LEC's office to an IXC's point of presence. These charges were often bundled, and CAPs compete with LECs in the special access market, paying bundled charges even in cases where the CAPs use their own facilities in one or more of the transmission segments. In other words, CAPs were paying for services they did not want, and sometimes did not use.

interconnection services through virtual collocation, and provided an exception for LECs that provided physical collocation under tariff.[51] Most LECs filed virtual collocation tariffs, but NYNEX, PacTel, and some smaller companies continued to offer physical collocation.

The first part of the collocation conundrum raised by the Court's vacating and remanding the FCC's order, i.e., the lack of specific authority vested in the FCC, has been settled: subsection 251(c)(6) of the 1996 Act specifically provides authority for collocation where technically feasible. In addition, the Court's concern about CAPs being forced to purchase bundled services was also ameliorated, as incumbent LECs are required to allow other carriers to resell their retail services and to offer nondiscriminatory unbundled access to their networks, unless such access is not technically feasible. It remains to be decided whether mandated physical collocation is an impermissible taking.

The FCC's lack of specific authority to order physical collocation was remedied by subsection 251(c)(6) of the 1996 Act, which allows the FCC to order collocation where technically feasible.

State Collocation Actions

The California Public Utilities Commission (CPUC) considered the issue of collocation.[52] After careful consideration of the merits of the issue in the light of the construction of section 201(a) of the 1934 Act, the CPUC construed California law in the same manner as the Federal law so as to avoid the constitutional question. Hence, the CPUC limited itself to ordering virtual collocation. The prerogative to grant or not to grant physical collocation was bestowed upon the LECs under appropriate circumstances.

Similarly, the Delaware Public Service Commission (DPUC) recommended against adoption of a proposed physical collocation policy and stated that:

---

[51] CC Docket No. 91-141 *Memorandum Opinion and Order*, July 24, 1994.

[52] See CPUC Slip Opinion dated April 26, 1995.

> The determination of whether to allow physical collocation or virtual collocation for intrastate expanded interconnection shall rest with the owner of the physical facilities which collocation is being sought. [53]

The hearing examiner did not want to establish an intrastate policy different from the FCC's interstate policy.

The New York commission did adopt physical collocation, and several other states are also in the process of doing so. Given the Court of Appeal's decision, physical collocation has survived, in part, because some LECs have chosen to offer it.

Applying Collocation Principles to Rights-of-Way

Mandating physical access to the LEC's rights-of-way facilities by competitors is just an extension of physical collocation.

Although the concept of collocation, especially the physical variant, has normally been applied to central office space, it can be easily extended to other facilities, including rights-of-way. Indeed, mandating physical access to the LEC's rights-of-way facilities by competitors is just an extension of physical collocation. Similarly, requiring LECs to let competitors use their facilities is an extension of the principle of virtual collocation. If a LEC owns or controls rights-of-way facilities, and those facilities have the physical and technical capacity to support multiple users, then it is within the scope of collocation to allow others to situate their lines or other equipment on those rights-of-way or to use the LEC's already sited facilities to reach their customers.

Resale, Unbundling, and Rights-of-Way Access

Resale is based on the linchpin network model in which the LECs network is treated as the first among unequals.

As noted in Chapter 3, the 1996 Act requires incumbent LECs to offer their retail services on a wholesale basis

[53] See "Current Cases: Formal Collocation Policy Not Endorsed," *Public Utility Fortnightly* 131, no. 7 (April 1, 1993): 45, which cites *Re: Requirements for Virtual or Physical Collocation within Telephone Central Offices and Serving Wire Centers,* (Delaware Public Service Commission Reg. Dkt. No 36, January 22, 1993).

to other authorized carriers for resale. In one sense, the right of resellers to purchase the LEC's services at wholesale allows them to resell local access, thereby giving them implicit use of the LEC's existing rights-of-way facilities to connect with customers. However, because resale plans generally envision resale of a bundled package, and loop services *per se* have not been treated as retail services, the resale model may not be strictly applicable to rights-of-way access.[54] Although it is one means of obtaining access to customers, resale, by itself, does not qualify as being facilities-based competition. In addition, resale is based on the linchpin network model in which the LECs network is treated as the first among unequals.

In addition to requiring resale, the 1996 Act requires LECs to offer their network services and functions to other carriers on an unbundled basis. If a carrier deploys its own switches, arranges for physical or virtual collocation at the LEC's central offices, and connects to customers by means of unbundled local loops leased from the LEC, then by using the LEC's rights-of-way facilities to make physical connection with its customers, it can be considered to be a facilities-based competitor. As in the case of resale, however, the LEC's network is treated as being the linchpin, and the other carrier is the LEC's customer as well as its competitor.

Indefeasible Rights of Use

The concept of an indefeasible right of use (IRU) originated in the context of international submarine telecommunications cables.[55] Submarine cables are costly and are commonly owned jointly (e.g., by carriers at either end of the cable).[56] Under the IRU concept, permanent access rights to use capacity on the cables were conveyed from the original capacity owners to other original owners who needed more capacity or to users who did not initially invest in the cables.

---

[54] There is no reason why loop access could not be a retail service. Indeed, one view is that providing a subscriber with access to the central office is, itself, a service that can and should be priced separately from other functions. If this were done, one component of the access service would be the rights-of-way facilities used to deliver access. This view was expounded in Kahn and Shew 1987.

[55] For some background on the IRU concept, see Kellogg, Thorne, and Huber 1992, pp. 730-35.

[56] The IRU concept is also applied to communications satellites.

The IRU concept allows a carrier to be treated as facilities based, even though it does not own the facilities.

The IRU concept allows transfer of usage rights without transferring title or the benefits of ownership for tax and depreciation purposes. Moreover, although it does not hold physical title to the facility, a carrier that has an IRU interest in a facility is considered to be a facilities-based carrier rather than a reseller of capacity.

The IRU concept can be applied to create a model for shared investment in and use of rights-of-way facilities, and it might result in more efficient infrastructure deployment. The IRU concept can be easily applied to rights-of-way facilities in order to create a model of shared access to poles, ducts, conduits, etc. It also may provide a basis for market entrants to secure access to rights-of-way facilities.

An IRU is fundamentally different from a lease. Under an IRU, the party acquiring the IRU purchases the IRU from the party controlling the facility. Thereafter, the IRU holder is responsible for its *pro-rata* share of maintenance and operating expenses associated with its share of the facility's capacity. The price paid for the IRU could be based either on original book cost less accumulated depreciation or on some measure of the current economic value of the facility.

The IRU concept goes a step beyond unbundled access. If other carriers are allowed to acquire an IRU interest in the LEC's, or other rights-of-way facilities, they would no longer be the LEC's customers as well as its competitors. Instead they would have a joint ownership interest in the rights-of-way facilities. In this situation, they would most likely have some input into planning improvements to the facilities. The application of the IRU concept to rights-of-way facilities is relatively straightforward. The original owner (a LEC or other party) would grant a permanent interest in the facilities to another party. Indeed, application of the IRU concept to rights-of-way facilities could increase the evidence of facilities-based competition, without requiring additional investment in network deployment by entrants.[57]

[57] The request by TCG filed with the New Jersey Board of Public Utilities for permission to condemn poles owned by Bell Atlantic (see Chapter 3, above) would create a situation similar to an IRU in that TCG sought to obtain an equity interest in the poles.

Pricing Issues

Once access to rights-of-way facilities is available, that access must be priced. There are several possible pricing methods including fully associated cost, the efficient components pricing rule, and various versions of incremental cost.

Fully Allocated Cost

Fully allocated cost (FAC) methods have long been used by utilities to determine the cost of providing a service. The basic premise of the FAC method is that the total cost of operating a firm should be spread among the various services the firm produces. A multi-product firm incurs two basic types of costs. First are direct costs caused by the production of various products. The second are the common costs of running the business. These costs cannot be said to have been caused by the production of any particular product; these include general firm overheads that do not increase or decrease depending on whether the firm sells a particular product or group of products. The FAC of a service or a group of services is determined by assigning those costs that are directly caused by a service or group of services. The remaining costs, i.e., those that cannot be directly assigned, are considered common to all services and are allocated among services based on some reasonable but, nonetheless, arbitrary measures such as the pro-rata share of direct costs, labor hours, minutes of use, peak usage, etc. Many different aliocation factors are used to assign common costs to various services or groups of services, and capital costs, including a reasonable return to investors, are among the costs allocated.[58] Although FAC is used to determine the revenue requirement to be collected from various services, designing the rate structure to collect that revenue requirement is a separate step. One problem

Because they are heavily dependent on the embedded investment, fully allocated costs may bear little relation to the current economic cost of providing the service.

[58] Economists consider this reasonable return (the minimum expected return required to induce investors to commit their funds to the firm) to be a cost of doing business. The reasonable return is an *ex ante* cost that may be greater or less than the accounting return the firm earns on an *ex post* basis.

with fully allocated costs is that, because they are heavily dependent on the embedded book value (historic original cost net of accumulated accounting depreciation) of plant and equipment used to deliver services, they may bear little relation to the current economic cost of providing the service. Thus, prices developed from fully allocated cost studies may give erroneous signals to consumers, and lead to inefficient results.[59]

Entrants are concerned that the use of FAC-based access rates would result in their being charged too much for rights-of-way access, because FAC-based access rates would tend to build-in an inappropriate level of contribution to the LEC's common costs. Instead, entrants prefer that rights-of-way access be priced at incremental cost of that access, without any loading of contribution to the LEC's common costs.

The Efficient Component Pricing Rule

The efficient components pricing rule (ECPR) was suggested by Baumol and Sidak,[60] who analyzed the pricing of intermediate inputs in a multi-part production processes. Suppose that one firm produces the product in its entirety and that other firms want to purchase one or more parts of the process and produce the other parts themselves. Baumol and Sidak were concerned that the prices charged for unbundled services sold to competitors should neither be too high nor too low. One of the problems with pricing the component parts of a normally bundled service or function at incremental cost is that the sum of the incremental costs of all the bits and pieces do not equal the total cost of providing that service.[61] This is because retail prices of bundled services include a contribution to the common costs of an the *integrated* firm, however, the contribution to common costs is not included in the calculation of the incremental cost of *individual* unbundled elements. In their presentation of the ECPR, Baumol and Sidak propose that the price of unbundled intermediate inputs be set at the

[59] It is possible use the results of FAC studies to develop prices that are "second-best" approximations of efficient prices. See, for example, Baumol and Bradford 1970.

[60] See Baumol and Sidak 1994a (especially, chapter 7) and 1994b.

[61] This will always be true if there are common costs that are not attributable to any service or group of services.

direct incremental cost of the input plus the opportunity cost to the input supplier of a sale of that unit to a competing firm. [62] Stated otherwise, they propose that:

> The optimal input-pricing rule states simply that the price of an input should equal its average-incremental cost, *including all pertinent incremental opportunity costs.*" [63]

The last phrase in the quote has created great controversy, and Baumol and Sidak interpret the incremental opportunity costs to include:

> all potential earnings that the supplying firm forgoes, . . . by offering services to competitors that force it to relinquish business to those rivals, and thus to forgo the profits on that lost business. [64]

Baumol and Sidak argue that the ECPR leads to efficient entry in the sense that a firm can profitably enter the market if it is at least as efficient as the LEC at providing the other elements of the retail service and if its own common costs are not excessive. They state that application of the ECPR will:

> offer success to entrants who can add efficiency to the supply of the final product, while it ensures that inefficient entrants are not made profitable by an implicit cross-subsidy extracted from the incumbent. [65]

The ECPR would make a LEC indifferent between serving a customer itself or selling access so that a CAP would provide service.

However, if this rule is applied to access to the LEC's rights-of-way facilities, the LEC could price access at a level that includes both the direct incremental cost of providing access and the total contribution to its common costs it forgoes as a result of providing that access. In essence, the ECPR would make a LEC indifferent between serving a customer itself or selling access so that a CAP would provide service.

---

[62] Baumol and Sidak 1994a, p. 94.

[63] Ibid. (Emphasis in the original.)

[64] Ibid.

[65] Ibid. p. 115.

As might be expected, the ECPR has provoked considerable comment.[66] Critics of the ECPR believe that its application would result in keeping incumbents whole, which is not necessarily a goal, or desired outcome, of a policy that opens markets to competition.[67] One problem with the ECPR is that, notwithstanding the term "efficient" in the name, it will not result in first-best efficiency unless a number of stringent and unlikely assumptions are met. In addition, the facility owner might be able to deter entry by more efficient rivals.[68] Also, if the facility owner has market power in the retail market, the estimated opportunity cost embedded in the bundled retail price may be above the competitive level. Finally, the level of contribution suggested by the ECPR would make it difficult for an entrant to cover its own fixed and common costs. On balance, where there are bottleneck resources, application of the ECPR would tend to reduce the beneficial impact of retail price rivalry that is one of the goals of opening markets to competition.

The estimated opportunity cost embedded in the bundled retail price may be above the competitive level.

Where there are bottleneck resources, application of the ECPR would tend to reduce the beneficial impact of retail price rivalry that is one of the goals of opening markets to competition.

If the goal of policy is to facilitate competitive entry and provide consumers with active price rivalry, the ECPR seems to be a poor choice. Indeed, one of the developers of the ECPR (William J. Baumol) has indicated that it should not be used to

---

[66] For more on the ECPR, including criticisms other analyses, see Tye 1994; Kahn and Taylor 1994; Mitchell, Neu, Neumann, and Vogelsang 1995; Cimerman and Waldau 1994; Economides and White 1995, and Armstrong, Doyle, and Vickers 1996.

[67] For example, if a CAP leased a local loop pathway to a consumer from the LEC, application of the ECPR might lead to the price of the pathway being enough above the incremental cost of the pathway to include whatever net contribution the LEC expected to receive from that consumer.

[68] The ECPR-price of an element would be the incremental cost of that element plus the foregone contribution derived from the retail service (which the incumbent no longer expects to sell). The foregone contribution from the retail service is the price of the retail service minus the sum of the incremental costs of the various elements bundled into it. Therefore, if the incremental costs of the various elements are understated, the foregone opportunity cost portion of the ECPR-price will be overstated, and, assuming the legitimacy of the ECPR, the price of the unbundled element will be too high. This will deter entry —even by firms who are as efficient as the incumbent in producing the other elements of the retail service. In fact, even under a rule that any element must be offered under on an unbundled basis at the ECPR-price, by understating the marginal costs of all the elements, the foregone opportunity cost to be applied to any unbundled element or subset thereof will be overstated and entry by equally efficient rivals will be deterred. See Economides and White 1995 for further discussion of this point.

price interconnection and unbundled network elements, because the existing retail rates for local telecommunications services are not appropriate baselines, as they include cross-subsidies, and there is a divergence between rates and costs. [69]

Incremental Cost

In general, it would be inappropriate for any facility owner to price access to that facility at less than the direct incremental cost of that access, especially the short-run incremental cost. To do so would be disastrous to the supplying firm, especially where there are large sunk costs associated with a facility in question and significant common costs associated with the operation of an integrated firm. Indeed, in the case of rights-of-way facilities, the incremental cost of allowing another carrier to use an existing facility may be extremely low. This is especially true in cases where the facility has sufficient unused capacity to ensure that there is no congestion problem.

It is inappropriate to price access to a facility at less than the direct incremental cost of that access, especially the short-run incremental cost.

The incremental cost of providing access must be figured in the pricing decision, but it should not be the only factor, and it may not be the most significant factor. If other carriers use the LEC's rights-of-way facilities, they should be responsible for their *pro-rata* share of maintenance and carrying charges associated with the facilities, even if their use does not increase those costs. [70]

The appropriate charge should also include an allowance for profit or contribution, over and above the

Just as billing and collection services provided to other carriers are a source of profit to the LECs, so can rights-of-way access services be profitable.

[69] See FCC 96-325, *First Report and Order* in CC Docket No. 96-98, "In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996," and CC Docket No. 95-185, "Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers," (released August 8, 1996), para. 662, citing AT&T's comments in that Docket at Appendix C (Affidavit of William J. Baumol, Janusz A. Ordover, and Robert D. Willig), paras. 22-23.

[70] Care must be taken that the *pro-rata* shares assigned to the various users are reasonable. Moreover, if the facility owner or other parties want to reserve capacity for future use, the amount of reserved capacity should be considered in calculating shares.

incremental cost of access and the share of maintenance and upkeep. Although the contribution should not be as large as that suggested by the ECPR, the facility owner should be entitled to receive some contribution. Indeed, just as billing and collection services provided to other carriers are a source of profit to the LECs, so can rights-of-way access services be profitable. One way to set the appropriate contribution level is to develop a loading factor (or range of factors) to be added to all such inter-carrier services including central office collocation, transport, call termination, data-base access, etc. Likewise, the incremental cost (TSLRIC, for example) used in pricing interconnection services and unbundled elements should be used to price rights-of-way access. Although some variation in loading is to be expected, the loadings should not be determined by the strength of the bottleneck. Also, incremental "make ready" costs must be evaluated to ensure that they are not excessive.

The 1996 Act requires that prices for interconnection, unbundled access, collocation, and pole attachments and access to rights-of-way facilities be just, reasonable, and nondiscriminatory.[71] In its *First Order and Report* in CC Dockets 96-98 and 95-185, the FCC concluded that rates for unbundled network elements should be set using a forward-looking, economic cost-based pricing methodology and that such prices may include a reasonable allocation of forward-looking common costs.[72] The FCC concluded that prices entrants pay for interconnection and unbundled elements should be based on the LEC's TSLRIC for a particular network element, which the FCC named "Total Element Long-Run Incremental Cost"[73] (TELRIC), plus a reasonable share of forward-looking common costs.[74]

The FCC concluded that rates for unbundled network elements should be set using a forward-looking, economic cost-based pricing methodology and that such prices may include a reasonable allocation of forward looking common costs

[71] See 47 U.S.C. 224(e)(1) and 251, as added or amended by the 1996 Act.

[72] FCC 96-325, para. 682.

[73] Ibid., para. 29 and section VI, "Pricing of Interconnection and Unbundled Elements," paras. 618-862, especially, paras. 674-732.

[74] A reasonable share of forward-looking common costs is one that does not hinder competition. It should ensure that network elements least likely to face competition are not allocated an inflated share of common costs. See ibid., para 696.

The adoption of TELRIC tends to focus the discussion on unbundled network elements, which are smaller basic functions that can be unbundled and provided separately, as opposed to services, which generally comprise a number of such elements, because what were being considered were network elements. [75] The TELRIC concept includes a reasonable accounting profit on the level of forward-looking investment necessary to provide an element, however it does not provide for an economic profit. [76] The TELRIC approach can easily be applied to pricing access to rights-of-way facilities.

[75] Ibid., para. 678.

[76] An economic profit is the profit over and above the normal, risk-adjusted return on invested capital. See ibid., para. 699.

CHAPTER 5

SUMMARY AND CONCLUSIONS

Ensuring that all carriers can obtain access on reasonable terms to rights-of-way and other customer access facilities is of crucial importance in implementing competition in local telecommunications services. Although the Telecommunications Act of 1996 provides for that access, state regulators must exercise oversight over access arrangements to see that they are nondiscriminatory and on terms that maximize consumer choice of providers. While policy may be pro-competition, it should not favor any particular provider or type of provider.

State regulators must exercise oversight over access arrangements to ensure that they are nondiscriminatory and that their terms maximize consumer choice of providers.

There are a number of groups concerned with access to rights-of-way, and their conflicting interests will require state regulators to exercise wise oversight over rights-of-way access arrangements. Interconnecting carriers should have the maximum feasible flexibility in choosing the type of access to acquire, and the parties should negotiate access rates and terms under the understanding that, unless they reach an agreement, regulators will take steps to direct an agreement. Access can be in the form of resale of existing loop facilities, unbundled access to loop facilities, or joint use of rights-of-way facilities via collocation joint ownership, or indefeasible rights-of-use.

Furthermore, nondiscriminatory access implies that any carrier requesting equivalent access conditions must be offered equivalent terms, so the terms and conditions of all rights-of-way access agreements must be available, and the LEC's own retail rates must include equivalent imputed charges for use of rights-of-way facilities.[1] In addition, no carrier should be allowed to warehouse access rights beyond what is reasonable, given its verifiable expansion plans.

[1] The imputed charge for use of rights-of-way facilities can, of course, be adjusted to reflect any verifiable savings that result from a LEC providing access to itself rather than to others.

Network and Policy Models

The traditional network model has viewed the telephone network as separate from other networks such as the cable television network. They were parallel, but they did not interconnect or offer services that were in direct competition. Now, however, we are moving towards a model of multiple networks that compete and that are interconnected. In the linchpin model, the traditional local telephone network serves as the central core or focal-point network. Other carriers interconnect with the LEC, but they are not always interconnected with each other. In this model, the LEC is under special obligations, as it is the incumbent and has a ubiquitous network. Other carriers' networks are treated as fringe networks. The LECs are under asymmetric regulation; their facilities are viewed as essential, and they must offer interconnection services that others do not.

Once other carriers have begun to duplicate the LEC's network in terms of ubiquity, the LEC may lose its special place as the core network, and its facilities may no longer be classified as essential. If that comes to pass, we will move towards the intermeshed networks model in which all carriers have symmetric reciprocal responsibilities to interconnect and make their facilities available to others. It must be noted that, at present, we are moving from the parallel networks model into the linchpin model, and we are a long way from the intermeshed model being a reality. Nevertheless, because the appropriate mode of regulation will evolve with the network model, regulators need to consider the implications of the transition and be prepared for it.

Once other carriers have deployed their own networks, the LEC may lose its special place as the core network, and its facilities may no longer be classified as essential.

We are moving from the parallel networks model into the linchpin model. We are a long way from the intermeshed model, but the model will make the transition. As the networks make the transition, the appropriate mode of regulation will evolve with the network model, and regulators need to consider the transition and be prepared for it.

There are several policy models for dealing with the issue of rights-of-way access. The various models lead to somewhat different policy prescriptions. For example the common carriage and essential facility doctrine are consistent with providing access to rights-of-way facilities through resale of the LEC's facilities or through leasing its facilities to entrants on an unbundled basis. That view is consistent with a linchpin network model in which the LEC has a special place. It is first among equals, with special obligations. Collocation of entrants' facilities with the LEC's facilities is consistent with the linchpin model. Indefeasible right-of-use is consistent with an intermeshed networks model, which, among other things, views multiple networks as being not simply interconnected and interoperable, but truly conjoined. Table 5-3, below, illustrates the linkage between the network models and rights-of-way policy. As networks transition from the parallel model to the linchpin network-of-networks model, and ultimately to the intermeshed network-of-networks model, regulators need to monitor the progress of transition and be prepared to shift the mode of regulation of rights-of-way access they apply.

Pricing Issues

There are several issues in pricing access to rights-of-way facilities. Although the traditional regulatory method of pricing services based on fully allocated cost may be suggested, its use is limited because it is based on historic embedded cost and tends to give incorrect signals as to the value of the resource used. The efficient components pricing rule may also be suggested, but it, too, is of limited use. The level of contribution to the incumbent's common costs tends to be excessive under that rule, and entry may be hindered. Instead, access should be priced at the incremental cost[2] of providing that access plus some loading of common costs. Moreover, to provide correct signals to providers and to customers, both the incremental costs and the common costs should be determined based on forward-looking analysis. Because rights-of-way access is part of the broader question of interconnection and unbundled access, the same pricing principles adopted for those functions should be extended to

[2] As discussed in Chapter 4, above, incremental cost includes a reasonable accounting profit on incremental capital investment but makes no allowance for economic profit.

Table 5-3

Network Models and Policy Options

Network Model and Relationship Between LEC and Other Providers	Policy Options
Parallel Networks cable network and telephone network deployed; no direct competition between networks; customer or owner/tenant relationship between LEC and cable system.	pole attachment rules allow cable systems to use LEC poles when desired
Linchpin Network of Networks limited network deployment by cable systems and by other CAPs; possible co-carrier status for CAPs; other networks interconnected with LEC but not necessarily with each other; competition between carriers, but only one or two physical networks; customer or owner/tenant relationship between LEC and other carriers.	asymmetric regulation of LEC relative to other carriers—LEC's facilities treated as essential, and it is required to provide access, others not required to do so; resale of loop services including local loop links (which include rights-of-way facilities); unbundled access to rights-of-way facilities at points chosen by CAP (subject to feasibility and safety constraints); collocation of CAPs' equipment on LEC's rights-of-way under lease arrangement; just and reasonable pricing standards imposed.
Intermeshed Network of Networks multiple networks deployed by LECs, CAPs, and others; other carriers interconnect with LEC and with each other; significant amounts of traffic do not use LEC network; LECs and others are co-equals, LECs may use others' facilities as needed, and there is joint planning of rights-of-way facilities.	more-or-less symmetric regulation of all carriers with networks—all have equivalent obligation to allow others access through resale, unbundled access, or collocation; shared or joint ownership and control of rights-of-way facilities — similar to existing agreements between electrics and LECs; carriers can purchase indefeasible right of use interests in rights-of-way facilities originally deployed by others.

Source: Authors' construct.

rights-of-way, and the TELRIC approach suggested by the FCC may be useful in the context of rights-of-way access.[3]

Resource Scarcity and Joint Use of Facilities

The FCC's rules on rights-of-way access are pro-competitive and impose strong obligations on facilities owners to expand or modify their facilities to accommodate cable television operators and other telecommunications carriers. Nevertheless, rights-of-way are scarce resources, and regulators should take steps to ensure that they are properly used. Such steps could include ensuring that nondiscriminatory access is available to all carriers and that the amount of spare capacity reserved by the facility's owner is reasonable and related to its needs. Likewise, other carriers should not be allowed to warehouse spare capacity by securing more access than they need. Regulators can also encourage joint planning groups to coordinate development of rights-of-way resources.

Regulators can provide for orderly and coordinated planning for rights-of-way facility expansions and upgrades. All users should have an opportunity to participate in the planning process, and carriers should bear modification and upgrade costs to the extent that they benefit. Orderly planning might involve establishing joint planning groups comprising the LECs, cable operators, other carriers, and municipal authorities, each of which has an interest in how rights-of-way facilities are deployed and used. In addition to planning for orderly expansion of rights-of-way facilities, joint planning groups could address items such as determining repair priority when several services are disrupted, and they could recommend standards for determining the capacity of various rights-of-way facilities.

Regulators can ensure that, whenever new rights-of-way facilities are developed, adequate provisions are made for other carriers to access them. This might mean, for example, that any carrier laying fiber-optic cable would be required to install sufficient spare capacity, beyond its needs for some set period, so that a certain percentage would be available for other carriers' use. Furthermore, a carrier wanting to install new

[3] See the discussion of TELRIC in Chapter 4, above.

cables would have to consider whether the capacity or capability is available from an existing source. This policy would reduce the amount of digging and lower the expense associated with providing access. Moreover, any carrier with significant amounts of rights-of-way facilities would be under obligations similar the those imposed on the LECs.

Unless technological developments such as improvements in wireless technology or multiplexing of wireline circuits relieves the capacity constraint, rights-of-way facilities are scarce resources. Owners may be faced with more demand for access than they can safely accommodate. Indeed, it is difficult to predict accurately which new carriers will want access in five or ten years. In that case there are a number of options for dealing with capacity constraints including:

Lotteries

In lottery allocations, access rights are assigned via a random draw of authorized users. If carriers with access rights are allowed to transfer or sublet those rights, a reasonable allocation might also result. However, a zero-cost lottery of access rights would create an incentive for carriers to overstate their demand for access in hopes of winning a slot. This could result in windfalls for "lucky" carriers, who would sell them. It is interesting to note that each of these methods of allocating scarce resources has been used by the FCC to allocate various parts of the broadcast spectrum. One possible approach would be to put time limits on the length of access rights.

First-Come, First-Served

In a first-come, first-served allocation, when available capacity is exhausted, additional carriers could not obtain access, unless they acquire it from of an existing user. If resale is allowed, a windfall problem exists similar to that related to lotteries.

Auctions

In an auction allocation, carriers would bid for scarce access rights. This could ensure that the resources flow to high value uses. Of course, there is a question of who gets the receipts from the auction, and whether the LEC must impute the auction value of the access rights into its retail rates must also be considered.

Neutral Control

Even though the 1996 Act effectively imposed common carriage responsibilities on the owners of rights-of-way facilities, there will be some concerns about the treatment competitors are given so long as one of the carriers controls the facility. Allowing or facilitating other carriers' ability to acquire IRU interests in a facility could reduce this concern.

A possible solution is neutral third-party ownership of the facilities (i.e., separation of ownership and usage), but that may prove to be unworkable. However, even if neutral ownership is unworkable, it is not difficult to believe that, in the future, a consumer can use a wire owned by one carrier to obtain services provided by another carrier, provided that appropriate compensation of given the wire owner.[4] Moreover, since it is likely that only a limited number of physical networks can be supported, such a situation would certainly be in keeping with the goal of maximizing consumer choice. If the intermeshed network-of-networks model comes to fruition, access rights will be fully reciprocal among all parties.

Even though owners of rights-of-way facilities have common carrier-like responsibilities to give other carriers access to their facilities, it is not clear that LECs or other facility owners should (or can) be required to upgrade their facilities or buildout facilities to meet the requests of other carriers, when they would not do so otherwise, This is a difficult question: Should LECs and others be facilities providers of last (or first) resort? To require that would seem to be a very expansive interpretation of what it

[4] At present a subscriber can presubscribe to IXCs for inter- and sometimes intraLATA toll service. It does not seem difficult to believe that, with collocated switches, a consumer could presubscribe to another local access provider. Indeed, this is more or less what happens when a carrier leases unbundled local loops from a LEC, and it has much in common with platform resale.

means to provide access to its facilities. If this is required, the burden of justifying the expansion or upgrade, as well as the cost, should be borne by the requesting party.

State Commissions' Role

State commissions have a tremendous role in rights-of-way policy. They are on the front lines in developing and implementing rights-of-way access policies necessary for competition to develop in the market for local telecommunications services. Moreover, their crucial role is mandated by the 1996 Act and has been recognized by the FCC in orders laying out its rights-of-way policies.

State commissions are on the front lines in developing and implementing rights-of-way access policies.

Indeed, the FCC recognized that states' primacy in this area and has indicated it will defer to them.[5] In addition, states have their own policy initiatives with respect to competition in local telecommunications, and one part of these initiatives is to provide for equitable access to rights-of-way facilities. Moreover, because each state will face many of the same issues, the state commissions may want to pool their resources to develop model rules or guidelines that could be adapted to suit the needs of individual jurisdictions.

Because each state will face many of the same issues, state commissions may want to pool their resources to develop model rules or guidelines that could be adapted to suit individual needs.

Among the issues states will deal with are overseeing just and reasonable rates for use of rights-of-way facilities (including determining a reasonable loading of joint and common costs) and establishing criteria for determining when capacity, safety, or reliability concerns allow a facilities owner to deny access to telecommunications carriers. Furthermore, when capacity is limited, state regulators will be called on to ensure that expansions and modifications necessary to accommodate other carriers are undertaken expeditiously and that the charges for those expansions and modifications are just and reasonable. Finally, as telecommunications networks transition toward the

[5] See the discussion of the 1996 Act and subsequent FCC actions in Chapter 3, above.

intermeshed model, state regulators will need to ensure that the mode of regulation they employ keeps apace with changing conditions. These and the other responsibilities resulting from the move towards competition in telecommunications will undoubtedly require considerable time and resources, but the results, in terms of improved consumer welfare, will be worth the effort.

REFERENCES

Areeda, Phillip 1990. "Essential Facilities: An Epithet in Need of Limiting Principles," *Antitrust Law Journal* 58, no. 3 (Developments 1989): 841-53.

Armstrong, Mark, Chris Doyle, and John Vickers 1996, "The Access Pricing Problem: A Synthesis," *Journal of Industrial Economics* 44, no. 2 (June): 131-150.

Azcuenega, Mary L. 1990. "Essential Facilities and Regulation: Court or Agency Jurisdiction." *Antitrust Law Journal* 58, no. 3 (Developments 1989): 879-86.

Baumol, William J. and David F. Bradford, 1970. "Optimal Departures From Marginal Cost Pricing," *American Economic Review* 60, no. 1 (March): 265-283.

_____ and Gregory J. Sidak, 1994a. *Toward Competiion in Local Telephony*, (Cambridge, Massachusetts and Washington, D.C.: The MIT Press and the American Enterprise Institute).

_____ and Gregory J. Sidak, 1994b. "The Pricing of Inputs Sold to Competitors," *Yale Journal on Regulation*, 11, no. 1 (Winter): 171-202.

Bernt, Phyliss, Hans Kruse, and David Landsbergen, 1992. *The Impact of Alternative Technologies on Universal Service and Competition in the Local Loop* (Columbus, OH: The National Regulatory Research Institute).

_____,1994. *Regulatory Implications of Alternative Network Models for the Provision of Telecommunications Services* (Columbus, OH: The National Regulatory Research Institute).

Blumenthal, William, 1990. "Three Vexing Issues Under the Essential Facilities Doctrine: ATM Networks as Illustration," *Antitrust Law Journal* 58, no. 3 (Developments 1989): 855-69.

Brenner, Daniel L. 1992. *Law and Regulation of Common Carriers in the Communications Industry* (San Francisco: Westview Press).

Chessler, David, 1996. *Determining When Competition is "Workable": A Handbook for State Commissions Making Assessments Required by the Telecommunications Act of 1996* (Columbus, Ohio: The National Regulatory Research Institute).

Cimerman, Richard and Geoffery Waldau, 1994. "Local Excange Competition: Alternative Models in Maryland," in *Proceedings of the Ninth NARUC Biennial Regulatory Information Conference, Volume I, Telecommunications: Universal Service and Competition* (Columbus, Ohio: The National Regulatory Research Institute): 89-110.

Davis, Vivian Witkind, 1995. *Breaking Away from Franchises and Rate Cases: A Perspective on the Evolution of State Telecommunications Policy* (Columbus, Ohio: The National Regulatory Research Institute).

_____, Nancy Zearfoss, and Catherine E. Reed, 1995. *Aspects of Telecommunications Reform: Results of a Survey of State Regulatory Commissions* (Columbus, Ohio: The National Regulatory Research Institute).

_____, Hans Kruse, William Pollard, and Catherine E. Reed, 1994. *Competition and Interconnection: The Case of Personal Communications Services* (Columbus, Ohio: The National Regulatory Research Institute).

Economides, Nicholas, and Lawrence J. White, 1995. "Access and Interconnection Pricing: How Efficient is the 'Efficient Component Pricing Rule'?" *Antitrust Bulletin* 40, no. 3 (Fall): 557-579.

Edgar, Frank A., Jr. 1992. "The Essential Facilities Dcotrine and Public Utilities: Another Layer of Regulation?" *Idaho Law Review* 29: 283-311.

Entman, Robert M., rapporteur, 1993. *Competition at the Local Loop: Policies and Implications, Forum Report of the Seventh Annual Aspen Conference on Telecommunications Policy,* (Queenstown, Md.: The Aspen Institute).

Gerber, David J. 1988, "Rethinking the Monopolist's Duty to Deal : A Legal and Economic Critique of the Doctrine of 'Essential Facilities,'" *Virginia Law Review* 74, no. 6 (September): 1069-1113.

Gorinson, Stanley M., 1990. "Overview: Essential Facilities and Regulation," *Antitrust Law Journal* 58, no. 3 (Developments 1989): 871-77.

Gundlach, Gregory T. and Paul N. Bloom 1993. "The 'Essential Facility' Doctrine : Legal Limits and Antitrust Considerations," *Journal of Public Policy & Marketing* 12, no. 2 (Fall): 156-169.

Hausman, Jerry A. and Timothy J. Tardiff 1995. "Efficient Local Exchange Competition." *Antitrust Bulletin* 40, no. 3 (Fall): 529-556.

Kahn, Alfred E. and William B. Shew. 1987, "Current Issues in Telecommunications Regulation: Pricing," *Yale Journal on Regulation* 4, no. 1 (Spring): 191-256.

_____ and William E. Taylor, 1994. "The Pricing of Inputs Sold to Competitors: A Comment," *Yale Journal on Regulation* 11, no. 1 (Winter): 225-240.

Kelly, Kenneth 1991. "The Antitrust Analysis of Grocery Slotting Allowances: The Procompetitive Case," *Journal of Public Policy & Marketing* 10, no.1 (Spring): 187-198.

Kellogg, Michael, K., John Thorne, and Peter W. Huber., 1992. *Federal Telecommunications Law* (Boston: Little, Brown and Company).

Kovacic, Willilam E., 1992. "The Antitrust Law and Economics of Essential Facilities in Public Utilities Regulation," in Michael A. Crew, editor, *Economic Innovations in Public Utility Regulation* (Boston: Kluwer): 1-20.

Larson, Alexander C., William E. Kovacic, and Douglas R. Mudd, 1994. "Competitive Access Issues and Telecommunications Regulatory Policy," *Journal of Contemporary Law* 20: 419-457.

Lawton, Raymond W., Edwin A. Rosenberg, Mary Marvel, and Nancy Zearfoss, 1994. *Measuring the Impact of Alternative Regulatory Pricing Reforms in Telecommunications* (Columbus, Ohio: The National Regulatory Research Institute, December).

Meeks, James E. 1996. *Antitrust concerns in the Modern Public Utility Environment* (Columbus, Ohio: The National Regulatory Research Institute, April).

Mitchell, Bridger, Werner Neu, Karl-Heinz Neumann, and Ingo Vogelsang, 1995. "The Regulation of Pricing of Interconnection Services," in Gerald W. Brock, editor *Toward a Competitive Telecommunication Industry: Selected Papers From the 1994 Telecommunications Policy Research Conference* (Mahwah, New Jersey: Lawrence Erlbaum Associates): 95-118.

McAndrews, James 1995. "Antitrust Issues in Payment Systems: Bottlenecks, Access, and Essential Facilities, *Federal Reserve Bank of Philadelphia Business Review* 1995, (September-October): 3-12.

Neale, A. D. 1970. *The Antitrust Laws of the United States of America,* second edition (New York; Cambridge University Press).

Note, 1974, "Refusals to Deal by Vertically Integrated Monopolists," *Harvard Law Review* 87: 1720-40.

Owen, Bruce M., 1990. "Determining Optimal Access to Regulated Essential Facilities,' *Antitrust Law Journal* 58, no. 3 (Developments 1989): 887-94.

Palmer, Nate, 1996. "The Wireless Local Loop: A Matter of Simple Economics," *Telephony* 230, no. 23 (June 13, 1996): 60-66.

Perrit, Henry L. Jr., 1995. "Access to the National Information Infrastructure," *Wake Forest Law Review* 30 (Spring): 51-103.

Ratner, James, 1988. "Should There Be An Essential Facilities Doctrine?," *University of California, Davis Law Review* 21 (Winter): 327-82.

Reiffen, David and Andrew N. Kleit, 1990. "Terminal Railroad Revisited: Foreclosure of an Essential Facility or Simply Horizontal Monopoly?," *Journal of Law and Economics* 33, no. 2 (October): 419- 38.

Shepherd, William G. 1992. *Regulation and Efficiency: A Reappraisal of Research and Policies* (Columbus, Ohio: The National Regulatory Research Institute, July).

Sullivan, Lawrence A. 1977. *Handbook of the Law of Antitrust* (St. Paul, Minnesota: West Publishing Co.).

TerKeurst, Charlotte, Doris McCarter, et al., 1996. *Local Competition Work Group Summary Report* (Washington, D.C.: NARUC Staff Subcommittee on Communications, February).

Trainor, Brenda J., 1995. "*The Local Government Perspective: Can the Harmonica Play in the Symphony?"* (Presented at New York Law School's Conference: "Universal Service in Context: a Multidisciplinary Perspective"), December 6, 1995.

Troy, Daniel E., 1983. "Unclogging the Bottleneck: A New Essential Facility Doctrine," *Columbia Law Review* 83 (March): 441-87.

Tye, William B., 1991. *The Transition to Deregulation: Developing Economic Standards for Public Policies* (New York: Quorum Books).

_____,1994. "The Pricing of Inputs Sold to Competitors: A Response." *Yale Journal on Regulation* 11, no. 1 (Winter): 203-24.

Werden, Gregory, 1987. "The Law and Economics of the Essential Facilities Doctrine," *St. Louis University Law Review* 32 (Winter): 432-80.

Winston, Clifford, 1993. "Economic Deregulation: Days of Reckoning for Micro-economists," *Journal of Economic Literature* 31, no. 3 (September): 1263-89.