Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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| In the Matter of | ) | |
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| Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 | ) | CC Docket No. 96-98 |
| | ) | |
| Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers | ) | CC Docket No. 95-185 |

**AFFIDAVIT OF**

**JERRY A. HAUSMAN AND J. GREGORY SIDAK**

**IN RESPONSE TO**

**SECOND FURTHER NOTICE OF PROPOSED RULEMAKING**


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## INTRODUCTION

Jerry A. Hausman and J. Gregory Sidak declare as follows:

1. We have been asked by the United States Telephone Association (USTA) to submit expert testimony, in response to this *Second Further Notice of Proposed Rulemaking*,[1] that reconciles the "necessary" and "impair" standards of section 251(d)(2) of the Telecommunications Act[2] with the economic principles that provide the basis for the economic analysis of competition and antitrust analysis. In January 1999, both Justice Scalia's majority opinion and Justice Breyer's separate opinion in *AT&T Corp. v. Iowa Utilities Board*[3] alluded to essential facilities and market power analysis in antitrust jurisprudence and invited the Federal Communications Commission (FCC) to consider that body of law as a possible approach to determining when a network element would satisfy the "necessary" and "impair" standards of section 251(d)(2). Responding to that invitation by the Justices, this affidavit explains how economic analysis and antitrust jurisprudence would inform the Commission's statutory interpretation of section 251(d)(2).

2. We propose a five-part "impairment" test that focuses on whether competition can be effective in the end-user services market rather than whether a particular competitor can earn profits. Our test thus is concerned with consumer welfare, not competitor welfare. The essential facilities doctrine in antitrust law provides four necessary but not sufficient conditions for defining "impairment" under section 251(d)(2). The complete set of necessary and sufficient conditions

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1. Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 and Interconnection Between Local Exchange Carriers and Commercial Mobile Radio Service Providers, Second Further Notice of Proposed Rulemaking, CC Dkt. Nos. 96-98, 95-185 (released Apr. 16, 1999) [hereinafter *SFNPRM*].
2. 47 U.S.C. § 251(d)(2).
3. AT&T Corp. *v.* Iowa Utils. Bd., 119 S. Ct. 721 (1999).

includes a fifth requirement, responsive to the explicit text of section 251(d)(2), to address whether the denial of access to a particular network element at a regulated TELRIC price would impair competition at the end-user level. Once the CLEC has demonstrated that the UNE meets the four existing requirements of the essential facilities doctrine, the CLEC must then demonstrate that an ILEC could exercise market power in the provision of telecommunications services to end-users in the relevant geographic market by restricting access to the requested network element. We recommend that "necessary" be interpreted to mean that competition in end-user services would be impossible unless the requested element were unbundled at TELRIC prices. This heightened standard will protect the economic incentives to create the intellectual property embodied in elements that are proprietary in nature. Our impairment test yields standards that accord with traditional antitrust analysis. Those standards should be assessed with temporal and geographic specificity. We find that switches should not be unbundled in any geographic market, while loops may be unbundled in specific geographic markets where AT&T or another major cable-telephony provider has yet to enter.

## QUALIFICATIONS

3. Our professional qualifications for submitting this expert affidavit are as follows.

4. My name is Jerry A. Hausman. I am the MacDonald Professor of Economics at the Massachusetts Institute of Technology (MIT). I received an A.B. degree from Brown University and B.Phil. and D.Phil. (Ph.D.) degrees in economics from Oxford University, where I was a Marshall Scholar.

5. My academic and research specialties are econometrics, the use of statistical models and techniques on economic data, and microeconomics, the study of consumer behavior and the behavior of firms. I have published over 100 papers, including about twenty papers in the areas of telecommunications and regulation. I teach a course entitled "Competition in Telecommunications" to graduate students in economics and business at MIT each year. I am also the director of MIT's Telecommunications Economics and Business Research Program. I was a member of the editorial board of the *RAND Journal of Economics* (formerly the *Bell Journal of Economics*) for thirteen years. The *RAND Journal of Economics* is the leading economics journal of applied microeconomics and regulation. In December 1985, I received the John Bates Clark Award of the American Economic Association, awarded every other year for the most "significant contributions to economics" by an economist under forty years of age. I have received numerous other academic and economic society awards, including the Frisch Medal from the Econometrics Society in 1980.

6. I have done significant amounts of research in the telecommunications industry. My first experience in this area was in 1969, when I studied the Alaskan telephone system for the Army Corps of Engineers. Since that time, I have studied the demand for local measured service, the demand for intrastate toll service, consumer demands for new types of telecommunications technologies, marginal costs of local service, costs and benefits of different types of local services, including the effect of higher access fees on consumer welfare, and consumer demand for new types of pricing options for long-distance service. I have also studied the effect of new entry on competition in paging markets, telecommunications equipment markets, and interexchange markets. Other areas of telecommunications in which I have recently done research include the cellular telephone industry and the information services industry. I have also edited two books on telecommunications, *Future*

*Competition in Telecommunications* (Harvard Business School Press 1989) and *Globalization, Technology and Competition in Telecommunications* (Harvard Business School Press 1993). My most recent papers in telecommunications are "Taxation By Telecommunications Regulation," *Tax Policy and the Economy (*1998); "Economic Welfare and Telecommunications Welfare: The E-Rate Policy for Universal Service Subsidies," *Yale Journal on Regulation* (1999), with Howard A. Shelanski; and "Regulation by TSLRIC: Economic Effects on Investment and Innovation," *MultiMedia und Recht* (1999).

7. I have submitted affidavits and declarations in numerous federal and state proceedings regarding telecommunications regulation. For example, I have testified on numerous occasions before the California Public Utilities Commission about its Alternative Regulatory Frameworks for local exchange carriers. In 1998 I testified before the CPUC on economically correct methods to set prices for unbundled elements. I also submitted numerous affidavits to Judge Harold Greene in various proceedings regarding revisions of the Modification of Final Judgment in *United States v. AT&T*. In 1997, I submitted an affidavit and a reply affidavit before the Federal Communications Commission on behalf of BellSouth Corporation in support of its petition to be allowed to offer in-region, interLATA services in Louisiana according to the procedures set forth in section 271 of the Telecommunications Act of 1996.[4] I have also submitted declarations to the FCC regarding the unbundling of network elements, and I participated in the FCC's forum on interconnection regulation in May 1996 and submitted declarations on behalf of USTA in the FCC's interconnection proceeding, CC Docket No.

4. 47 U.S.C. § 271.

95-185, which culminated in the Commission order that the Supreme Court reviewed in *AT&T Corp. v. Iowa Utilities Board*.

8. My name is J. Gregory Sidak. I am the F. K. Weyerhaeuser Fellow in Law and Economics at the American Enterprise Institute for Public Policy Research (AEI) in Washington, D.C., where I direct AEI's Studies in Telecommunications Deregulation. I am also a senior lecturer at the Yale School of Management, where I teach a course on telecommunications regulation and strategy with Professor Paul W. MacAvoy. In addition to holding those two academic positions, I am a managing director in LECG, Inc., an economic consulting services firm.

9. I have worked in the federal government on three occasions. From 1987 to 1989, I was deputy general counsel of the FCC. From 1986 to 1987, I was senior counsel and economist to the Council of Economic Advisers in the Executive Office of the President. From 1981 to 1982, I served as a law clerk to Chief Judge Richard A. Posner during his first term on the U.S. Court of Appeals for the Seventh Circuit. In addition to having worked in government, I have previously worked, as an attorney in private practice, on numerous antitrust cases and federal administrative, legislative, and appellate matters concerning telecommunications and other network industries.

10. My academic research concerns regulation and strategy in telecommunications and other network industries, antitrust policy, and constitutional law issues concerning economic regulation. I am the co-author of four books concerning pricing, costing, competition, and investment in regulated network industries: *Deregulatory Takings and the Regulatory Contract: The Competitive Transformation of Network Industries in the United States* (Cambridge University Press 1997), with Daniel F. Spulber; *Toward Competition in Local Telephony* (MIT Press & AEI Press 1994), with William J. Baumol; *Transmission Pricing and Stranded Costs in the Electric Power Industry* (AEI

Press 1995), also with Professor Baumol; and *Protecting Competition from the Postal Monopoly* (AEI Press 1996), also with Professor Spulber. I am also the author of a fifth book, *Foreign Investment in American Telecommunications* (University of Chicago Press 1997), and of more than thirty scholarly articles in law reviews and economics journals. Some of those articles are directly relevant to this proceeding,[5] including "Essential Facilities," published in the May 1999 issue of the *Stanford Law Review*.[6] I am the editor of *Is the Telecommunications Act of 1996 Broken? If So, How Can We Fix It?* (AEI Press 1999), *Competition in International Telecommunications* (AEI Press forthcoming 1999), and *Telecommunications Deregulation in Germany and the United States* (AEI Press forthcoming 1999).

11. I have testified before the U.S. Senate and House of Representatives. My writings have been cited by the Supreme Court, including Justice Breyer's opinion in the 1999 decision in *AT&T Corp. v. Iowa Utilities Board*. My writings also have been cited by the lower federal and state supreme courts and by state and federal regulatory commissions.

12. I have been a consultant on regulatory and antitrust matters to the Antitrust Division of the U.S. Department of Justice, to the Canadian Competition Bureau, and to more than thirty companies in the telecommunications, electric power, natural gas, mail and parcel delivery, broadcasting, newspaper publishing, and computer software industries in North America, Europe, Asia, and Australia.

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5. *See* J. Gregory Sidak & Daniel F. Spulber, *The Tragedy of the Telecommons: Government Pricing of Unbundled Network Elements Under the Telecommunications Act of 1996*, 97 COLUM. L. REV. 1081 (1997); J. Gregory Sidak & Daniel F. Spulber, *Givings, Takings, and the Fallacy of Forward-Looking Costs*, 72 N.Y.U. L. REV. 1068 (1997).

6. Abbott B. Lipsky, Jr. & J. Gregory Sidak, *Essential Facilities*, 51 STAN. L. REV. 1185 (1999).

13. From Stanford University, I earned A.B. (1977) and A.M. (1981) degrees in economics and a J.D. (1981) in law. I was a member of the *Stanford Law Review.*

14. We file this affidavit in our individual capacities and not on behalf of the Massachusetts Institute of Technology, the American Enterprise Institute, or the Yale School of Management.

## SUMMARY OF CONCLUSIONS

15. The Telecommunications Act of 1996 sets forth, in sections 251 and 252, provisions to unbundle the local telecommunications network to encourage the development of a competitive market for local telephony.[7] In this proceeding, the FCC must devise a limiting principle for the "necessary" unbundling of proprietary network elements. In its 1996 *Local Competition First Report and Order*,[8] the FCC had no limiting principle, such that it deemed any technically feasible unbundling of proprietary network elements to be "necessary." Similarly, the Commission found that an incumbent local exchange carrier (ILEC) had to unbundle any nonproprietary network element if, in the absence of such mandatory unbundling, a telecommunications carrier seeking to offer a service would suffer even the slightest degree of "impairment" in its ability to do so. The Supreme Court, in *Iowa Utilities Board*,

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7. *See* 47 U.S.C. §§ 251-52. For detailed discussions of this open-access regulation, see J. GREGORY SIDAK & DANIEL S. SPULBER, DEREGULATORY TAKINGS AND THE REGULATORY CONTRACT: THE COMPETITIVE TRANSFORMATION OF NETWORK INDUSTRIES IN THE UNITED STATES (Cambridge University Press 1997); ALFRED E. KAHN, LETTING GO: DEREGULATING THE PROCESS OF DEREGULATION, OR: TEMPTATION OF THE KLEPTOCRATS AND THE POLITICAL ECONOMY OF REGULATORY DISINGENUOUSNESS (Institute of Public Utilities and Network Industries, Michigan State University 1998); Robert G. Harris & C. Jeffrey Kraft, *Meddling Through: Regulating Local Telephone Competition in the United States*, 11 J. ECON. PERSP. 93 (1997).

8. Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 and Interconnection Between Local Exchange Carriers and Commercial Mobile Radio Service Providers, First Report and Order, CC Dkt. Nos. 96-98, 95-185, 11 F.C.C. Rcd. 15,499 (1996) [hereinafter *Local Competition First Report and Order*], *rev'd in part and affirmed in part sub nom.* Iowa Utils. Bd. *v.* FCC, 120 F.3d 753 (8th Cir. 1997), *rev'd in part and affirmed in part sub nom.* AT&T Corp. *v.* Iowa Utils. Bd., 119 S. Ct. 721 (1999).

rejected those approaches and strongly suggested that the economic analysis of antitrust law provided the Commission with a useful model for interpreting section 251(d)(2).[9]

16. That is not to say that the Commission's interpretation of section 251(d)(2) must incorporate by reference all of antitrust law. Rather, to place the issue within the context of an agency interpretation of a newly enacted statute, the Court identified two disparate points along a continuum. Only a portion of that continuum, however, constitutes a zone of reasonable statutory interpretations for purposes of the *Chevron* doctrine.[10] The FCC's *Local Competition First Report and Order* was, in the Court's determination, plainly outside the zone of reasonable interpretations of "necessary" and "impair" that could have been chosen along the continuum. In contrast, one must read Justices Scalia and Breyer to imply that the essential facilities doctrine and related economic analysis of demand and supply substitution would produce definitions of "necessary" and "impair" that would safely fall within the zone of reasonable interpretations of section 251(d)(2).

17. It does not follow, however, that the Commission should pick any point that lies in the zone of reasonableness along the continuum of possible statutory interpretations. Rather, the Commission should adopt an interpretation that represents its best efforts to identify the *optimal* point along the continuum, where "optimality" for that purpose depends primarily on consumer-welfare maximization. The same is true if the continuum is recast as a measure of "impairment," running from blatant foreclosure of a more efficient competitor, at one extreme, to explicit subsidization of a less efficient competitor, at the other extreme. For purposes of section 251(d)(2), the public interest is, and should be interpreted as being, primarily determined by consumer welfare, which is determined by

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9. AT&T Corp. *v.* Iowa Utils. Bd., 119 S. Ct. 721 (1999).

competition rather than competitor welfare.[11] The question, under *Chevron*, can thus be cast as whether the FCC now has a reasonable basis for interpreting section 251(d)(2) in a manner that more resembles its former approach in the *Local Competition First Report and Order* (which was outside the zone of reasonableness entirely and therefore clearly could not be optimal) than the antitrust jurisprudence on demand and supply substitutability (which plainly would be within the zone of reasonableness and therefore clearly could be optimal). Moreover, at a more pragmatic level, to maximize its likelihood of being affirmed on the inevitable appeal of its report and order in this proceeding, the Commission should accept the invitation of Justices Scalia and Breyer to incline its interpretation of section 251(d)(2) toward established antitrust principles. The purpose of this affidavit is to explain how the Commission can successfully put that advice into practice.

18. In Part I of this affidavit, we examine the reasoning with which Justices Scalia and Breyer analyzed the "necessary" and "impair" standards of section 251(d)(2). Readers who already are familiar with the relevant statutory language and the *Iowa Utilities Board* decision can proceed to Part II. Our analysis begins with the proposition that Congress did not create through its enactment of the Telecommunications Act a conflict in objectives between that statute and the existing body of antitrust jurisprudence. Antitrust law seeks to maximize the well-being of consumers.[12] Similarly, Congress

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10. Chevron U.S.A. Inc. *v.* Natural Resources Defense Council, Inc., 467 U.S. 837 (1984).

11. Our previous writings have emphasized this equivalence between the public interest standard and the consumer welfare standard. *See* JERRY HAUSMAN, TAXATION BY TELECOMMUNICATIONS REGULATION: THE ECONOMICS OF THE E-RATE 4 (AEI Press 1998); SIDAK & SPULBER, *supra* note 7, at 309–10, 340; WILLIAM J. BAUMOL & J. GREGORY SIDAK, TOWARD COMPETITION IN LOCAL TELEPHONY 26–27 (MIT Press & AEI Press 1994); Jerry Hausman & Howard A. Shelanski, *Economic Welfare and Telecommunications Welfare: The E-Rate Policy for Universal Service Subsidies*, 16 YALE J. ON REG. 19 (1999); Jerry Hausman, *Valuing the Effect of Regulation on New Services in Telecommunications*, BROOKINGS PAPERS ON ECON. ACTIVITY: MICROECONOMICS, 1997; J. Gregory Sidak, *Telecommunications in Jericho*, 81 CALIF. L. REV. 1209, 1234–38 (1993).

12. This principle is well established in antitrust law. *See, e.g.*, National Collegiate Athletic Ass'n. *v.* Board

stated that the purpose of the Telecommunications Act of 1996 is 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 telecommunication technologies."[13] Both antitrust law and the Telecommunications Act seek to promote and protect the competitive process, not particular competitors or particular market structures. Both seek to protect the legitimate returns to private investment. Although the Commission has the discretion under *Chevron* to promulgate rules predicated on reasonable interpretations of the Telecommunications Act, it would not be reasonable in light of *Iowa Utilities Board* for the agency to interpret section 251(d)(2) in a manner that diverged from essential facilities and market power principles in antitrust law. The FCC, in short, could not dismiss such economic analysis as irrelevant to interpretation of the Telecommunications Act without also dismissing consumer-welfare maximization as the rightful objective of the 1996 legislation.

19. In Part II, we use economic analysis to explain why it is necessary for the FCC to enunciate limiting principles for the mandatory unbundling of network elements. First, unbundling rules should emphasize consumer welfare and competition rather than competitor welfare. Second, the issue is not whether the ILECs will unbundle their network elements for use by competitive local exchange carriers (CLECs), but whether the government will compel the ILECs to do so at regulated prices set on the basis of total element long-run incremental cost (TELRIC). Third, the social costs of a particular unbundling regime may outweigh the gains. Fourth, the "necessary" and "impair" standards should not rely on an economic misconception of sunk costs in local telecommunica-

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of Regents of Univ. of Okla., 468 U.S. 85, 107 (1984); Reiter *v.* Sonotone Corp., 442 U.S. 330, 343 (1979) (citing ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 66 (Free Press 1978)). For special application of the consumer-welfare criterion to industries undergoing deregulation, see Stephen G. Breyer,

tions. Fifth, the apparent justification for mandatory unbundling can be endogenously distorted by the FCC's own policies, particularly inefficient and uncompensatory pricing of unbundled network elements.[14]

20. In Part III, we examine the limiting principles that are inherent in the essential facilities doctrine and in the competitive analysis of demand and supply substitution that informs traditional antitrust analysis of market power. On the basis of antitrust learning, we present economic definitions for "necessary" and "impair." One immediate lesson is that sound economic analysis counsels the FCC to interpret section 251(d)(2) to impose geographic and temporal limitations on mandatory unbundling. That conclusion flows directly from an established body of antitrust jurisprudence on market definition and the assessment of market power. Before it will be able to conclude with any degree of confidence that its order of mandatory unbundling would serve the public interest and enhance consumer welfare, the Commission—or, preferably, the state public utilities commissions—would be well advised to make market-power determinations in each relevant geographic market for each network element for which

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*Antitrust, Deregulation, and the Newly Liberated Marketplace*, 75 CALIF. L. REV. 1005 (1987).

13. Telecommunications Act of 1996, Pub. L. No. 104–104, 110 Stat. 56, 56 (preamble).

14. Three years before passage of the Telecommunications Act of 1996, Professor William J. Baumol and one of the present authors wrote:

> [R]egulators considerably influence the firm's demand elasticity by their decisions and policies that affect the firm's actual or potential competitors. Clearly, severe constraint of firms' entry and pricing will somewhat immunize each enterprise from the competitive pressures of others. That immunity from competition will reduce the elasticity of each supplier's demand—that is, it will reduce the loss of business that results from a rise in its prices. The firm's price elasticity of demand thus must be said to be endogenously determined by the regulatory process itself. . . .
>
> It appears especially clear in telecommunications that a firm's price elasticity of demand is endogenously determined by its regulatory environment.

BAUMOL & SIDAK, *supra* note 11, at 40–41 (citing William E. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 945 (1981)).

the agency proposes to mandate unbundling. That market-power analysis should be based on a specified time horizon, after which time the requirement of unbundling for that network element should sunset unless the access seeker successfully carries the burden of proving that consumer welfare would suffer without the Commission's continuation of such mandatory unbundling.

21. Second, the definitions of "necessity" and "impairment" should be refined in terms of demand and supply substitution. The "necessity" of unbundling a proprietary network element, and the extent to which competition would be "impaired" if a nonproprietary element were not unbundled, depend on of the respective price elasticities of demand and supply in both the input (unbundle network element) and output (end-user access) markets. Our recommended approach comports with the analysis of unilateral effects in the 1992 *Merger Guidelines* adopted by the Federal Trade Commission and Antitrust Division of the U.S. Department of Justice.[15] Antitrust jurisprudence has long incorporated such techniques for measuring market power,[16] including the rules of derived demand, first enunciated by one of the pioneers of modern microeconomic theory, Alfred Marshall,[17] and subsequently exposited by the late Nobel laureate George Stigler.[18] The necessity of unbundling an element, or the likelihood that a failure to order mandatory unbundling of a particular element would impair competition, should be assessed in light of the existence of competition among different bundles of end

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15. Department of Justice and Federal Trade Commission, Horizontal Merger Guidelines (1992) [hereinafter *Merger Guidelines*].

16. The classic article is Landes & Posner, *supra* note 14, at 944–45.

17. *See* ALFRED MARSHALL, 5 PRINCIPLES OF ECONOMICS ch. 6 (Macmillan Publishing Co. 1922). For other explications of Marshall's rules of derived demand, see RICHARD G. LAYARD & ALAN A. WALTERS, MICROECONOMIC THEORY 259–72 (McGraw Hill, Inc. 1978). Derived demand is similar to, but distinguishable from, residual demand in the sense that the latter focuses on the demand for the end product and is calculated for any given firm by subtracting the supply of other firms from the market demand. *See* DENNIS W. CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANIZATION 100 (Harper Collins 2d ed. 1994).

18. *See* GEORGE J. STIGLER, THE THEORY OF PRICE 252–55 (Macmillan Publishing Co. 4th ed. 1987).

services. With respect to its impairment test, section 251(d)(2) is even more emphatic that the focus shall be on the ability of the telecommunications carrier to provide *services*. Congress's choice of statutory language accords with correct economic analysis of competition. Thus, the interpretation of "impair" with respect to loops, for example, should reflect the existence of substitution among bundles of services that use different access technologies (such as cable television's coaxial and fiber-optic infrastructure to provide local access for voice telephony, or the wireless one-rate plans that encompass "free" roaming and long-distance calling).

22. The existing essential facilities doctrine sets forth necessary but not sufficient conditions for defining "impairment" under section 251(d)(2). The complete set of necessary and sufficient conditions includes a fifth requirement, responsive to the explicit text of section 251(d)(2), to address whether the denial of access to that network element at TELRIC prices would impair competition at the end-user level. Once the CLEC has demonstrated that the network element meets the four requirements already contained in the essential facilities doctrine, the CLEC must then demonstrate that an ILEC could exercise market power in the provision of telecommunications services to end-users in the relevant geographic market by restricting access to the requested network element. Our five-part test is as follows:

The FCC shall mandate unbundling of a network element if and only if

(1) it is technically feasible for the ILEC to provide the CLEC unbundled access to the requested network element in the relevant geographic market;

(2) the ILEC has denied the CLEC use of the network element at a regulated price computed on the basis of the regulator's estimate of the ILEC's total element long-run incremental cost;

(3) it is impractical and unreasonable for the CLEC to duplicate the requested network element through any alternative source of supply;

(4) the requested network element is controlled by an ILEC that is a monopolist in the supply of a telecommunications service to end-users that employs the network element in question in the relevant geographic market; and

(5) the ILEC can exercise market power in the provision of telecommunications services to end-users in the relevant geographic market by restricting access to the requested network element.

The fifth-element is operationalized by computing the "critical share" of customers that the ILEC must lose in order to deter the ILEC from exercising market power in the end-user service market. It is immediately clear that the FCC's requirement of any "technically feasible" unbundlings, articulated in the *Local Competition First Report and Order,* is subsumed within our five-part framework and hence exposed as being necessary but not sufficient. While our impairment of competition standard is based on the ability of an ILEC to exercise significant market power for a service in the absence of unbundling, in the case of a proprietary element based on intellectual property we recommend a standard that provides for unbundling only if competition is impossible in the absence of unbundling.

23. In Part IV, we apply our impairment test to determine whether a particular network element in a particular geographic market requires unbundling. Demand-side constraints on the exercise of market power, such as voice telephony over cable television networks and wireless telephony, affect all unbundled network elements (UNEs) equally. By contrast, we examine supply-side constraints at a UNE-specific level. A major conclusion to emerge is that network elements with low fixed costs in geographically dense areas should not likely be subject to mandatory unbundling at TELRIC prices. We conclude that switches should not be unbundled on the basis of supply-side

substitution possibilities alone, while the same ruling on loops would require demand-side substitution opportunities to be incorporated in the analysis. The major advantage of a consumer-welfare standard over an efficient-competitor standard is that the former focuses attention on the end-user services market and thus allows one to incorporate demand-side substitution possibilities.

24. In Part V, we discuss efficient procedures for administering the impairment test. First, we explain why the CLEC should bear the burden of proving that mandatory unbundling of a particular network element is justified in a particular geographic market. Second, we explain why any order of mandatory unbundling should automatically sunset within two years of the first unbundling decision. Third, we explain why the state public utilities commissions should administer a market power test that is both location-specific and fact-intensive.

## I. JUSTICES SCALIA AND BREYER ON "NECESSARY" AND "IMPAIR"

25. Nearly three years after Congress enacted the Telecommunications Act of 1996,[19] the Supreme Court, in *AT&T Corp. v. Iowa Utilities Board*,[20] struck down as arbitrary and capricious the FCC's implementation of the network element unbundling provisions contained in section 251(c)(3) of that new legislation.[21] Specifically, the Court vacated section 51.319 of the FCC's rules,[22] which the FCC had promulgated in its *Local Competition First Report and Order* in August 1996.[23] The FCC's 1996 order announced, among other things, the minimum list of network elements that incumbent local

19. Pub. L. No. 104-104, 110 Stat. 56.
20. 119 S. Ct. at 721.
21. 47 U.S.C. §§ 151 *et seq.*
22. 47 C.F.R. § 51.319.
23. *See Local Competition First Report and Order*, *supra* note 8. The Court, however, affirmed other aspects of the order, including provisions relating to the pricing of unbundled network elements.

exchange carriers must offer to other telecommunications carriers on an unbundled basis pursuant to the newly enacted sections 251(c)(3) and 251(d)(2). The Court found that the FCC's unbundling rule, also known simply as Rule 319, erroneously interpreted the "necessary" and "impair" standards of section 251(d)(2).[24] Specifically, the Court directed the FCC, on remand, to "determine on a rational basis which network elements must be made available taking into account the objectives of the 1996 Act and giving some substance to the 'necessary' and 'impair' requirements."[25]

26. We review here the statutory framework of the "necessary" and "impair" standards, including the objectives of the Telecommunications Act of 1996. Next, we review the FCC's interpretation of those standards. We then analyze Justice Scalia's opinion for the Court and Justice Breyer's separate opinion, which concurred in the Court's ruling that the FCC had imparted an unreasonable statutory interpretation to the terms "necessary" and "impair." Finally, we analyze the dissenting opinion of Justice David Souter and show that the reasoning that he employed, and that a majority of the Court rejected, helps to clarify the definitions of "necessary" and "impair" that would reduce consumer welfare and hence be impermissible for the FCC to adopt. Readers who are already familiar with the relevant statutory language and the *Iowa Utilities Board* decision can proceed to Part II of this affidavit.

## A. The Statutory Framework

### 1. The Objectives of the Telecommunications Act of 1996

24. 119 S. Ct. at 733–36.
25. *Id.* at 736.

27. One cannot construe "necessary" and "impair" for purposes of section 251(d)(2) without first enunciating the larger objective of the Telecommunications Act of 1996. The preamble to the Telecommunications Act states that its purpose is 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 telecommunication technologies."[26] In the legislative history, Congress reiterated that the objectives of the Telecommunications Act are "to provide for a pro-competitive, deregulatory national policy framework designed to accelerate rapidly private sector deployment of advanced telecommunications and information technologies and services to all Americans by opening all telecommunications markets to competition . . . ."[27]

**2. The "Necessary" and "Impair" Requirements**

28. Section 251(c)(3) requires any ILEC (other than certain rural carriers[28]) to offer to competitors access to the ILEC's network elements on an unbundled basis.[29] In turn, section 251(d)(2) requires the FCC to consider, when determining whether to mandate the unbundling of an ILEC's network elements under section 251(c)(3),

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26. Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56, 56 (preamble).
27. *See* H.R. REP. NO. 458, 104th Cong., 2d Sess. 1 (1996).
28. *See* 47 U.S.C. § 251(f).
29. Section 251(c)(3) provides that "[i]n addition to the duties contained in subsection [251(b)], each incumbent local exchange carrier" has certain other duties, including:

> (3) Unbundled access.—The duty to provide, to any requesting telecommunications carrier for the provision of a 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 in accordance with the terms and conditions of the agreement and the requirements of this section and section 252. 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.

47 U.S.C. § 251(c)(3).

> 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.[30]

Together, those two subsections are known as the "necessary" and "impair" requirements.

29. By the plain language of section 251(c)(3), the "necessary" standard applies only to "such network elements as are proprietary in nature."[31] But neither section 251(d)(2) nor any other section of the Telecommunications Act of 1996 defines "proprietary" for purposes of the ILEC's duty to unbundle network elements. In the practice, the "necessary" standard of section 251(d)(2) may ultimately prove to have less frequent application than the "impair" standard if, under whatever legal definition is adopted, an ILEC is deemed to have few or no network elements that are "proprietary in nature." One way to view the "necessary" standard is that the "impairment" standard sets necessary but not sufficient conditions for the mandatory unbundling of an element that is "proprietary in nature."

## B. The FCC's Interpretation of the "Necessary" and "Impair" Requirements

30. The FCC promulgated its statutory interpretations of "proprietary," "necessary," and "impair" in its August 1996 *Local Competition First Report and Order*. The FCC concluded that proprietary network elements include "those elements with proprietary protocols or elements containing proprietary information."[32] An ILEC's signaling protocols that adhere to Bellcore standards, however, were not proprietary in the FCC's view because they use industry-wide protocols.[33]

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30. *Id.* at § 251(d)(2).
31. *Id.* at § 251(d)(2)(A).
32. *Local Competition First Report and Order*, 11 F.C.C. Rcd. at 15,641 ¶ 282.
33. *Id.* at 15,739 ¶ 481.

31. The FCC defined "necessary" to mean "an element is a prerequisite for competition."[34] The agency ruled that "in some instances, it will be 'necessary' for requesting carriers to obtain access to proprietary elements (*e.g.*, elements with proprietary protocols or elements containing proprietary information), because without such elements the ability of requesting carriers to compete would be significantly impaired or thwarted."[35] The FCC noted that ILECs "have economies of density, connectivity, and scale . . . [that must] be shared with entrants."[36]

32. The FCC, relying on a literal dictionary definition, ruled in the *Local Competition First Report and Order* that "impair" means "to make or cause to become worse; diminish in value."[37] The FCC further ruled that

> generally . . . an entrant's ability to offer a telecommunications service is "diminished in value" if the quality of the service the entrant can offer, absent access to the requested element, declines and/or the cost of providing the service rises.[38]

To effectuate its statutory interpretation of "necessary" and "impair," the FCC ordered, through its promulgation of Rule 319, that an ILEC make seven UNEs available to a requesting telecommunications carrier: local loops; network interface devices (NIDs); local switching; interoffice transmission facilities; signaling networks and call-related databases; operations support systems (OSS); and operator services (OS) and directory assistance (DA).[39]

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34. *Id.* at 15,641–42 ¶ 282.
35. *Id.* at 15,641 ¶ 282.
36. *Id.* at 15,508–09 ¶ 11.
37. *Id.* at 15,643 ¶ 285 (quoting RANDOM HOUSE COLLEGE DICTIONARY 665 (rev. ed. 1984)).
38. *Id.* at 15,643 ¶ 285.
39. *Id.* at 15,683 ¶ 366 (codified at 47 C.F.R. § 51.319).

33. On appeal, the U.S. Court of Appeals for the Eighth Circuit affirmed Rule 319 as a reasonable agency interpretation, under the *Chevron* doctrine,[40] of the "necessary" and "impair" standards of section 251(d)(2).[41] The Supreme Court granted certiorari on that and other questions.[42] The Court subsequently reversed the Eighth Circuit (and hence the FCC) on the interpretation of "necessary" and "impair," vacated Rule 319, and remanded the case to the FCC for further proceedings.[43]

## C. Justice Scalia's Opinion for the Court

34. Writing for the Court, Justice Scalia regarded the unbundling provisions of the Telecommunications Act of 1996 as reflecting Congress's skepticism that local telephony is not a "natural monopoly" and that "[t]echnological advances . . . have made competition among multiple providers of local service seem possible."[44] But from that congressional concern, however, it did not follow that the Telecommunications Act gave the FCC unlimited authority to compel ILECs to share their facilities with competitors.

35. The Court ruled that section 251(d)(2) imposes "clear limits" on the FCC's authority to determine whether an ILEC must unbundle a particular network element pursuant to section 251(c)(3) and that Rule 319 exceeded the bounds of those clear limits.[45] Justice Scalia wrote for the Court that

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40. Chevron U.S.A. Inc. *v.* Natural Resources Defense Council, Inc., 467 U.S. 837 (1984).

41. Iowa Utils. Bd. *v.* FCC, 120 F.3d 753, 808–10 (8th Cir. 1997). *See generally* STEPHEN G. BREYER, RICHARD B. STEWART, CASS R. SUNSTEIN & MATTHEW L. SPITZER, ADMINISTRATIVE LAW AND REGULATORY POLICY: PROBLEMS, TEXT, AND CASES 256 (Aspen Law & Business 4th ed. 1999) (explaining *Chevron*).

42. 118 S. Ct. 683 (1998).

43. 119 S. Ct. at 733–36.

44. *Id.* at 726.

45. *Id.* at 738.

"the FCC did not adequately consider the 'necessary and impair' standards when it gave blanket access to these network elements, and others, in Rule 319."[46] The Court considered, but did not rule on, the relevance of the essential facilities doctrine in antitrust law as a limiting principle for the FCC's correct interpretation of the "necessary" and "impair" standards. Justice Scalia wrote:

> The incumbents argue that § 251(d)(2) codifies something akin to the "essential facilities" doctrine of antitrust theory, opening up only those "bottleneck" elements unavailable elsewhere in the marketplace. We need not decide whether, as a matter of law, the 1996 Act requires the FCC to apply *that* standard; it may be that some other standard would provide an equivalent or better criterion for the limitation upon network-element availability that the statute has in mind. But we do agree with the incumbents that the Act requires the FCC to apply *some* limiting standard, rationally related to the goals of the Act, which it has simply failed to do.[47]

The Court found that Rule 319 lacked such a limiting principle, either with respect to "necessary" or "impair."

36. With respect to "necessary," Justice Scalia observed that "the Commission announced that it would regard the 'necessary' standards as having been met regardless of whether 'requesting carriers can obtain the requested proprietary element from a source other than the incumbent,' since 'requiring new entrants to duplicate unnecessarily even a part of the incumbent's network could generate delay and higher costs for new entrants, and thereby impede entry by competing local providers and delay competition, contrary to the goals of the 1996 Act.'"[48] Justice Scalia did not pause to elaborate on the fallacy of the FCC's reasoning.

37. Rather, he immediately proceeded to explain why, with respect to "impair," it was erroneous for the FCC to

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46. *Id.* at 734.

47. *Id.* at 734–35 (citing 3A PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶ 771–73 (Little Brown & Co. 1996) (emphasis in original) (citation omitted)).

> regard the "impairment" standard as having been met if "the failure of an incumbent to provide access to a network element would decrease the quality, or increase the financial or administrative cost of the service a requesting carrier seeks to offer, compared with providing that service *over other unbundled elements in the incumbent LEC's network*,"—which means that comparison with self-provision, or with purchasing from another provider, is excluded.[49]

In the Court's assessment, the FCC had created a tautology: "Since any entrant will request the most efficient network element that the incumbent has to offer, it is hard to imagine when the incumbent's failure to give access to the element would not constitute an 'impairment' under this standard."[50] Moreover, in the process, the FCC had assigned to potential entrants the critical determination that Congress had delegated to the agency through its enactment of section 251(d)(2):

> The Commission asserts that it deliberately limited its inquiry to the incumbent's own network because no rational entrant would seek access to network elements from an incumbent if it could get better service or prices elsewhere. That may be. But that judgment allows entrants, rather than the Commission, to determine whether access to proprietary elements is necessary, and whether the failure to obtain access to nonproprietary elements would impair the ability to provide services.[51]

In seeking to implement the unbundling provisions of the 1996 legislation, the FCC had created a process that would, in effect, be controlled by the access seekers themselves.

38. The Court also criticized, on two grounds, the economic reasoning underlying the FCC's interpretation of "necessary" and "impair." Those two errors of economic logic translated into two reversible legal errors in the agency's interpretation of section 251(d)(2). First, the FCC ignored the relevance of supply substitutability. The Court found that, in determining the list of elements that

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48. *Id*. at 735 (quoting *Local Competition First Report and Order*, 11 F.C.C. Rcd. at 15,642 ¶ 283).
49. *Id.* (quoting *Local Competition First Report and Order*, 11 F.C.C. Rcd. at 15,643 ¶ 285) (emphasis added by the Court).
50. *Id.*

ILECs must provide on an unbundled basis pursuant to sections 251(c)(3) and 251(d)(2), the FCC must consider the availability of network elements outside the incumbent's network:

> The Commission cannot, consistent with the statute, blind itself to the availability of elements outside the incumbent's network. That failing alone would require the Commission's rule to be set aside.[52]

Second, Justice Scalia emphasized that the "impairment" standards must embody some threshold of materiality. Otherwise, "impairment" could be said to result from the slightest difference between what the ILEC implicitly paid itself for use of a particular network element and what the requesting carrier would pay for it as a UNE. "Impairment" similarly could be said to result from any difference in the quality of the network element:

> [T]he Commission's assumption that *any* increase in cost (or decrease in quality) imposed by denial of a network element renders access to that element "necessary," and causes the failure to provide that element to "impair" the entrant's ability to furnish its desired services is simply not in accord with the ordinary and fair meaning of those terms. An entrant whose anticipated annual profits from the proposed service are reduced from 100% of investment to 99% of investment has perhaps been "impaired" in its ability to amass earnings, but has not *ipso facto* been "impaired . . . in its ability to provide the services it seeks to offer"; and it cannot realistically be said that the network element enabling it to raise its profits to 100% is "necessary."[53]

In articulating that legal and economic reasoning for the Court, Justice Scalia responded to Justice Souter's dissent, which would have found that the common usage of the words "necessary" and "impair" made Rule 319 a reasonable agency interpretation of section 251(d)(2), to which the Court should defer under *Chevron*.[54]

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51. *Id.*
52. *Id.*
53. *Id.* (emphasis in original).
54. *Id*. at 739 (Souter, J., dissenting).

39. Justice Scalia's response to Justice Souter made two important points, one concerning an incumbent's cost advantage over entrants, and the other concerning whether an entrant was entitled to expect anything more than a reasonable opportunity to earn a competitive return:

> Justice Souter points out that one can say his ability to replace a light bulb is "impaired" by the absence of a ladder, and that a ladder is "necessary" to replace the bulb, even though one "could stand instead on a chair, a milk can, or eight volumes of Gibbon." True enough (and nicely put), but the proper analogy here, it seems to us, is not the absence of a ladder, but the presence of a ladder tall enough to enable one to do the job, but not without stretching one's arm to its full extension. A ladder one-half inch taller is not, "within an ordinary and fair meaning of the word," "necessary," nor does its absence "impair" one's ability to do the job.[55]

Justice Scalia also emphasized for the Court that the statutory right of competing telecommunications carriers to receive unbundled access to an ILEC's network element under the "impairment" standards was not a guarantee of supracompetitive profits:

> We similarly disagree with Justice Souter that a business can be impaired in its *ability* to provide services—even impaired in that ability "in an ordinary, weak sense of impairment"—when the business receives a handsome profit but is denied an even handsomer one.[56]

Stated differently, Justice Scalia reasoned that, if a telecommunications carrier does not need to lease a particular UNE to earn a normal economic profit after entering a particular market, then that carrier cannot claim to have been "impaired" in its ability to supply telecommunications services to consumers simply because its lease of the UNE in question might have enabled the carrier to earn a supracompetitive profit. Consistent with the view that the unbundling rules exist to enhance consumer welfare rather than competitor welfare, Justice Scalia seemed to say that a CLEC could have *at most* a legally cognizable claim under the "necessary" and "impair" standards *only if* it would be denied, by an ILEC's

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55. *Id*. at 735 n.11 (Scalia, J., for the Court) (quoting *id.* at 739 (Souter, J., concurring in part and dissenting

refusal to offer the desired UNE, a reasonable opportunity to earn a competitive return on capital, or what is called *zero economic profit*.[57] The mandatory unbundling provisions of section 251(d)(2) do not grant an entrant any legally cognizable right to earn a supracompetitive return, or what is called *economic rent*.[58] Nor would the FCC have a legitimate rationale under the public interest standard for ordering an ILEC to ensure that a telecommunications carrier requesting UNEs pursuant to an order of mandatory unbundling could earn economic rent as a windfall or entry subsidy. "In a world of perfect competition," wrote Justice Scalia, "in which all carriers are providing their service at marginal cost, the Commission's total equating of increased cost (or decreased quality) with 'necessity' and 'impairment' might be reasonable; but it has not established the existence of such an ideal world."[59] Justice Scalia saw no statutory basis for the distortions that Rule 319 would create in an imperfect world—let alone the distortions that the FCC would create by ensuring that entrants would earn windfall profits if they chose to lease, at a TELRIC price, any network element for which the FCC had found it to be technically feasible to order mandatory unbundling.

40. The Court found that the FCC's interpretations of "necessary" and "impair" produce a more invasive approach to mandatory network unbundling than the Court believed Congress possibly could have intended:

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in part) (citation omitted)).

56. *Id*. (Scalia, J., for the Court) (quoting Souter, J., dissenting) (emphasis in original) (citation omitted).

57. "Economic profits are zero when total revenues equal total costs, inclusive of a competitive return on capital." SIDAK & SPULBER, *supra* note 7, at 313; *see also* CARLTON & PERLOFF, *supra* note 16, at 340.

58. Economic rent is a return to a factor of production in excess of the payment that is necessary to prevent that factor from being redeployed to an alternative use. *See, e.g.*, PAUL MILGROM & JOHN ROBERTS, ECONOMICS, ORGANIZATION AND MANAGEMENT 269 (Prentice-Hall, Inc. 1992); Armen A. Alchian, *Rent*, *in* 4 THE NEW PALGRAVE: A DICTIONARY OF ECONOMICS 141 (John Eatwell, Murray Milgate & Peter Newman eds., Macmillan 1987).

59. 119 S. Ct. at 735.

> We cannot avoid the conclusion that, if Congress had wanted to give blanket access to incumbents' networks on a basis as unrestricted as the scheme the Commission has come up with, it would not have included § 251(d)(2) in the statute at all. It would simply have said (as the Commission in effect has) that whatever requested element can be provided must be provided.[60]

The Court traced that error in the FCC's statutory interpretation to the agency's conclusion that it would be necessary to unbundle, and would impair entry not to bundle, every network element that was technically feasible to unbundle:

> The FCC was content with its expansive methodology because of its misunderstanding of § 251(c)(3), which directs an incumbent to allow a requesting carrier access to its network elements "at any technically feasible point." The Commission interpreted this to "impose on an incumbent LEC *the duty to provide all network elements for which it is technically feasible to provide access*," and went on to "conclude that we have authority to establish regulations that are coextensive" with this duty.[61]

Justice Scalia observed that this interpretation was "undoubtedly wrong," as the Eighth Circuit had held.[62] Quoting the Eighth Circuit's decision, the Court emphasized that "[s]ection 251(c)(3) indicates '*where* unbundled access must occur, not *which* [network] elements must be unbundled.'"[63] The FCC, however, adopted a contrary interpretation in its *Local Competition First Report and Order*: "The Commission began with the premise that an incumbent was obliged to turn over as much of its network as was 'technically feasible,' and viewed [section 251(d)(2)] as merely permitting it to soften that obligation by regulatory grace . . . ."[64]

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60. *Id.*

61. *Id.* at 736 (quoting *Local Competition First Report and Order*, 11 F.C.C. Rcd. at 15,640 ¶ 278 (emphasis added by the Court); *see also id.* (quoting *Local Competition First Report and Order*, 11 F.C.C. Rcd. at 15,643 ¶ 286 ("we conclude that the statute does not require us to interpret the 'impairment' standard in a way that would significantly diminish the obligation imposed by section 251(c)(3)").

62. *Id.*

63. *Id.* (quoting Iowa Utils. Bd. *v.* FCC, 120 F.3d at 810) (emphasis added by Justice Scalia).

64. *Id.* at 736 (citation omitted). As evidence of that erroneous premise, Justice Scalia quoted, *id.*, the

41. The Court ruled that the FCC's "premise was wrong" and that "[s]ection 251(d)(2) does not authorize the Commission to create isolated exemptions from some underlying duty to make all network elements available."[65] Far from intending the FCC's discretionary dispensation of "regulatory grace," section 251(d)(2)

> requires the Commission to determine on a rational basis *which* network elements must be made available, taking into account the objectives of the Act and giving some substance to the "necessary" and "impair" requirements. The latter is not achieved by disregarding entirely the availability of elements outside the network, and by regarding *any* "increased cost or decreased service quality" as establishing a "necessity" and an "impair[ment]" of the ability to "provide . . . services."[66]

In short, the Court held that the FCC's interpretation of "necessary" and "impair" must reflect the procompetitive goals of the 1996 legislation, that the interpretation must embody an assessment of competitive substitution in the supply of network elements, and that the interpretation must not trigger mandatory unbundling of network element on the basis of insignificant differences between the cost or service quality of the network elements used by the ILEC and the cost or service quality of the network elements that the ILEC supplies an entrant.

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following language from the *Local Competition First Report and Order*: "To give effect to both sections 251(c)(3) and 251(d)(2), we conclude that the proprietary and impairment standards in section 251(d)(2) grant us the authority to refrain from requiring incumbent LECs to provide all network elements for which it is technically feasible to provide access on an unbundled basis." 11 F.C.C. Rcd. at 15,641 ¶ 279.

65. 119 S. Ct. at 736.

66. *Id*. at 736 (emphasis in original). Justice Thomas concurred with this part of the Court's decision but wrote a separate opinion, joined by Chief Justice Rehnquist and Justice Breyer, that dissented from other parts of the Court's decision that are not pertinent to our discussion. *Id*. at 741 (Thomas, J., concurring in part and dissenting in part).

## D. Justice Breyer's Concurring Opinion

42. Justice Breyer wrote a separate opinion in *Iowa Utilities Board* that concurred in the Court's holding on the "necessary" and "impair" standards but dissented from the Court's holding concerning the FCC's jurisdiction to promulgate pricing rules that were binding on the states.[67] Unlike Justice Scalia, whose opinion for the Court confined itself to linguistic interpretation of statutory text, Justice Breyer began with the premise that the "statute's history and purpose can illuminate its language."[68] Accordingly, Justice Breyer read the "necessary" and "impair" requirements not only "in light of history, purpose, and precedent,"[69] but also in light of scholarly research on the law and economics of regulation and antitrust jurisprudence.[70]

### 1. Justice Breyer on the History, Purpose, and Precedent of the Telecommunications Act

43. Unlike Justice Scalia, Justice Breyer presented the litigation over unbundling and UNE pricing as the current act of a long drama, commencing with the divestiture of AT&T. Thereafter, the federal government had used the prospect of its lifting the regulatory quarantine against entry into interLATA markets by the regional Bell operating companies (RBOCs) as an inducement to their taking the practical steps to open their local exchange markets to competitive entry—by, among other possible firms, the interexchange carriers (IXCs).[71] Justice Breyer

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67. 119 S. Ct. at 746-54 (Breyer, J., concurring in part and dissenting in part).

68. *Id*. at 746. For historical analysis, Justice Breyer relied upon Justice Thomas's dissenting opinion, *id*. at 740-46, in which Justice Breyer and Chief Justice Rehnquist joined, concurring in part and dissenting in part.

69. *Id*. at 746 (Breyer, J., concurring in part and dissenting in part).

70. Justice Breyer, of course, has made his own contributions to that scholarly literature. *See* STEPHEN G. BREYER, REGULATION AND ITS REFORM (Harvard University Press 1982); Breyer, *supra* note 12.

71. *Id*. at 746-47 (citing, among other secondary sources, THOMAS G. KRATTENMAKER,

acknowledged that the government's use of a barrier to entry in one market as a lever to promote entry into another market created costs in terms of diminished interLATA competition that must be balanced against the perceived benefits of stimulating competition in local telephony. Through the Telecommunications Act, he observed, Congress codified, in section 271, its judgment concerning the proper tradeoff between competitive benefits and costs.[72]

44. To advance toward competition in local telephony, Justice Breyer observed, the 1996 legislation poses, but "does not purport to answer," the empirical question, "To what extent is local competition possible without wasteful duplication of facilities?"[73] The Telecommunications Act "creates a set of legal rules," including unbundling rules, "which, through interaction with the marketplace, aims to produce sensible answers."[74] Justice Breyer summarized Congress's logic in enacting the local competition and long-distance provisions of the Telecommunications Act as follows:

> [O]ne can understand the basic logic of "unbundling" by imagining that Congress required a sole incumbent railroad providing service between City A and City B to share certain basic facilities, say, bridges, rights-of-way, or tracks, in order to avoid wasteful duplication of those hard-to-duplicate resources while facilitating competition in the *remaining* aspects of A-to-B railroad service. Indeed, one might characterize the Act's basic purpose as seeking to bring about, without inordinate

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TELECOMMUNICATIONS LAW AND POLICY 411-12 (Carolina Academic Press 2d ed. 1998); KAHN, *supra* note 7, at 37-38 & n.53; PAUL W. MACAVOY, THE FAILURE OF ANTITRUST AND REGULATION TO ESTABLISH COMPETITION IN LONG-DISTANCE TELEPHONE SERVICES 171-77, 179-83 (MIT Press & AEI Press 1996); PETER W. HUBER, MICHAEL K. KELLOGG & JOHN THORNE, THE GEODESIC NETWORK II: 1993 REPORT ON COMPETITION IN THE TELEPHONE INDUSTRY at 2.3-2.5 (1992); Thomas G. Krattenmaker, *The Telecommunications Act of 1996*, 49 FED. COMM. L.J. 1, 15-16 (1996); Glen O. Robinson, *The* Titanic *Remembered: AT&T and the Changing World of Telecommunications*, 5 YALE J. ON REG. 517, 537 (1988)).

72. *Id.* at 747.

73. *Id.*

74. *Id.* (citing 47 U.S.C. §§ 251(c)(2), 251(c)(3), 251(c)(4), 253(a)).

> waste, greater local service competition both as an end in local markets and as a means towards more competition, and fair competition, in long-distance markets.[75]

Justice Breyer believed that "[t]hose purposes neither require nor suggest reading the Act's language to change radically the scope of local regulators' traditional rate-setting powers."[76] His basis for that view has equal applicability to the "necessary" and "impair" standards of section 251(d)(2), an issue on which Justice Breyer concurred with seven other Justices:

> The introduction of competition into a particular locality does not diminish the importance of place-specific factors, such as local history, geography, demands, and costs. And local regulators are likely more familiar than are national regulators, for example, with a particular utility's physical plant, its cost structure, the pattern of local demand, the history of local investment, and the need for recovery of undepreciated fixed costs. Moreover, local regulators have experience setting rates that recover both the immediate, smaller, added costs that demand for additional service imposes upon a local system and also a proper share of the often huge fixed costs (of local loops, say, or switches) and overhead needed to provide the dial tone itself. Indeed, local regulators would seem as likely, if not more likely, than national regulators to know whether, when, or the extent to which, particular local charges or systems of charges will lead new entrants to abandon efforts to use a local incumbent's elements, turning instead to alternative technologies. And local regulators would seem as likely as national regulators to know whether or when use of such alternative technologies in the local circumstances will prove more beneficial than wasteful. It is the local communities, and, hence, local regulators, that will directly confront the problems and enjoy the benefits associated with local efforts to integrate new and old communications resources and communications firms.[77]

As we shall explain in Part V, this insight concerning the unique competence of state regulators in evaluating the competitive and regulatory aspects of local telecommunications markets has special relevance to the FCC's 1999 proposal in the *Second Further Proposed Notice of Rulemaking* to preempt state participation in the interpretation and administration of section 251(d)(2) by

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75. *Id.* at 748 (emphasis in original).
76. *Id.*
77. *Id.* Justice O'Connor did not participate in the case. *Id.* at 721.

announcing, on a nationwide basis, that certain unbundled network elements are deemed to meet the "necessary" and "impair" requirements.

**2. Justice Breyer on the FCC's Pricing Rules for Unbundled Network Elements**

45. Much of Justice Breyer's separate opinion addressed his disagreement with the majority over whether the Telecommunications Act gave the FCC the authority to preempt state rate-setting for unbundled network elements. Although most of that analysis is not directly relevant to interpreting the "necessary" and "impair" requirements, some portions unquestionably are. In particular, Justice Breyer emphasized that, "when faced with ambiguity" in a regulatory statute that envisions federal and state cooperation, the Court is "to interpret statutes . . . on the assumption that Congress intended to preserve local authority."[78] That insight illuminates as well the question of whether the FCC's interpretation of section 251(d)(2) will preserve a role for the state public utilities commissions (as finders of fact, for example) in determining whether a particular network element in a particular geographic market is subject to mandatory unbundling under the "necessary" and "impair" requirements.

46. Justice Breyer observed that, far from being "general," the "dozens of pages of text that set . . . forth" the FCC's pricing rules for unbundled network elements were "highly specific and highly detailed."[79] Their effect was to deny any discretion to state regulators:

> [The FCC's pricing rules] deprive state commissions of methodological leeway. Their rate-setting instructions grant a state commission little or no freedom to choose among reasonable rate-determining methods according to the State's policy-related judgments, assessing local economic circumstance or community need.

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78. *Id*. at 749-50 (citing Cipollone v. Liggett Group, Inc., 505 U.S. 504, 518 (1992); Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 230 (1947)).

79. *Id.* at 751 (citing *Local Competition First Report and Order*, 11 F.C.C. Rcd. at 15,844-62 ¶¶ 672-715).

> I grant the fact that the rules leave it to the state commissions to fix the actual rate, but that is rather like giving a restaurant chef the authority to choose a menu while restricting him to one dish, an omelet, and to one single favorite recipe.[80]

Furthermore, Justice Breyer noted, the Telecommunications Act did not compel the pricing rule that the FCC imposed on the states.[81] He regarded the FCC's vision of competition as misguided: "The FCC does argue that the Act's purpose, competition, favors its system."[82] But Justice Breyer disagreed with the FCC's understanding of "competition." "The competition that the Act seeks is a process, not an end result; and a regulatory system that imposes through administrative mandate a set of prices that tries to mimic those that competition would have set does not thereby become any the less a regulatory process, nor any the more a competitive one."[83] As we shall explain in Part II, this misconception of competition directly affects the FCC's interpretation of the "necessary" and "impair" standards as well, for the *Second Further Notice of Proposed Rulemaking* subordinates consumer welfare to competitor welfare and then regards the latter as the indicator of whether "competition" exists.

47. The *Second Further Notice of Proposed Rulemaking* invites the question of whether the FCC would, by announcing nationwide unbundling rules, similarly attempt to deny state regulators all discretion with respect to identifying whether particular elements are subject to mandatory unbundling at TELRIC prices. In the context of UNE pricing, Justice Breyer intimated that the FCC's strategy in preempting the states from developing their own pricing rules was to foreclose other reasonable interpretations of the statute without having to supply an intellectually

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80. *Id.*

81. *Id.* ("Nor can the FCC successfully argue that the Act requires the particular rate-setting system that its regulations contain.").

82. *Id.*

respectable justification for that exclusion: "Most importantly, the FCC's rules embody not an effort to circumscribe the realm of the reasonable, but rather a policy-oriented effort to choose among several different systems, including systems based upon actual costs or price caps, which other systems the FCC's rules prohibit."[84] Those alternative pricing rules, prohibited by the FCC, "illustrate . . . how easily a regulator weighing certain policy considerations (for example administrative considerations) differently might have chosen a different set of reasonable rules."[85] One could imagine state regulators similarly adopting conclusions about "necessity" and "impairment" that differ reasonably from the FCC's conclusions.

### 3. Justice Breyer on the "Necessary" and "Impair" Requirements for Mandatory Unbundling of Network Elements

48. Justice Breyer concurred in the Court's holding with respect to the FCC's interpretation of the "necessary" and "impair" requirements of section 251(d)(2). In writing separately on this part of the Court's decision, he employed economic analysis that complemented the linguistic analysis of Justice Scalia's majority opinion.

49. Justice Breyer began by noting the Telecommunications Act expresses the unbundling obligations of ILECs "in general terms, reflecting congressional uncertainty about the

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83. *Id.*

84. *Id.*

85. *Id.* at 751-52. With respect to the "the FCC's decision to prohibit use" of the efficient component-pricing rule (ECPR), *id.* at 752, Justice Breyer noted: "The FCC rejected that [ECPR] system, but in doing so it did not claim, nor did its reasoning support the claim, that the use of such a system would be arbitrary or unreasonable." *Id*. (citing Sidak & Spulber, *The Tragedy of the Telecommons*, *supra* note 5, at 1095-98). Of "the FCC's decision to forbid the use" of Ramsey pricing, *id*., Justice Breyer wrote: "Many experts strongly prefer the use of such a system [and some argue] that the FCC's prohibition of Ramsey pricing will 'minimize rather than maximize consumer welfare.' The FCC disfavors Ramsey pricing, but it does not explain why a contrary judgment would conflict with the statute or otherwise be arbitrary or unreasonable." *Id*. (citing 1 ALFRED E. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS 137-41 (MIT Press rev. ed. 1988), and quoting Sidak & Spulber, *The Tragedy of the Telecommons*, *supra* note 5, at 1109).

extent to which compelled use of an incumbent's facilities will prove necessary to avoid waste."[86] He then anticipated the question, which we address in Part III, that goes to the heart of the *Second Further Notice of Proposed Rulemaking*: "Will wireless technology or cable television lines, for example, permit the efficient provision of local telephone service without the use of existing telephone lines that now run house to house?"[87] Such substitution at the end-user level has the potential, over the near term in some geographic markets, to render mandatory unbundling of even residential local loops unnecessary, inappropriate, and thus unlawful.

50. Justice Breyer found the "reasonably clear" objective of section 251(d)(2) to be "to facilitate the introduction of competition where practical, *i.e.*, without inordinate waste."[88] That objective, he reasoned, required section 251(d)(2) to function like the essential facilities doctrine in antitrust law:

> [A]lthough the provision describing which elements must be unbundled does not explicitly refer to the analogous "essential facilities" doctrine (an antitrust doctrine that this Court has never adopted), the Act, in my view, does impose related limits upon the FCC's power to compel unbundling. In particular, I believe that, given the Act's basic purpose, it requires a convincing explanation of why facilities should be shared (or "unbundled") where a new entrant could compete effectively without the facility, or where practical alternatives to that facility are available.[89]

Justice Breyer noted that Justice Scalia reached this insight by textual analysis.[90] The great utility of Justice Breyer's concurrence on the unbundling rules is that he went beyond the majority's textual analysis to suggest that the kind of consumer welfare analysis that a court routinely

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86. *Id.* at 753.
87. *Id.*
88. *Id.*
89. *Id.* (citing Phillip E. Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841, 852-53 (1989)).
90. *Id.* ("the Act's language itself suggests some such limits").

conducts in an antitrust case also would yield the same answer: Section 251(d)(2) must be implicitly limited by a principle that resembles the essential facilities doctrine.

51. Justice Breyer emphasized that, in multiple respects, unbundling is not costless, either to private firms, consumers, or regulators:

> The fact that compulsory sharing can have significant administrative and social costs inconsistent with the Act's purposes suggests [that a limiting principle implicitly exists.] Even the simplest kind of compelled sharing, say, requiring a railroad to share bridges, tunnels, or track, means that someone must oversee the terms and conditions of that sharing. Moreover, a sharing requirement may diminish the original owner's incentive to keep up or to improve the property by depriving the owner of the fruits of value-creating investment, research, or labor.[91]

Furthermore, Justice Breyer warned that the complexity and cost of mandatory unbundling multiply as the network elements in question become more technologically sophisticated and as product or process innovation becomes a more significant dimension over which firms compete in the provision of end services:

> And as one moves beyond the sharing of readily separable and administrable physical facilities, say, to the sharing of research facilities, firm management, or technical capacities, these problems can become more severe. One would not ordinarily believe it practical, for example, to require a railroad to share its locomotives, fuel, or workforce. Nor can one guarantee that firms will undertake the investment necessary to produce complex technological innovations knowing that any competitive advantage deriving from those innovations will be dissipated by the sharing requirement. The more complex the facilities, the more central their relation to the firm's managerial responsibilities, the more extensive the sharing demanded, the more likely these costs will become serious. And the more serious they become, the more likely they will offset any economic or competitive gain that a sharing requirement might otherwise provide. The greater the administrative burden, for example, the more the need for complex proceedings, the very existence of which

91. *Id.*

> means delay, which in turn can impede the entry into long-distance markets that the Act foresees.[92]

We examine these costs of mandatory unbundling in detail in Part II.

52. To Justice Breyer, the need for a limiting principle found further support in a proper understanding of the kinds of competition that would and would not emerge from mandatory unbundling:

> Nor are any added costs imposed by more extensive unbundling requirements necessarily offset by the added potential for competition. Increased sharing by itself does not automatically mean increased competition. It is in the *un*shared, not in the shared, portions of the enterprise that meaningful competition would likely emerge. Rules that force firms to share *every* resource or element of a business would create, not competition, but pervasive regulation, for the regulators, not the marketplace, would set the relevant terms.[93]

The interpretation of section 251(d)(2) therefore requires a "balance" of the expected benefits and costs that the interpretation will engender.[94] "Regulatory rules that go too far, expanding the definition of what must be shared beyond that which is essential to that which merely proves advantageous to a single competitor, risk costs that, in terms of the Act's objectives, may make the game not worth the candle."[95] Why, asked Justice Breyer, if (as the FCC seemed to believe) Congress had intended through its enactment of the Telecommunications Act of 1996 that "an incumbent should be forced to share virtually every aspect of its business, . . . . would Congress have seen a need for a separate wholesale sales requirement (since the 'unbundling' requirement would have

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92. *Id*. at 753-54 (citing 1 HAROLD DEMSETZ, OWNERSHIP, CONTROL, AND THE FIRM: THE ORGANIZATION OF ECONOMIC ACTIVITY 207 (1988)).

93. *Id*. at 754 (emphasis in original).

94. *Id*. Justice Breyer's conclusion is consistent with his broader view that regulation should be subjected to rigorous cost-benefit analysis. *See generally* STEPHEN G. BREYER, BREAKING THE VICIOUS CYCLE: TOWARD EFFECTIVE RISK REGULATION (Harvard University Press 1995).

95. 119 S. Ct. at 754 (Breyer, J. concurring in part and dissenting in part).

led to a similar result)? Indeed, would Congress have so emphasized the importance of competition?"[96] Justice Breyer concluded that the FCC's vision of the optimal level of unbundling—"the more the incumbent unbundles, the better"[97]—would create nothing more than a Potemkin village of competition: "A totally unbundled world—a world in which competitors share every part of an incumbent's existing system, including, say, billing, advertising, sales staff, and work force (and in which regulators set all unbundling charges)—is a world in which competitors would have little, if anything, to compete about."[98]

### E. Justice Souter's Dissent

53. In a separate opinion in *Iowa Utilities Board*, Justice Souter concurred in the Court's holding that the FCC had jurisdiction to set UNE pricing rules that bound the states, but he dissented from the Court's holding that the FCC unreasonably interpreted the "necessary" and "impair" requirements of section 251(d)(2).[99] Justice Souter's dissent is significant because, of the four opinions by the Justices in *Iowa Utilities Board*, his most closely resembles the reasoning contained three months later in the FCC's *Second Further Notice of Proposed Rulemaking*. Justice Souter's interpretation of "necessary" and "impair" was the polar opposite of Justice Breyer's, for the former would read the public interest standard of the Telecommunications Act of 1996 to subordinate the welfare of consumers to the welfare of individual competitors.

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96. *Id.*
97. *Id.*
98. *Id.*
99. 119 S. Ct. at 739 (Souter, J., concurring in part and dissenting in part).

54. Justice Souter considered that, "[u]nder *Chevron*, the only question before us is whether the Commission's interpretation, obviously favorable to potential competitors, falls outside the bounds of reasonableness."[100] He conceded that Rule 319 would "probably allow a competitor to obtain access to any network element that it wants" by presenting at most "a weak economic justification."[101] As a matter of statutory interpretation, Justice Souter considered "necessary" and "impair" to be ambiguous words that *Chevron* entitled the FCC to define in any reasonable manner, including what he described as the "weak . . . but unquestionably still ordinary uses of the words" that he illustrated with this ladder-and-light-bulb example, commented upon by Justice Scalia.[102] Justice Souter did not recognize that what he regarded as the FCC's "reasonable" statutory interpretation would redefine the public interest standard as a competitor-welfare standard:

> A service is surely "necessary" to my business in an ordinary, weak sense of necessity when that service would allow me to realize more profits, and a business can be said to be "impaired" in delivery of services in an ordinary, weak sense of impairment when something stops the business from getting the profit it wants for those services.[103]

Unlike Justice Breyer, Justice Souter could perceive no social costs that would offset the perceived social benefits of greater degrees of unbundling. Justice Souter did not recognize that his interpretation of section 251(d)(2) would place the unbundling rules at cross-purposes with the rest of the Telecommunications Act, as well as with the antitrust laws. Justice Souter's reasoning was rejected by every other member of the Court participating in the *Iowa Utilities Board* decision.

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100. *Id.*
101. *Id.*
102. "If I want to replace a light bulb, I would be within an ordinary and fair meaning of the word 'necessary' to say that a stepladder is 'necessary' to install the bulb, even though I could stand instead on a chair, a milk can, or eight volumes of Gibbon. I could just as easily say that the want of a ladder would 'impair' my ability to install the bulb under the same circumstances." *Id.*
103. *Id.* at 740.

## II. WHY LIMITING PRINCIPLES ARE NECESSARY

55. In this Part, we will use economic analysis to articulate why the FCC must give interpretations to the "necessary" and "impair" standards that are rationally related to the purposes of the Telecommunications Act of 1996. Foremost among those limiting principles is the proposition that the FCC's unbundling rules should regard the public interest as primarily determined by consumer welfare, which in turn is determined by competition rather than competitor welfare. Whether it is "necessary" for the FCC to mandate, at TELRIC prices, the unbundling of a particular proprietary network element in a particular location at a particular time should depend on whether such unbundling is necessary to permit the competitive supply of telecommunications services to end users. Similarly, the correct meaning of "impair" for purposes of section 251(d)(2) is whether the ILEC's failure to unbundle, at TELRIC prices, a particular nonproprietary network element in a particular location at a particular time would produce an equilibrium supply of telecommunications services that was, relative to the competitive equilibrium, significantly inferior for consumers. Here, "inferior" can mean not only higher prices, but also lower quality services or less innovation in new telecommunications services, the consumer welfare losses from which have been shown empirically to be enormous.[104]

104. *See* Hausman, *Valuing the Effect of Regulation on New Services in Telecommunications, supra* note 11.

## A. Unbundling Rules Should Emphasize Consumer Welfare Rather than Competitor Welfare

56. The "necessary" and "impair" standards should be applied to overall competition, not to the economic interests of individual competitors, large or small. In its *Local Competition First Report and Order*, the Commission failed to make that distinction, which is well recognized in antitrust law, as we explain below. Unfortunately, the FCC's 1999 *Second Further Notice of Proposed Rulemaking* seems inclined to repeat that error.

### 1. The Goal of the Telecommunications Act Is to Improve Consumer Welfare

57. Consumers benefit from competition because it leads to greater innovation and lower prices. Thus, the public interest is consistent with increased competition and innovation. The public-interest standard, however, has not always received so precise a definition in telecommunications regulation. Three years before the passage of the Telecommunications Act of 1996, Professor William J. Baumol and one of the present authors wrote:

> [W]e will use the phrase "the public interest" more precisely and restrictively than do the Communications Act, the FCC, and the state public utility commissions. It will connote economic efficiency, or the maximization of the general welfare of consumers and producers—that is, the maximization of the sum of consumers' surplus and producers' surplus. Often this criterion is referred to in the abbreviated form "consumer welfare maximization."
>
> The primacy that economists ascribe to economic efficiency and consumer welfare maximization has a related benefit: it harmonizes economic regulation and antitrust law. For in the latter, the Supreme Court has contributed a muscular jurisprudence asserting that the first goal of the Sherman Act and other federal antitrust statutes is to be a "consumer welfare prescription." This harmony between regulation and antitrust has three important implications. First, the same basic tools of microeconomic analysis can be employed in one as in the other. There can be little disagreement that the economic sophistication of antitrust law has enriched the regulatory analysis of natural monopoly. Second, changes in technology or other circumstances that permit natural monopoly to give way to competition impart

> continuity to the relationship between economic regulation and antitrust. Third, many of the thorniest problems in antitrust law—such as judicial enforcement of injunctive remedies under the [Modification of Final Judgment] or the essential facilities doctrine—are fundamentally regulatory in nature, involving issues such as entry or the pricing of intermediate goods sold to competitors. Thus, the economic scholarship on regulation can in many instances enrich antitrust jurisprudence.[105]

In 1996, Congress removed any remaining ambiguity about the goal of federal telecommunications law when, as noted earlier, it emphasized in the Telecommunications Act that the improvement of consumer welfare was the new legislation's overarching purpose.

### 2. The Supreme Court Has Instructed the Commission to Pursue a Consumer-Welfare Standard

58. A standard that looks to the effect on competition, rather than the interests of a given CLEC, comports with the Supreme Court's command that the Commission must take into account the availability of substitutes for ILEC network elements outside the ILEC's network. If substitutes outside the ILEC's network are available, that availability occurs because some firms have made the rational economic decision that they can efficiently provide services that employ those elements.

59. Two conclusions necessarily follow. First, the element as provided by the ILEC cannot be essential for competition because competition is already occurring *without* ILEC provision. Thus, the network element, unbundled by government decree at TELRIC prices, cannot be labeled an essential facility, or "necessary" to competition, or an element for which the decision not to mandate unbundling at a TELRIC price would "impair" the competitive supply of

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105. BAUMOL & SIDAK, *supra* note 11, at 26–27 (citing National Collegiate Athletic Ass'n. *v*. Board of Regents of Univ. of Okla., 468 U.S. 85, 107 (1984); Reiter *v*. Sonotone Corp., 442 U.S. 330, 343 (1979); BORK, *supra* note 12, at 66; Breyer, *supra* note 12).

telecommunications services. "Increased sharing," observed Justice Breyer, "by itself, does not automatically mean increase competition."[106]

60. Second, competition will not be adversely affected if a given CLEC cannot procure the unbundled element from the ILEC. Since other firms are providing substitutes outside the ILEC's network, in the absence of diminishing returns to scale, increased demand for the element outside the ILEC's network can be met at the same or lower economic cost. Diminishing returns to scale would occur if a scarce input, which could not be reproduced, were present. Fertile land is an example of a scarce input that causes diminishing returns to scale. But in telecommunications those scarce inputs do not exist, and the Commission states that increasing returns to scale are expected.[107] The same cost occurs with constant returns to scale, while a lower cost arises with increasing returns to scale. Thus, the "limiting principle" demanded by the Court naturally emerges when one uses the effect on competition, rather than the effect on individual competitors as in the Commission's past and present formulations of the "necessary" and "impair" standards.

### 3. A Consumer-Welfare Standard Is Consistent with Established Case Law

61. The foregoing principles concerning the primacy of consumer welfare are completely consistent with established law. For example, Chief Judge Posner has written repeatedly for the Seventh Circuit since the early 1980s that "[c]ompetition is the allocation of resources in which economic welfare (consumer welfare, to oversimplify slightly) is maximized; it is not rivalry per se, or a particular form of rivalry, or some minimum number of competitors."[108] In a 1983 antitrust decision, he

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106. *Iowa Utilities Board*, 119 S. Ct. at 754 (Breyer, J., concurring on "necessary" and "impair").
107. *Id.*
108. Roland Machinery Co. *v*. Dresser Indus., Inc., 749 F.2d 380, 395 (7th Cir. 1984) (Posner, J.) (citing Product Liability Ins. Agency, Inc. *v*. Crum & Forster Ins. Cos., 682 F.2d 660, 663-65 (7th Cir. 1982) (Posner, J.)).

expressed this reasoning in a manner that is directly relevant to the Commission's approach, in its 1999 *Second Further Notice of Proposed Rulemaking*, to defining "impairment" under section 251(d)(2) of the Telecommunications Act:

> [T]hough there is a sense in which the exclusion of any competitor reduces competition, it is not the sense of competition that is relevant to antitrust law. The policy of competition is designed for the ultimate benefit of consumers rather than of individual competitors, and a consumer has no interest in the preservation of a fixed number of competitors greater than the number required to assure his being able to buy at the competitive price. Maybe the older, competitor-protection view would survive in a case of naked aggression resulting in the total exclusion of a competitor from the market, but that would be a per se case (if anything) and this is not.[109]

Similarly, Justice (then Judge) Breyer wrote for the First Circuit in 1987:

> "[U]nreasonableness" in antitrust law has a rather special meaning. It means that the anticompetitive consequences of a particular action or arrangement outweigh its legitimate business purposes. "Anticompetitive" also has a special meaning: it refers not to actions that merely injure individual competitors, but rather to actions that harm the competitive process, a process that aims to bring consumers the benefits of lower prices, better products, and more efficient production methods.[110]

The Supreme Court has repeatedly embraced such reasoning. In 1993, for example, the Court stated in *Spectrum Sports, Inc.* v. *McQuillan*:

> The purpose of the [Sherman] Act is not to protect businesses from the working of the market; it is to protect the public from the failure of the market. The law directs itself not against conduct which is competitive, even severely so, but against

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109. Marrese *v*. American Academy of Orthopedic Surgeons, 706 F.2d 1488, 1497 (7th Cir. 1983) (Posner, J.) (citing *Products Liability*, 682 F.2d at 663–64; University Life Ins. Co. of America *v*. Unimarc Ltd., 699 F.2d 846, 853 (7th Cir. 1983) (Posner, J.)). In *Products Liability*, Chief Judge Posner wrote in 1982: "The consumer does not care how many sellers of a particular good or service there are; he cares only that there be enough to assure him a competitive price and quality." 682 F.2d at 664. In another antitrust decision the following year, he wrote that "competition in the antitrust sense signifies not the preservation of all existing competitors but the maintenance of a sufficient number to assure that consumers get the best possible quality of product at the lowest possible price." *University Life*, 699 F.2d at 852 (citing *Products Liability*, 682 F.2d at 663-64).

110. Interface Group, Inc. *v*. Massachusetts Port Auth., 816 F.2d 9, 10 (1st Cir. 1987) (citing 7 PHILLIP E. AREEDA, ANTITRUST LAW ¶ 1500, at 362–63 (Little Brown & Co. 1986); Brown Shoe Co. *v*. United States, 370 U.S. 294, 320 (1962)).

> conduct which unfairly tends to destroy competition itself. It does so not out of solicitude for private concerns but out of concern for the public interest.[111]

This principle in antitrust law flows from the Court's 1977 decision in *Brunswick Corp.* v. *Pueblo Bowl-O-Mat, Inc.*, which held that "antitrust injury . . . is . . . injury of the type the antitrust laws were intended to prevent and that flows from that which makes defendants' acts unlawful."[112]

### 4. Contrary to the Goals of the Telecommunications Act, the Instructions of the Supreme Court, and the Lessons of Established Case Law, the FCC Has Embraced a Competitor-Welfare Standard

62. In its *Local Competition First Report and Order*, the Commission determined in 1996 that a "*requesting carrier's* ability to offer service is 'impaired' ('diminished in value') if 'the quality of the service *the entrant* can offer absent access to the requested element, declines' or if 'the cost of providing the service rises.'"[113] That impairment standard explicitly formulated a competitor-based standard, not a competition-based standard. Unfortunately, the Commission continues in 1999 to consider the economic interests of a given CLEC rather than the effect of the "necessary" and "impair" standards on overall competition.[114] Indeed, the FCC asks in its *Second Further Notice of Proposed Rulemaking* whether the "requesting carrier's particular market entry

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111. 506 U.S. 447, 548 (1993).

112. 429 U.S. 477, 488 (1977); *see also* Atlantic Richfield Co. *v*. USA Petroleum Co., 495 U.S. 328, 338 (1990); Cargill, Inc. *v*. Monfort of Colorado, Inc., 479 U.S. 104, 116–117 (1986); Associated Gen'l Contractors of Cal., Inc. *v*. Carpenters, 459 U.S. 519, 539–540 (1983); Blue Shield of Va. *v*. McCready, 457 U.S. 465, 483 & n.19 (1982); J. Truett Payne Co. *v*. Chrysler Motors Corp., 451 U.S. 557, 562 (1981). For an earlier articulation of that proposition, see Brown Shoe Co. *v*. United States, 370 U.S. 294, 320, (1962).

113. *See SFNPRM*, *supra* note 1, at ¶ 6 (emphasis added) (quoting *Local Competition First Report and Order*, 11 F.C.C. Rcd. at 15,643 ¶ 285); *see also id.* at ¶ 17 (quoting same).

114. *Id.* at ¶ 20.

strategies should be considered as part of the 'necessary' and 'impair' analysis."[115] Moreover, the *Second Further Notice of Proposed Rulemaking* takes liberties in characterizing the relevant statutory language. The FCC states: "Section 251(d)(2)(B) requires us to consider whether the failure to provide access to an element would 'impair' the ability of a *new entrant* to provide a service it seeks to offer."[116] In fact, the statute speaks of a "telecommunications carrier,"[117] and it is inaccurate to characterize CLECs such as AT&T, MCI WorldCom, and Sprint as "new entrants" in local telecommunications markets. The Commission has yet to consider the crucial difference between the effect on competition, which the Telecommunications Act of 1996 was intended to create, and the economic interests of a particular competitor, which neither the 1996 legislation attempted, nor the Commission subsequently should attempt, to protect.

63. The *Second Further Notice of Proposed Rulemaking* continues, incorrectly, to impart to the Telecommunications Act of 1996 "the older, competitor-protection view"—even when the FCC's statutory interpretation of section 251(d)(2) is judged by standards of antitrust jurisprudence dating at least to the early 1980s. To extend Chief Judge Posner's reasoning from 1983 to the present case of interpreting the "necessary" and "impair" standards of section 251(d)(2), the relevant analysis is whether "either the exclusion of an individual [CLEC] from a local market or the possible effect of that exclusion on the competitive behavior of other aspirants . . . could result in a higher price or lower quality of [service] in [the affected] communities."[118] The FCC's *Second Further Notice Proposed Rulemaking*, however, does not propose to undertake such analysis. Rather, it ascribes paramount

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115. *Id.* at ¶ 27.
116. *Id.* at ¶ 17 (emphasis added).
117. 47 U.S.C. § 251(d)(2)(B).

importance to the supplications of individual competitors. Thus, to paraphrase another of Chief Judge Posner's antitrust opinions, "there is a question to what extent, with their emphasis on the welfare of competitors rather than consumers," those regulators at the FCC proposing a statutory interpretation of section 251(d)(2) "can survive the consumer-oriented view of antitrust that prevails today."[119] The fact that the business plan of any one CLEC might not be viable unless the FCC were to order the ILEC to unbundle its network elements at TELRIC prices "would have no appreciable effect on competition, viewed as a state in which consumer interests are well served rather than as a process of rivalry that is diminished by the elimination of even one tiny rival."[120] As Judge Posner concluded thirteen years before passage of the Telecommunications Act: "That 'there's a special providence in the fall of a sparrow,' is not the contemporary philosophy of antitrust."[121]

### 5. There Is No Necessary Relationship between CLEC Profits and Consumer Welfare under an Imperfectly Competitive Outcome

66. The economic welfare of any single CLEC will not affect consumer welfare because the overall effect on the competitive supply of telecommunications services is what matters. If, under the Commission's interpretation of the "necessary" and "impair" standards, any single CLEC can claim that a given element is necessary to its business strategy, then it is likely that *all* elements of the network will be subjected to mandatory unbundling at TELRIC prices. Such a standard would harm consumers and diminish consumer welfare. As noted earlier, Justice Breyer discussed this outcome: "Regulatory rules that go too far, expanding the definition of what must be shared beyond that which is essential to that which merely proves advantageous to a single

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118. *Marrese*, 706 F.2d at 1497.
119. *Id.* at 1495–96 (citing Reiter *v*. Sonotone Corp., 442 U.S. 330, 343 (1979)).

competitor, risk costs that in terms of the Act's objectives, may make the game not worth the candle."[122] But, if the Commission instead adopts the standard of whether competition will be impaired, then consumer welfare will be maximized in those instances in which regulators conclude that unbundling of a particular network element is appropriate to mandate at regulated TELRIC prices. Justice Souter failed to recognize the distinction between consumer's interest in competition and the economic interest of an individual competitor. His standard was whether an individual competitor might have slightly lower profits, rather than whether competition or consumers would be affected by that competitor's access to UNEs at TELRIC prices.[123]

67. As we will explain in greater detail in Part III, the Commission can determine whether competition will be impaired by analyzing the question of whether prices for telecommunication services will be higher or quality (innovation) will be lower as a result of the agency's "necessary" and "impair" policy. Thus, whether an individual competitor's profits would be affected if a given element were not unbundled at a government-mandated TELRIC price is not the correct question under a competition standard or public interest standard. The correct questions, rather, are whether competition will be impaired in the absence of unbundling on such terms and whether a given element is necessary for competition.

68. The Supreme Court realized in *Iowa Utilities Board* that, in a world of imperfect competition, cost differences that do not arise in marginal cost might have no effect on either competition or competitive prices. The Court stated:

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120. *University Life*, 699 F.2d at 853.
121. *Id*. (quoting Hamlet, Act V, sc. ii, line 232).
122. *Iowa Utilities Board*, 119 S. Ct. at 754 (Breyer, J., concurring in part and dissenting in part).

> In a world of perfect competition, in which all carriers are providing their service at marginal cost, the Commission's total equation of increased cost (or decreased quality) with "necessity" and "impairment" might be reasonable; but it has not established the existence of such an ideal world.[124]

There can be no claim that telecommunications is a world of perfect competition given the significant fixed costs and common costs that exist.[125] Indeed, the Commission's standard for pricing unbundled elements, where TELRIC includes both fixed costs and foresees the inclusion of a "reasonable share" of forward-looking common costs, specifically rules out the possibility that the Commission believes that perfect competition could occur in the local telecommunications network.[126]

69. Furthermore, economists generally accept that with imperfect competition, prices are set as a markup over marginal costs, subject to a breakeven constraint so that the firm can cover its fixed and common costs.[127] Under free entry, a sufficient number of firms enters so that firms expect to earn their normal cost of capital (that is, they break even); but firms do not earn excess economic profits, because new entry decreases profits to normal levels. Prices exceed marginal costs, but only by enough to cover the fixed and common costs and to allow the firm to earn a normal economic return on invested capital. Thus, an imperfectly competitive outcome could lead to the same (or even lower) prices where CLECs do not have access to a given unbundled element from the ILEC but instead self-supply the element or buy it from another supplier. The expected profit of a CLEC might be higher if the Commission required the ILEC to

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123. *Id.* 739–40 (Souter, J., dissenting).
124. *Id.* at 735 (Scalia, J.).
125. *See, e.g.*, BAUMOL & SIDAK, *supra* note 11, at 7, 9, 34.
126. *Local Competition First Report and Order*, 11 F.C.C. Rcd. at 15,847 ¶ 682.
127. *See* SIDAK & SPULBER, *supra* note 7, at 359.

supply the unbundled element, but competition could be greater without the requirement because the marginal cost to the CLEC and resulting prices to consumers could well be lower, especially in a situation of lumpy investment or excess capacity. Thus, under imperfect competition, the "necessary" and "impair" standards do not imply that competition is greatest or consumer welfare is highest when CLEC profits are the greatest, as the Commission has incorrectly assumed. Indeed, the normal result in economics is that a CLEC's profits (which include fixed costs and common costs as factors) bear no necessary relationship to the amount of competition or consumer welfare under an imperfectly competitive outcome.

### 6. The Definition of "Impair" Cannot Become an Indemnification from Competitive Losses

70. In a competitive marketplace, firms are constantly engaged in a competitive struggle. Some firms will succeed while others fail. Unlike the regulated monopolies of the past, competitive telecommunications firms are not guaranteed an opportunity to earn a fair return. Instead, efficient economic markets demand that each player be forced to do its best to provide efficiently produced, competitively priced, high–quality service. The competitive process that the Telecommunications Act envisages does not imply that all competitors, new or existing, will succeed. The unbundling process should not be used to ensure the success of any individual competitor in any individual geographic market and certainly should not be used to guarantee the success of all competitors in the marketplace.[128]

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128. *See generally* J. Gregory Sidak & Daniel F. Spulber, *Deregulation and Managed Competition in Network Industries*, 15 YALE J. ON REG. 117 (1998).

71. The central principle underlying the implementation of the "necessary" and "impair" decision making process thus should not lie on the impact of unbundling any given network element on an individual competitor but rather on its impact on competition and market power. Whether or not an individual competitor is able to stave off competitive losses with or without unbundling is not an appropriate criterion or standard. If, on the other hand, one or more competitors are affected adversely, and that, in turn, leads to a significant reduction in competition in the marketplace for end-user services, then unbundling may be appropriate under the Telecommunications Act.

72. Indeed, all firms in the telecommunications industry are not alike. They differ in many respects, including their starting places in the competitive battle, their abilities to raise capital, their efficiency in building facilities, and their managerial competence. It cannot be expected that all firms can or should succeed. Focusing on competition rather than individual competitors will obviate making individual firm assessments in determining the necessity of unbundling particular network elements.

73. Also, in concert with the geographic and temporal aspects discussed above, a competitor's losses in specific geographic areas are similarly irrelevant except to the extent that competition is materially affected in that area. That fact underscores the need to recognize the importance of the geographic dimension of competition and, hence, of mandatory unbundling. As in antitrust law, it is not the injury to competitors that matters. Instead, the injury to competition should serve as the necessary test before unbundling is required.

### B. The Issue Is Not Whether the ILECs Will Unbundle Their Network Elements for Use by CLECs, but Whether the Government Will Compel the ILECs to Do So at TELRIC Prices

74. A decision by the Commission not to impose mandatory unbundling of a particular network element at TELRIC rates would not imply that that network element would be generally unavailable to competitive carriers. The pricing of access and the "necessary" and "impair" standards governing which elements to unbundle are inseparable, as one of us wrote in 1997: "[T]he pricing of network access is inextricably linked to the scope of mandatory unbundling. One cannot say whether or not a particular unbundling obligation is just and reasonable unless one knows how the regulator will permit the incumbent firm to price the mandatory network access associated with that obligation."[129] The Commission's *Second Further Notice of Proposed Rulemaking* confirms that assessment. Nothing prevents voluntary negotiations between incumbents and competitors on the terms of unbundling.[130] In fact, ILECs have a strong incentive to sell unbundled elements to competitors at market-determined prices. Increased usage by the CLEC's customers and innovative services developed by the CLEC itself represent a positive externality (or, "network effect") that will be enjoyed by the ILEC and all its customers on the network. Furthermore, the regional Bell operating companies (RBOCs) remain obligated to unbundle loops, local switching, and local transport at market prices to comply with the competi-

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129. *See* SIDAK & SPULBER, *supra* note 7, at 565; *see also* Sidak & Spulber, *Givings, Takings, and the Fallacy of Forward-Looking Costs*, *supra* note 5, at 1163.

130. The recent consolidations in the CLEC industry (for example, the merger of MCI and WorldCom) would serve as a countervailing source of market power in any voluntary negotiation. For a review of the recent mergers in the CLEC industry, see Perrin Sterling, *The CLEC Market: Prospects, Problems, and Opportunities*, TELECOMMUNICATIONS INT'L, Nov. 1, 1998, at 41.

tive checklist that is a prerequisite, under section 271 of the Telecommunications Act, for an RBOC's entry into in-region interLATA services.[131]

## C. The Social Costs of Mandatory Unbundling May Outweigh the Gains

### 1. Mandatory Unbundling Imposes Social Costs by Distorting the Investment Incentives of Both ILECs and CLECs

75. Mandatory unbundling is nothing more than a form of compulsory sharing. In the telecommunications industry, mandatory unbundling can impose social costs by distorting the incentives of both incumbents and entrants. Disincentive effects on incumbents are substantial because those firms are continuing to make large, sunk investments in their existing networks. As noted in Part I, Justice Breyer explained in *Iowa Utilities Board* the importance of such incentives: "Nor can one guarantee that firms will undertake the investment necessary to produce complex technological innovations knowing that any competitive advantage deriving from those innovations will be dissipated by the sharing requirement."[132]

76. Regulatory use of cost-based rates (such as TELRIC) creates disincentives for new investment and for innovation in telecommunications.[133] If the new investment succeeds, the CLEC can purchase the ILEC's unbundled element at cost, as set by TELRIC. If the new investment fails, the CLEC does not bear any of the cost, but the ILEC's shareholders bear the

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131. 47 U.S.C. § 271(c)(2)(B).

132. *Iowa Utilities Board*, 119 S. Ct. at 721 (Breyer, J., concurring in part, dissenting in part) (concurring).

133. *See* SIDAK & SPULBER, *supra* note 7, at 403–26, 545–51. For a discussion of the important gains that have been realized by innovation in the Internet, see Jerry Hausman, *Telecommunications: Building the Infrastructure for Value Creation, in* SENSE AND RESPOND 63 (S. Bradley & R. Nolan eds., Harvard Business

cost of the unsuccessful investment. Thus, the regulators force the incumbent to provide CLECs a *free option* on its investment. Modern economic and finance theory demonstrates the value of options,[134] including call options, which are options to buy an asset.[135] By the principle of "conservation of value" in finance, the Commission's grant of a free option to a CLEC diminishes the expected return of an ILEC's investment by the value of the option given to the CLEC. Thus, the grant of the option decreases the ILECs' incentives to invest.[136] Regulatory reliance on TELRIC pricing causes those free options to be given to competitors at the expense of the incumbent. Even if such an option is never exercised, it nonetheless represents for the CLEC a thing of considerable value, procured for the CLEC's advantage by the government through involuntary exchange. The result is a level of investment and innovation by the ILEC that falls below the economically efficient level. New services will then be provided at less than economically efficient levels, and consumers and businesses will be made worse off.[137] Thus, the "necessary" and "impair" standards should not be applied to new network service elements, or else diminished competition and decreased consumer welfare will result.

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School Press 1998).

134. *See* AVINASH K. DIXIT & ROBERT S. PINDYCK, INVESTMENT UNDER UNCERTAINTY (Princeton University Press 1994); Fisher Black & Myron Scholes, *The Pricing of Options and Corporate Liabilities*, 81 J. POL. ECON. 637 (1973).

135. *See*, e.g., WILLIAM F. SHARPE, INVESTMENTS 471 (Prentice-Hall, Inc. 3d ed. 1985).

136. For a discussion of conservation-of-value principles, see RICHARD A. BREALEY & STEWART C. MYERS, PRINCIPLES OF CORPORATE FINANCE 400-01 (McGraw-Hill 4th ed. 1991).

137. For a discussion and estimation of particular cases where regulation costs U.S. consumers and businesses billions of dollars because of regulatory delay of new services, see Hausman, *Valuing the Effect of Regulation on New Services in Telecommunications*, *supra* note 11.

77. For example, consider R&D and investment in new services. Many new telecommunications services do not succeed.[138] For example, new information gateway services, which were unsuccessfully offered by ILECs, required substantial sunk costs of development because the cost of creating the large databases necessary to provide such service is substantial. Since the FCC's adoption of its *Local Competition First Report and Order* in 1996, if a new service is successful, under TELRIC price regulation, an ILEC competitor can buy the service at its total service long-run incremental cost (TSLRIC). For a successful new service, the ILEC recovers at most its cost. For unsuccessful services, the ILEC recovers nothing and loses its sunk investment.[139] Thus, the TELRIC regulation is analogous to a rule that would require pharmaceutical companies to sell their successful products to their generic competitors at incremental cost and would allow the pharmaceutical companies to recover their R&D and production costs on their successful new drugs, but to recover nothing on their unsuccessful attempts.

78. This truncation of returns, where a successful new telecommunications service recovers its cost (but no more) and unsuccessful new services recover nothing, decreases economic incentives for innovative new services from regulated telecommunications companies. Thus, the tighter is the cost standard, the lower are the incentives to innovate, as one would expect. More important, as the returns to the innovation become more uncertain, the expected return and the incentives to innovate also decrease. (At the same time, under standard option theory, the value of the option implicitly granted to the CLEC rises dramatically, for it is driven by

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138. *See, e.g.,* A Michael Noll, *Anatomy of a Failure: Picturephone Revisited,* 16 TELECOMMUNICATIONS POL'Y, 307 (1992); A Michael Noll, *Conspicuous (Lack of) Consumption,* TELE.COM, Feb. 8, 1999 (discussing Picturephone).

the standard deviation of returns to the optioned network element, which rises with uncertainty.) If the cost-based rate of the unbundled elements corresponding to the new service were set exactly at the cost of providing the new service, with no return to R&D costs and no reward to uncertainty, then regulation would completely eliminate the economic incentive to provide the new service, because the expected return to the ILEC would *always* be negative. Thus, regulation would lead to decreased introduction of new services, decreased investment, decreased innovation, and decreased consumer welfare.[140]

79. Consumers also suffer from the effect of unbundling on the incentives of entrants. If there is no existing alternative supply for a network element, but much potential supply, then unbundling will reduce the incentives for alternative suppliers to enter the fray. Conversely, forbearing from unbundling will increase the opportunities for entrants, promote facilities-based competition, and promote diversity for innovation, choice, and product diversification. In addition, unbundling could cause an already present CLEC to exit. In May 1997, the Canadian Radio-television and Telecommunications Commission (CRTC) adopted an unbundling policy that is

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139. *See* Jerry Hausman, *Regulation by TSLRIC: Economic Effects on Investment and Innovations*, MULTIMEDIA UND RECHT, Mar. 1999, at 22; *see also* SIDAK & SPULBER, *supra* note 7, at 375.

140. As noted in Part I, Justice Breyer warned of this perverse outcome:

> Nor can one guarantee that firms will undertake the investment necessary to produce complex technological innovations knowing that any competitive advantage deriving from those innovations will be dissipated by the sharing requirement. . . .
>
> Nor are any added costs imposed by more extensive unbundling requirements necessarily offset by the added potential for competition. Increased sharing by itself does not automatically mean increased competition. It is in the *un*shared, not in the shared, portions of the enterprise that meaningful competition would likely emerge. Rules that force firms to share *every* resource or element of a business would create, not competition, but pervasive regulation, for the regulators, not the market place, would set the relevant terms.

*Iowa Utilities Board*, 119 S. Ct. at 753–54 (Breyer, J., concurring on "necessary" and "impair") (emphasis in

responsive to such concerns, when (in contrast to the FCC's *Local Competition First Report and Order*) the agency ordered that Canadian ILECs "should generally not be required to make available facilities for which there are alternative sources of supply or which [competitive local exchange carriers] can reasonably supply on their own."[141] Mandatory unbundling in Canada extends only to the ILEC's "essential" facilities.[142] As the CRTC well understood, compulsory unbundling requirements can deprive facilities-based entrants of opportunities to share costs, achieve efficient scale, and maximize utilization of zero marginal cost and/or sunk infrastructure.

### 2. The "Impair" Standard Cannot Be Satisfied Simply Because Implicit Subsidies Are Removed from Regulated UNE Prices

80. Regulated prices that are set on the basis of TELRIC confer implicit subsidies to those who purchase unbundled network elements.[143] That point has already been made, as well as its negative implications for efficiency, competition, and innovation. Those highly favorable prices encourage the use of and reliance on unbundled network elements of the incumbent and discourage the use of and investment in competitors' own facilities. The availability of those UNEs at inefficiently low prices not only attracts firms that could have deployed their own facilities, but also induces firms that could not have efficiently entered or expanded in the marketplace to do so. The subsidized prices shield inefficient entrants from facing the true economic prices they would otherwise be forced to face.

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original).

141. Local Competition, Telecom Decision CRTC 97-8, at ¶ 74 (Canadian Radio-television & Telecommunications Comm'n May 1, 1997).

142. *Id.*

143. *See* SIDAK & SPUBLER, *supra* note 7, at 410-12.

81. An issue arises if those subsidized prices are subsequently brought up to market-based, efficient levels. Clearly, as markets become increasingly competitive, any network elements that are required to become unbundled may not continue to face that requirement at some point in the future. When prices are allowed to rise to efficient levels, whether by market forces or by regulation, those marginal firms may well incur financial difficulties, at least with respect to the purchase of certain UNEs. Any such difficulties should not be considered in determining whether the "impair" standard has been met. Surely, the Telecommunications Act does not intend any such result. If that measure of "impairment" were entertained, it would suggest that unbundling should be used indefinitely to support inefficient producers of telecommunications services. Such an outcome would be contrary to the interests of competition, consumer welfare, and the public interest.

82. The need to ignore the effects of the removal of subsidies from unbundled element prices further underscores the need to focus on competition and not on individual competitors. Assuming that all new competitors in the marketplace are not inefficient (a result that would imply the existence of a natural monopoly), there is no need to assess the effect at the individual firm level. Rather it will suffice to concentrate on competition in the market, appropriately defined.

### 3. The FCC Has Recognized the Negative Effect of Aggressive Unbundling

83. The FCC itself has explicitly recognized the disincentive effect of mandatory unbundling on investment in its 1998 *Advanced Services Notice of Proposed Rulemaking*.[144] In its

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144. *See* Deployment of Wireline Services Offering Advanced Telecommunications Capability, Memorandum Opinion and Order and Notice of Proposed Rulemaking, CC Dkt. Nos. 98–147, 98-11, 98-26, 98-32, 98-15, 98-78, 98-91, 13 F.C.C. Rcd. 24,011, 24,055-59 at ¶¶ 95-100 (1998) [hereinafter *Advanced Services NPRM*].

1999 *Second Further Notice of Proposed Rulemaking* on unbundling, the Commission discusses the ability of competition among carriers to develop and deploy new advanced services.[145] In the same paragraph, the Commission states, without any apparent awareness of its self-contradiction, that it is critical that the "marketplace for these services be conducive to investment, innovation, and meeting the needs of consumers."[146] The Commission then states that the unbundled elements shall be offered at cost-based rates.[147] If the Commission makes the "necessary" and "impair" standards responsive to individual competitors and not to competition, it will create economic *disincentives* for investment, innovation, and meeting the needs of consumers. Consistent with this analysis, the social costs of unbundling owing to the disincentives for incumbents and entrants to invest should be incorporated into the overall welfare analysis that guides any mandatory unbundling standards that the FCC formulates for interpreting section 251(d)(2).

### D. The "Necessary" and "Impair" Standards Should Not Rest on an Economic Misconception of Sunk Costs in Local Telecommunications

84. The concepts of "necessary" and "impair" cannot usefully be analyzed without recognizing the central role of prices and costs in telecommunications. As we shall explain in greater detail in Part III, within the essential facilities doctrine, costs have a primary role in that an essential facility "cannot be economically duplicated." Thus, as Justice Breyer noted, if the Commission establishes a pricing rule for unbundled elements that is uneconomically low, it can incorrectly make an unbundled element appear to be "necessary" or "essential" for competition, because a CLEC will not be able to self-provision the element at a cost near the Commission's

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145. *SFNPRM*, *supra* note 1, at ¶ 3. This passage is the *only* reference to investment or innovation in the entire *Second Further Notice of Proposed Rulemaking*.

established price of the unbundled element. Nor would the CLEC be able to buy the use of the element from another provider at a price near the Commission-set price because of the uneconomically low price that the agency has set. Thus, the "necessary" and "impair" standards cannot be considered as a legal doctrine in isolation from the basic economics and technology underlying the network and the Commission's approach to establishing the price of unbundled elements.

85. The economic distinction between unbundled elements that require only a fixed–cost investment, as opposed to a sunk-cost investment, has an important role in both the "necessary" and "impair" standards and the essential facilities standards.[148] A fixed-cost investment may require a significant expenditure of capital, but it does not necessarily lead to an element meeting the "necessary" and "impair" standards. Capital markets work well in the United States, so CLECs can always raise the necessary capital for an investment in a fixed-cost element. The essential economic feature of a fixed-cost investment is that if the project does not succeed, the capital equipment can be used in alternative projects. For example, a switch, along with its associated software, is largely a fixed-cost investment. Although the cost of a switch is significant, if the CLEC fails to gain sufficient business to be successful, the CLEC can sell the switch and software. Thus, a switch and the associated software cannot lead to an element satisfying the "necessary" or "impair" requirement of section 251(d)(2) because a CLEC would not be at a significant economic disadvantage if it did not have access to the *ILEC's* switches.

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146. *Id.*
147. *Id.* at ¶ 4.
148. The FCC requests an analysis of the effect of sunk costs in defining the "necessary" and "impair" standard. *SFNPRM*, *supra* note 1, at ¶ 26.

86. Sunk-cost investments differ from fixed-cost investments because the capital cannot be recovered from a failed sunk-cost investment. Thus, most of the invested capital cannot be shifted to an alternative project.[149] Residential loops provide an example of a sunk-cost investment. Large sunk-cost investments can also provide one of the necessary conditions to establish the existence of an essential facility, because it may be uneconomic for the CLEC to attempt to duplicate large sunk-cost investments given the high degree of risk involved. The *Second Further Notice of Proposed Rulemaking* ignores the relevance to mandatory unbundling of an ILEC's sunk investment in a network element. Paradoxically, the FCC's sole concern over sunk costs is their effect on CLECs—whether sunk costs "would be incurred by requesting carriers if they were to obtain the network elements through self-provisioning or from other sources outside the incumbent LEC's network (*e.g.*, those costs associated with entry that are not fully recoverable if the requesting carrier exits the market)."[150]

## E. The Commission's Own Policies May Exaggerate the Apparent Justification for Mandatory Unbundling

### 1. The Commission's Unbundling Policy Confers a Valuable Option on the CLEC

87. If the Commission requires an ILEC to unbundle, at a TELRIC price, a network element that has a significant sunk cost, the agency is compelling the ILEC to provide an option to the CLECs, as one of us has previously explained.[151] The CLEC can decide to invest in its own

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149. *See* SIDAK & SPULBER, *supra* note 7, at 78–82.
150. *SFNPRM*, *supra* note 1, at ¶ 26.
151. *See* Hausman, *Valuing the Effect of Regulation on New Services in Telecommunications*, *supra* note 11; Hausman, *Regulation by TSLRIC*, *supra* note 139.

facilities or to buy the use of the unbundled element from the ILEC. If the element arises from a sunk and irreversible investment, the option is valuable because the CLEC need not take the risk of investment but instead can cause the ILEC to take that risk. For the example of investment in a residential loop, significant risk exists currently that over the next twenty years (or the economic lifetime of a residential loop) that wireless competition or cable competition may cause the prices of services offered over residential loops to decrease significantly. Even more drastic, in twenty years copper-based residential loops may not even be in widespread use because wireless "loops" may prove to be significantly less costly or the broadband feature of cable television networks may cause demand to shift away from copper-based ILEC loops.[152] If a CLEC buying an unbundled sunk-cost element from an ILEC were required to sign a contract for the economic life of the investment (say, twenty years), then the CLEC would not receive a "free option" from the ILEC.

88. But the Commission's current pricing policy of using TELRIC for mandatory unbundling neither requires a CLEC to sign a contract for the economic life of the element nor provides the ILEC a markup to pay for the economic value of the option that regulators compel it to issue. Thus, CLECs can argue correctly that access to unbundled elements is necessary for all sunk-cost elements because competitive supply of those elements will not arise. The competitive supply will not arise because the Commission has set an uneconomically low price for the element that does not recognize the sunk-cost nature of the required investments. If ILECs are required to

152. Of course, digital subscriber line (DSL) technology may allow for broadband to be offered over ILEC loops. The point is that the technological evolution of competition is sufficiently uncertain to make investment in sunk-cost elements very uncertain.

supply unbundled elements at prices below economic costs, they will be elements that (erroneously) satisfy the "necessary" and "impair" requirements of section 251(d)(2). Those UNEs will appear to satisfy the statutory test not for correct economic reasons, but because the Commission will have cut off any prospect of facilities-based competition through its pricing policies.

89. During the 1996 interconnection proceedings, in response to testimony on the effect of sunk and irreversible investments in setting economically efficient unbundled element prices, one IXC claimed that many of the ILEC's elements were *not* sunk investments. Thus, the investment would be fixed, but not sunk and irreversible.[153] As we discussed above, if an investment in an unbundled element is fixed but not sunk, the element cannot satisfy either the "necessary" or "impair" requirement. A CLEC can always raise the necessary investment funds in the capital markets and begin competing. If the CLEC is unsuccessful, the CLEC can always resell, without a significant economic loss, the capital equipment in which it invested. Thus, to the extent that at least one IXC previously has claimed (through its sponsored affidavits) that specific elements are not the result of sunk investment, those elements cannot satisfy the "necessary" and "impair" requirements. Only an element necessitating a sunk investment can do so.

### 2. The Commission's Regulated TELRIC Prices Artificially Reduce a UNE's Price Elasticity of Derived Demand

153. *See Local Competition First Report and Order*, *supra* note 8, 11 F.C.C. Rcd. at 15,826 n.1562 (discussing response of Jerry A. Hausman to filing of Glen Hubbard and William Lehr on behalf of AT&T Corp.).

90. Regulators distort the apparent need for mandatory unbundling when they force an ILEC to lease a network element at TELRIC rather than at a price that incorporates the full option value conferred on the CLEC. Any UNE priced below its full option value will exhibit artificially higher demand than would obtain at a price that incorporated that option value. If the demand curve for the element is linear, then demand will be observed at the more price-inelastic portion of the demand curve. Thus, asking whether competitors would substitute away from consumption of the element if the ILEC attempted to impose a nontransitory price increase of nontrivial magnitude will automatically lead to a misdiagnosis of market power, for the elasticity calculation would be made with respect to a starting point that is, by regulatory distortion, too far down the demand curve.[154]

91. Antitrust lawyers and economists will recognize that analytical refinement to be the converse of the error in the *Cellophane* case, where the cross-price elasticity of demand was evaluated at the putatively higher monopoly price.[155] In *Cellophane*, that error falsely overstated the product's cross-price elasticity of demand *at the competitive price*.[156] In the case of the FCC's mandatory

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154. A technical caveat is necessary here. In the case of an isoelastic demand curve, such as one associated with a Cobb-Douglas utility function, the price elasticity of demand is constant at all points along the (nonlinear) demand curve. *Cf.* JAMES A HENDERSON & RICHARD E. QUANDT, MICROECONOMIC THEORY: A MATHEMATICAL APPROACH 111-13 (McGraw-Hill, Inc. 3d ed. 1980) (discussing constant elasticity of substitution of the Cobb-Douglas production funtion). Even in such a case of an isoelastic demand curve, however, it is still true that the FCC, by setting too low a price for the UNE, would suppress competitive supply of that element. As will become clear from our discussion in Part III.B.3, *infra*, that regulatory distortion would make it more difficult for the ILEC to meet the "critical share" calculation that would establish that the ILEC could not impair competition in the market for telecommunications services sold to end-users by declining to lease a particular network element to a CLEC at a TELRIC price.

155. United States *v*. E.I. du Pont de Nemours & Co., 351 U.S. 377, 404 (1956).

156. In the *Cellophane* case, the government claimed that du Pont was exercising unilateral monopoly power over food wrappings. By allegedly increasing the price of Cellophane to monopoly levels, du Pont caused competitors to supply, and consumers to buy, other wrapping materials. The government claimed that such supply and demand substitution did not prove that Cellophane would exhibit significant cross-price elasticity at a *competitive* price. *See* RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 127–28 (University of Chicago Press 1976).

unbundling of network elements at TELRIC prices, a "reverse *Cellophane"* problem arises: The FCC's failure to evaluate the price elasticity of demand for that element at a price that would cover the element's full option value would falsely understate the element's price elasticity of demand—and hence the true measure of its degree of "impairment" for purposes of section 251(d)(2)—*at a competitive price*. Simply put, an element that is unnecessary for the competitive supply of telecommunications services can be erroneously made to appear to satisfy the "impairment" standard for purposes of section 251(d)(2) as long as the ILEC is obliged to sell the unbundled element at an uncompensatory price and the FCC declines to correct for that market distortion.

92. A related implication of that insight is that the FCC can perpetuate the apparent need for its regulatory intervention by predicating its mandatory unbundling rules on determinations of "impairment" that assume that UNE prices are set at TELRIC levels. The regulator's stimulation of excess demand for UNEs thus preordains the result that the network element in question must be subject to mandatory unbundling. The FCC has used that regulatory strategy for years in another context—the regulation of broadcasting. The justification for regulatory intervention into the market structure and conduct of broadcasters was the putative "scarcity" of spectrum, which the FCC itself controlled through its licensing policies. The FCC artificially created excess demand for spectrum by underpricing it (at a zero price) and then justified its intervention as a way to alleviate the consequences of that excess demand. Judge Williams has described this putative spectrum "scarcity" as "an excess of demand over supply at a price of zero."[157] In the same manner, the pricing of UNEs according to the FCC's *Local Competition First Report and Order* would exaggerate the demand for,

157. Time Warner Entertainment Co. v. FCC, 105 F.3d 723, 724 (D.C. Cir. 1997) (Williams, J., dissenting

and hence the evident "necessity" of, the FCC's order of mandatory competitor access to those UNEs at regulated prices.

### 3. The FCC Endogenously Determines the Substitutability of Wireless Access for Wireline Loops Because of Its Control over Spectrum Allocation

93. Because the Commission controls the amount of spectrum that is allocated to commercial uses, the agency also controls the availability of alternative supply of telecommunications services. The amount of spectrum potentially available to wireless competitors could increase substantially beyond the current 180 MHz allocated to cellular, personal communications services (PCS), and enhanced specialized mobile radio (ESMR) spectrum. For example, the lower eighty blocks of ESMR spectrum remain to be auctioned.[158] Similar to its underpricing of UNEs, the Commission's spectrum policy may exaggerate the apparent justification for mandatory unbundling. This regulatory distortion is significant because, as we discuss in Part III, the availability of substitute offerings at the end-user level, such as wireless local loops, constrains the ability of the ILEC to exercise market power and hence protects consumer welfare.

## III. LIMITING PRINCIPLES INHERENT IN THE ESSENTIAL FACILITIES DOCTRINE AND IN THE COMPETITIVE ANALYSIS OF DEMAND AND SUPPLY SUBSTITUTABILITY

94. Our definition of "necessary" and "impair" relies on the competitive analysis of demand and supply substitution that provides the primary basis for other areas of regulatory economics and provides the analytical basis for modern antitrust jurisprudence. In this Part, we first review the

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from the denial of rehearing *en banc*).

158. In phase I of the ESMR auctions, the Commission licensed the upper 200 blocks of ESMR spectrum. In phase II, the Commission will auction the lower 80 blocks. FEDERAL COMMUNICATIONS COMMISSION SPECIALIZED MOBILE RADIO (SMR): SMR UPPER 200 FACT SHEET (available at http://www.fcc.gov/wtb/ auctions).

logic and limits of the essential facilities doctrine and examine its empirical implications with respect to defining relevant markets in both geographic and temporal dimensions.[159] Next, we apply that understanding of antitrust analysis to define our test of "impairment." We then extend our analysis to define "necessary" for purposes of section 251(d)(2). Finally, we discuss how related policies of the Commission may distort the conclusions derived from any application of the essential facilities doctrine or market power analysis to mandatory unbundling.

## A. The Logic and Limits of the Essential Facilities Doctrine

95. The federal courts first applied the essential facilities doctrine to telecommunications networks in *MCI Communications Corp.* v. *American Telephone & Telephone Co.*[160] There, the Seventh Circuit refined the essential facilities doctrines into a four-part test that requires the plaintiff to show

(1) control of the essential facility by a monopolist;

(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.[161]

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159. The following discussion directly responds to the FCC's request for "comment on the significance of the essential facilities standard under section 251(d)(2)." *SFNPRM*, *supra* note 1, at ¶ 21; *see also id.* at ¶¶ 22-23. Of necessity, our discussion here treats in summary fashion a topic that merits lengthier analysis. For a thorough and up-to-date examination, see Lipsky & Sidak, *supra* note 6.

160. MCI Communications Corp. *v.* American Tel. & Tel. Co., 708 F.2d 1081 (7th Cir. 1982), *cert. denied*, 464 U.S. 891 (1983).

161. *Id.* at 1132–33.

Inherent in the concept of an "essential facility" is the premise that the owner of that facility possesses monopoly power. The first two elements of the doctrine incorporate that recognition in a variety of ways. First, some degree of uniqueness and market control is inherent in the term "essential." Second, the inquiry regarding the impracticability of duplication ensures that the doctrine will apply only to facilities for which no feasible alternative exists or that cannot be reasonably reproduced. Finally, the term "facility" itself connotes an integrated physical structure or large capital asset with the degree of cost advantage or unique character that usually confers monopoly power and market control by virtue of its superiority for its intended purposes.

96. Although, as noted by Justice Breyer in *Iowa Utilities Board,* the Supreme Court has never endorsed the essential facilities doctrine,[162] seven Justices nonetheless agreed in that case that the doctrine might be useful, by analogy, as a limiting principle in interpreting the "necessary" and "impair" standards of section 251(d)(2) of the Telecommunications Act.[163] A strength of the doctrine is that is has shown the capacity to screen out a multitude of unmeritorious claims.[164] In that respect, the doctrine plainly rejects the notion, embodied in the *Local Competition First Report and Order,* that the public interest is advanced by the simplistic rule that any compulsory sharing that is technically feasible to order shall be ordered. Indeed, as we shall show presently, the technical feasibility of access is a necessary but not sufficient condition for mandatory unbundling to advance consumer welfare.

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162. *Iowa Utilities Board,* 199 S. Ct. at 753 (Breyer, J., concurring in part and dissenting in part) (concurring).

163. *Id.* at 734–35 (Scalia, J., for the Court); *id*. at 753 (Breyer, J., concurring in part and dissenting in part) (concurring).

164. *See* Lipsky & Sidak, *supra* note 6.

97. It is inappropriate to apply the essential facilities doctrine to circumstances in which the owner of the facility lacks monopoly power in the market for the end service employing the input, because without monopoly power there can be no basis for applying antitrust principles and remedies. Justice Breyer seemed to make that point in *Iowa Utilities Board*:

> [A]lthough the provision describing which elements must be unbundled does not explicitly refer to the analogous "essential facilities" doctrine (an antitrust doctrine that this Court has never adopted), the [Telecommunications] Act [of 1996], in my view, does impose related limits upon the FCC's power to compel unbundling. In particular, I believe that, given the Act's basic purpose, it requires a convincing explanation of why facilities should be shared (or "unbundled") where a new entrant could compete effectively without the facility, or where practical alternatives to that facility are available.[165]

If the facility must compete for users with other products or services that are effective substitutes for access to the facility, the discipline imposed by such competition will suffice to control the conduct of the facility owner.

98. There will, of course, be instances in which the facility in question will be somewhat better than the alternatives, but not so much better as to preclude totally the continued survival of excluded parties. The colorful exchange between Justices Scalia and Souter about ladders and lightbulbs[166] confirmed that the Court in *Iowa Utilities Board* understood this concern in the context of mandatory unbundling of network elements under the Telecommunications Act. It may be difficult indeed to determine whether exclusion from the use of a particular facility will mean inconvenience, extinction, or some intermediate degree of harm to the excluded competitor. The point is not that the judgment as to the magnitude of the competitive disadvantage of

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165. *Id.* at 753 (Breyer, J., concurring in part and dissenting in part) (concurring).
166. *Id.* at 735 n.11 (Scalia, J.) (quoting *id.* at 739 (Souter, J., concurring in part and dissenting in part)

exclusion is simpler in principle with one test instead of another. Rather, the point is that the question of "essentiality" and ease of duplication—measured by either the potential harm of exclusion or the potential benefit of inclusion—is no different from, and ought legally to be the same as, the issue of whether monopoly power is present in the market for the service produced with the allegedly "essential" facility. The focus of courts and regulators should be on whether mandatory access to the facility will enhance the long-term welfare of consumers, regardless of the effect on individual competitors.

99. Because a finding of monopoly power should be a prerequisite to any further inquiry, any market characteristic that prevents the exercise of market power should preclude the application of the essential facilities doctrine. Suppose, for example, that a pipeline is the only means of transporting oil from the field where it is produced to the city where it is consumed. Suppose further that some local topographical feature precludes construction of an alternative pipeline. At first it might appear that the refusal of the pipeline owner to permit competing oil distributors to ship their oil through the pipeline is an act of monopolization by virtue of the essential facilities doctrine. If oil is readily available to the region from another source, however, no monopoly constraint on pipeline output (or enhancement in price) would be rational or, in equilibrium, even possible. Alternatively, there may be an energy source that is a reasonable alternative for consumers of oil. In either case, the consequence would be that no method of transporting oil—regardless of the "facility" by which transport is supplied—could exercise monopoly power. The demand for use of the facility is a derived demand based on the underlying

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(dissenting)).

demand for the end product—in this case, consumers' use of energy.[167] The derived demand for the facility cannot confer greater market power on its owner than exists for the end product for which that facility would be an input. Under those circumstances, there is no basis to apply antitrust enforcement mechanisms because no change in the conduct of the facility owner would increase consumer welfare or improve resource allocation.

100. Facilities with otherwise identical characteristics may have different antitrust obligations, depending on available substitutes for the output of the facility. The only shopping mall in a geographically isolated locality may have antitrust obligations that are not shared by an identical facility in the suburbs of a metropolis. Equally significant, the same facility may have different antitrust obligations depending on the time of the suit. The first shopping mall in a newly developed area may be found to have monopoly power—that is, the facility may be regarded as "essential"—and exclusion of competing retailers may well create liabilities under section 2 of the Sherman Act. The identical shopping mall, however, may lose such antitrust obligations once competing commercial real estate developments have emerged in the natural course of growth and the development of increased commercial real estate capacity. In short, the essential facilities doctrine should be *temporally bounded*, although courts have failed to recognize that requirement.

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167. *See* Hartigan *v*. Panhandle E. Pipe Line Co., 730 F. Supp. 826, 866 (C.D. Ill. 1990) (defining the concept of "derived demand"); United States *v*. Standard Oil Co., 155 F. Supp. 121, 146 (S.D.N.Y. 1957) ("The demand for ocean tankers is a derived demand reflecting changes in the demand for petroleum and its products. An increase in the demand for crude and its products would ordinarily bring an increased demand for ocean tankers and an increase in ocean tanker rates."). The former Interstate Commerce Commission employed such analysis of demand and supply substitution in the 1980s when reforming rate-regulation principles for rail transportation supplied to "captive shippers." *Ex Parte* No. 347 (Sub.-No.1), Coal Rate Guidelines—Nationwide (unpublished

101. The foregoing analysis suggests why, in the vast majority of essential facilities doctrine cases, the federal courts have declined to find the facility in question "essential."[168] That pattern has prompted academic criticism of the essential facilities doctrine, including criticism by one of the present authors.[169] The criticisms of the essential facilities doctrine may reflect two underlying forces, one which is irrelevant to the FCC's interpretation of section 251(d)(2) and the other which underscores the need for a limiting principle.

102. First, remedies in essential facilities cases necessarily require some form of regulation. In other words, by hypothesis no remedy of mandated access can eliminate the underlying monopoly. Once identified, the role of judicial regulation (through consent decree) in essential facilities cases may be judged by the same standards applied to other forms of public control of natural monopolies. The central thesis derived from this analysis is that the wisdom of judicial regulation of essential facilities requires an assessment of the administrative complexity of the relief proposed. But this consideration is not applicable to a regulatory agency like the FCC, which already has the expertise and resources to administer a regime of mandatory access, if one is deemed necessary to impose.

103. The second criticism directed against the essential facilities doctrine concerns the incentives created by the doctrine and their dynamic effect on consumer welfare. As Justice

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decision issued Feb. 8, 1983); Coal Rate Guidelines, Nationwide, 1 I.C.C.2d 520 (1985); *see also* Burlington N. R.R. *v*. ICC, 985 F.2d 589, 595–99 (D.C. Cir. 1993) (Williams, J.).

168. Those decisions are surveyed in Lipsky & Sidak, *supra* note 6.

169. *See id.*; Donald I. Baker, *Compulsory Access to Network Joint Ventures Under the Sherman Act: Rules or Roulette?*, 1993 UTAH L. REV. 999 (arguing that the core conceptual problem with compulsory access orders is that mandating cooperation among businesses is futile); Philip E. Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841 (1990) (arguing that no Supreme Court case has provided a

Breyer noted in *Iowa Utilities Board*,[170] compulsory sharing of property has social costs because it truncates the returns to private investment, especially investment in innovative activity. There are obvious social costs when competitors, like children in a sandbox, are admonished to share. Any case in which the fundamental output of the facility consists of information or any other form of intellectual property seems a poor candidate for application of the essential facilities doctrine. The essential facilities doctrine is, above all, a legal rule of mandatory sharing and compulsory dealings. That characteristic alone is inconsistent with the exclusivity granted to innovators, which government has decided is appropriate to preserve their incentives to create new properties. The essential facilities doctrine, moreover, is most likely to condemn intellectual property in precisely those circumstances in which that result is least defensible: Under the essential facilities doctrine, the more an invention is unique, valuable, and difficult to duplicate, the greater is the obligation to share it. In short, essential facilities principles are inherently inconsistent with intellectual property protection.

104. This consideration regarding intellectual property has direct relevance to the FCC's interpretation of the "necessary" and "impair" requirements. The Telecommunications Act contains this solicitude for intellectual property, for section 251(d)(2) does not mandate the unbundling of a "proprietary" network element unless it satisfies *both* the "impair" standard *and* the "necessary" standard.[171] Furthermore, those two factors are what the Commission shall

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consistent rationale for the doctrine or has explored either the social costs and benefits or the administrative costs of requiring the creator of an asset to share it with a rival).

170. 119 S. Ct. at 753-54 (Breyer, J., concurring in part and dissenting in part) (concurring).

171. For proprietary network elements, the statutory requirement is conjunctive: "necessary . . . *and* . . . impair." 47 U.S.C. § 251(d)(2) (emphasis added).

consider "at a minimum" when deciding whether to mandate unbundling.[172] The FCC's consideration of additional factors in appropriate cases should tighten rather than expand the focus of this authority to mandate unbundling in the public interest.

## B. Deriving the "Necessary" and "Impair" Standards Based on the Lessons of the Essential Facilities Doctrine

### 1. The Standards Should Be Assessed with Temporal and Geographic Specificity

105. The FCC should interpret "necessary" and "impair" with temporal and geographic specificity. The FCC can usefully identify multiple geographic zones for unbundling purposes without imposing a uniform nationwide unbundling rule—let alone a uniform nationwide *presumption* or *outcome*.[173] Without temporal and geographic specificity to its mandatory unbundling rules, the FCC would create a body of law in direct conflict with the antitrust principles that the Court considered relevant to interpreting section 251(d)(2). The resulting vision of competition would at best bear no relation to a rigorous economic understanding of the term "necessary" or "impair" and at worst be affirmatively harmful to consumers.

106. The *Second Further Notice of Proposed Rulemaking*, however, incorrectly concluded that establishment of minimum national unbundling requirements remains valid under the Court's decision in *Iowa Utilities Board*.[174] The FCC could "find nothing in the Supreme Court's decision that calls into question our decision to establish minimum national unbundling requirements." [175] That statement is remarkable because Justice Scalia's reference to supply

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172. *Id.*
173. *Cf. SFNPRM, supra* note 1 (separate statement of Commissioner Powell).
174. *SFNPRM, supra* note 1, at ¶ 14.
175. *Id.*

substitution for the ILEC's network elements presupposes a competitive analysis that must begin by defining relevant product and geographic markets. The references by Justices Scalia and Breyer to the essential facilities doctrine reinforces the premise that competition must be evaluated with respect to a meaningful geographic market. The FCC's tentative conclusion about the need to impose nationwide unbundling requirements is inconsistent with the holding in *Iowa Utilities Board* because that conclusion is inconsistent with the underlying technology used to provide local telephone service and with the analysis in a number of previous Commission decisions.[176] Consider residential telephone service. The basic technology to provide circuit-switched local telephone service to residential customers is essentially the same throughout the United States.[177] But, as discussed in many prior Commission decisions and contained in significant amounts of U.S. telecommunications policy, costs differ greatly among different geographical areas. Since the technology being employed is essentially the same, the conclusion follows that features of the geographical areas lead to the large variation in costs.[178] Indeed, the FCC discusses economies of scale and economies of density that lead to those differences in costs.[179] Those differences in costs would be expected to lead to differences in competition.[180]

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176. *See, e.g.*, Applications of NYNEX Corp., Transferor, and Bell Atlantic Corp., Transferee, for Consent to Transfer Control of NYNEX Corp. and Its Subsidiaries, Memorandum Opinion and Order, 12 F.C.C. Rcd. 19,985, 20,014-19 ¶¶ 49-57 (1997).

177. *See, e.g.*, BELL COMMUNICATIONS RESEARCH, BOC NOTES ON THE LEC NETWORK (Bellcore 1994); BELL COMMUNICATIONS RESEARCH, TELECOMMUNICATIONS TRANSMISSION ENGINEERING: PRINCIPLES (Bellcore 1990).

178. *See, e.g.*, ROBERT W. CRANDALL & LEONARD WAVERMAN, TALK IS CHEAP: THE PROMISE OF REGULATORY REFORM IN NORTH AMERICA 75–85 (Brookings Institution 1995).

179. *SFNPRM*, *supra* note 1, at ¶ 26.

180. Indeed, the definition and geographical scope of the local access and transport areas (LATAs) took account of customer density and its expected effect on long–distance competition. *See, e.g.*, HUBER, KELLOGG & THORNE , *supra* note 71, at 227–34.

107. When the density of customers is high enough and the number of customers is large enough in a given geographical area, the economies of scale and density will either be exhausted or will become sufficiently small so as not to have an economic effect of any significant magnitude. In that situation, an ILEC will not have an economic advantage, and economic analysis leads to the prediction of significant CLEC entry. Indeed, Commissioner Powell correctly recognized the principle that, when competitors already exist in a particular market, other firms would not be impaired in their ability to compete if they do not have unbundled access to the ILEC's network elements, let alone unbundled access at TELRIC prices.[181] Furthermore, that economic analysis is confirmed by the finding that facilities-based CLECs are much more prevalent in urban, high-density areas, than in more rural areas.[182]

108. The employment of a single nationwide standard would be in direct contradiction to the market definition standards found in the Department of Justice and Federal Trade Commission *Merger Guidelines*,[183] which the FCC has used in its own recent merger reviews under the public interest standard of the Communications Act.[184] In terms of geographic market definition, the *Merger Guidelines* ask whether a hypothetical (unregulated) monopolist could impose a "small but significant and nontransitory" increase in price (that is, raise price above competitive levels).[185] That standard is established by determining whether the hypothetical

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181. *SFNPRM*, *supra* note 1 (separate statement of Commissioner Powell).

182. *See* INDUSTRY ANALYSIS DIVISION, COMMON CARRIER BUREAU, FEDERAL COMMUNICATIONS COMMISSION, REPORT—LOCAL COMPETITION 2 (Dec. 1998) [hereinafter 1998 LOCAL COMPETITION REPORT].

183. *Merger Guidelines*, *supra* note 15, at § 1.2.

184. *See, e.g.*, Application of WorldCom, Inc. and MCI Communications Corporation for Transfer of Control of MCI Communications Corporation to WorldCom, Inc., Memorandum Opinion and Order, CC Dkt. No. 97-211, 13 F.C.C. Rcd. 18,025, 18,048-50 ¶¶ 37-39 (1998) (citing *Merger Guidelines*).

185. *Merger Guidelines*, *supra* note 15, at § 1.21.

monopolist would have market power or, alternatively, would be constrained by firms outside the market.[186]

109. In a given geographic market, the correct question is whether an (unregulated) ILEC could exercise market power if it were not required to provide its competitors a given unbundled element at regulated cost-based rates. If other CLECs are already providing competing services using the element, or if the element itself is available from non-ILEC suppliers, then an ILEC could not exercise market power. Provision of the unbundled element by the ILEC would not be necessary for competition in telecommunications services in the given geographic area. Nor would competition be impaired if the ILEC were not required to supply the unbundled element at cost-based rates. It is likely, however, that the outcome of that analysis would differ depending on the particular element and the geographical area under consideration.

110. As an example, consider transport. In a densely settled area with a high population, such as eastern Massachusetts around Boston (the eastern Massachusetts LATA), numerous competitors currently provide transport competition to Bell Atlantic. In rural areas of western Massachusetts, however, competitor provision of transport is considerably less developed. Furthermore, Bell Atlantic's costs of providing local service and transport vary significantly between eastern Massachusetts and western Massachusetts. Thus, hypothetically Bell Atlantic might be able to increase the price of transport in rural areas of western Massachusetts above competitive levels, but it could not do so in eastern Massachusetts. Bell Atlantic's competitors need not provide transport to every location in eastern Massachusetts for transport to be

186. This approach is similar to that found in economics textbooks, *see, e.g.*, CARLTON & PERLOFF, *supra*

competitive. Because Bell Atlantic is required to offer transport under tariff by using nondiscriminatory prices, Bell Atlantic needs to lose only a relatively small share of its overall transport business in eastern Massachusetts for an attempted price increase to be unprofitable. Thus, if competitors offer competitive transport to a sufficient number of locations in eastern Massachusetts, competition will effectively constrain Bell Atlantic's prices. Thus, the added regulatory mandate that Bell Atlantic provide CLECs unbundled transport elements in eastern Massachusetts at TELRIC prices will *not* affect competition. Transport does not meet that interpretation of the "impair" standard in eastern Massachusetts. Thus, as this example illustrates, it will be necessary for regulators to make separate determinations under the "impair" standard for different geographic areas.

111. It is conceivable that a CLEC would argue that its ability to provide an end service to consumers would be impaired for purposes of section 251(d)(2) if the ILEC did not *simultaneously* unbundle a particular element throughout the ILEC's entire service territory. There are two fallacies with such reasoning. First, it presumes that the service territory is identical to the relevant geographic market. That will be a factual question, but in general we observe ILEC service territories spreading over far larger expanses than one would typically regard as a single geographic market for purposes of competitive analysis. Second, the argument misconceives how entry occurs and how much entry is necessary to impart competition to a market. Entrants target their customers, and competition takes *place on the margin*. As our discussion of critical share demonstrates, it is the marginal consumers rather than the inframarginal consumers whose choices

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note 16, at 801-08, and in the legal literature, *see, e.g.*, Landes & Posner, *supra* note 14.

determine the competitiveness of a market. The argument that competition would be impaired unless a CLEC can simultaneously serve *all* consumers, marginal and inframarginal alike, overstates the critical share of the ILEC's customers that is necessary for the CLEC to capture to produce a competitive equilibrium.

112. In summary, whether the FCC should mandate the unbundling of a particular network element in a particular geographic location at a particular time should depend on whether such unbundling is necessary to permit the competitive supply of telecommunications services to end users. The correct meaning of "impair" for purposes of section 251(d)(2) is whether the ILEC's failure to unbundle a particular network element, at a TELRIC price, in a particular geographic location at a particular time would produce an equilibrium supply of telecommunications services that was, relative to the competitive equilibrium, significantly inferior for consumers.

**2. The Standards Should Incorporate Derived Demand**

113. An olive is necessary for a good martini. But that does not make an olive an essential facility, which Rick should be obliged to offer for sale, at cost, to every other saloon keeper in Casablanca. Although a particular network element may be essential to producing a bundle of services in a particular manner, the existence of competition among bundles of services limits the extent to which that element is essential to the competitive supply of telecommunications services. Specifically, the development of wireless voice, data, and vertical services has served to increase the availability of substitutes for wireline access. That reasoning is analogous to the economic concept of derived demand, which has been incorporated in antitrust and regulatory law for many years. In the context of section 251(d)(2), the relevant question is whether competition among bundles of services produces for

a particular network element a sufficiently low level of derived demand that makes it inessential to producing a competitive equilibrium.

114. In the language of economics, "necessity" and competitive "impairment" are given rigorous economic meaning by computing the price elasticity of derived demand for any given unbundled network element. That exercise is a direct application of insights in microeconomic theory that were explicated early in the twentieth century by the great British economist, Alfred Marshall.[187] Later, in his classic text on price theory, the late Nobel laureate George Stigler wrote, "Since the demand for a productive service is indirectly created by the demand for the product in whose production it is used, the demand for the service is said to be a derived demand."[188] Marshall demonstrated (and Stigler reiterated) that the elasticity of derived demand for an input varies directly with (1) the elasticity of demand for the product that the factor produces; (2) the share of the factor in the cost of production; (3) the elasticity of supply of the other factor(s); and (4) the elasticity of substitution between the factor in question and the other factor(s).[189]

115. The application of Marshall's rules of derived demand can illuminate whether the demand for a given network element is so inelastic (that is, the quantity demanded is not sensitive to changes in price) that it could not be considered a necessary element. The availability of close substitutes to traditional wireline service such as wireless applications serves to increase the elasticity of demand for wireline service and hence, by Marshall's first rule, tends to increase the elasticity of demand for *all* of the ILEC's network elements used to produce voice telephony. As

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187. *See* 5 MARSHALL, *supra* note 7, at ch. 6.

188. STIGLER, *supra* note 18, at 252; *see also* THE NEW PALGRAVE, *supra* note 58, at 813 ("the demand for intermediate goods is *derived* from the demand for the final goods they help produce").

wireless prices approach wireline prices, fixed (as opposed to mobile) customers begin to substitute wireless telephones for landline telephones. Some evidence today already indicates an interest on the part of wireless carriers to serve fixed customers. By February 1999, AT&T had begun offering digital wireless service in Plano, Texas, in a package designed to attract customers interested in second lines for their businesses or homes.[190] By offering consumers a $40 monthly package of unlimited local calling bundled with voicemail, caller ID, call waiting, call forwarding, three-way conferencing, and ten-cents-per-minute long-distance service, AT&T has positioned itself to attract second-line customers to its standard wireless service.

116. For ease of exposition, we apply the remaining rules of derived demand to loops in particular. According to Marshall's second rule, the price elasticity of derived demand for a network element should rise as the share of the element in the network costs rises. The intuition is as follows: Suppose that the price of a network element, which represents a large portion of the total costs, doubles. Because the price of total network costs would rise substantially, the demand for additional network services would fall, and hence the demand for unbundled access to that particular network element would fall. An example of a network element that represents a large portion of the ILEC's total network costs is the loop. Thus, Marshall's second rule implies that the price elasticity of derived demand for loops would be larger than for other network elements, *ceteris paribus*, and hence unbundled loops would be less likely to be considered necessary for competition.

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189. Marshall first derived those conditions for the two-factor case, given constant returns to scale. *See* LAYARD & WALTERS, *supra* note 17, at 259.

190. Jennifer Files, *AT&T Tests Mobile Phone Promotion: Plano Plan Casts Alternative to 2nd Home Line*,

117. According to Marshall's third rule, the price elasticity of derived demand for a loop should increase with the elasticity of *supply* of another network element, such as a switch. Intuitively, the more price elastic the supply of switches, the less the price of switches will fall with a given reduction in the quantity of switches employed, and hence the greater must be the reduction in the quantity employed of loops. As other network elements such as switches and network interface devices (NIDs) have become increasingly competitively supplied,[191] Marshall's third rule of derived demand implies that the price elasticity of derived demand for loops should be rising.

118. Finally, according to Marshall's fourth rule, the price elasticity of derived demand for a loop should increase with an increase in the cross-price elasticity of substitution between a loop and other network elements. If network elements are used in fixed proportion, then the cross-price elasticity of substitution between a loop and another network element would be small. In that case, Marshall's fourth rule of derived demand would be the only one of the four rules that does not imply a large price elasticity of derived demand for loops. On the other hand, if technological change permits network elements to be used in variable proportions, substitution will occur across network elements and Marshall's fourth rule of derived demand will have relevance.

### 3. The Relevant Product Market and Critical Share

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DALLAS MORNING NEWS, Nov. 12, 1998, at 1D.

191. For an example of competition in the switching industry, see Susan Breidenbach, *Switching Grows Up: The Entire Report*, Network World, May 4, 1998 (available at http://www.nwfusion.com/news/ 0504switch9.html).

119. The 1992 *Merger Guidelines* specify that relevant markets for merger analysis may be defined for classes of customers on whom a hypothetical monopolist of the merging firms' products would likely impose a discriminatory price increase.[192] Although the DOJ and FTC had attempted before 1992 to define markets on the basis of the feasibility of price discrimination, the explicit endorsement of that approach by the 1992 *Merger Guidelines* has increased use of this practice by those agencies.[193] According to the *Merger Guidelines*, the task of defining the relevant product market when price discrimination is not feasible involves identifying the smallest set of products for which a hypothetical monopolist could profitably raise price a significant amount (typically 5 percent) above the competitive level for a sustained period of time, which is normally assumed to be two years.[194] Thus, under the *Merger Guidelines*, a potential market definition is too narrow if, in the face of a 5 percent price increase, the number of customers who would switch to products outside the "market" is sufficiently large to make the price increase unprofitable.

120. Economists refer to the customers who decide not to purchase the product (or to purchase less of the product) at the increased price as "marginal" consumers. For small price

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192. *Merger Guidelines, supra* note 15.

193. For recent examples of the use of the price discrimination approach of merger guidelines by the FTC in the petroleum market, see William J. Baer, *Prepared Statement of the Federal Trade Commission On the Role of the Commission in Enforcing the Antitrust Laws to Protect Consumers in the Petroleum Industry*, as delivered before the Subcommittee on Energy and Power, House Committee on Commerce (Mar. 10, 1999) (available at http://www.ftc.gov/os/1999/9903/exxonmobiltestimony.htm). For similar use of the *Merger Guidelines* with respect to the airline industry, see Department of Justice, *Comments of the Department of Justice*, Dkt. No. OST-97-2058, *Joint Application of American Airlines, Inc. and British Airways PLC for Approval of and Antitrust Immunity for Alliance Agreement* (May 21, 1998) (available at http://www.usdoj.gov/atr/public/comments/1777.htm).

194. *See Merger Guidelines, supra* note 15, § 1.11. For convenience, we will use the 5 percent level, although for some purposes a 10 percent level may be more appropriate.

increases they switch from the products inside the putative "market." Not all customers, however, are marginal customers. Indeed, in the typical case, most customers would continue to purchase the product despite the higher price because their willingness to pay for the product exceeds the raised price. Economists refer to such customers as "inframarginal" consumers.

121. In the presence of high demand elasticity and high supply elasticity, a firm cannot exercise unilateral monopoly power by attempting to decrease its supply.[195] Demand elasticity is captured by a customer's willingness to switch to competing suppliers as relative prices change. Thus, a broad range of available substitutes would imply a high own-price elasticity of demand. Following the same logic as the market definition criteria, the *Merger Guidelines* provide a concrete test for evaluating the competitiveness of a market as captured in the idea of market power, which is the ability of a single firm unilaterally to increase price above the competitive level for a significant period of time.[196] The *Merger Guidelines* emphasize the own-price elasticity of demand, while other analyses focus on the cross-price elasticity of demand. But the two elasticity measures are closely related.[197]

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195. The importance of demand elasticities and supply elasticities has long been recognized in law and economics as important to assess the possibility of the exercise of unilateral market power. *See* Landes & Posner, *supra* note 14.

196. *See Merger Guidelines, supra* note 15, § 1.11. The other type of monopoly power recognized by the *Merger Guidelines* is coordinated interaction among all suppliers of a product. Such a possibility is not relevant here because competitors of an ILEC have very different cost structures and product offerings. Moreover, it is far-fetched to imagine firms such as AT&T and MCI WorldCom attempting to achieve coordination interactions with the RBOCs and GTE.

197. The own-price elasticity of demand is the percentage change in demand when the product's own price is raised by say 10 percent. The cross-price elasticity of demand is the percentage change in demand in response to the change in a competitor's price by, say, 10 percent. The two elasticity measures are related by the Slutsky equation in economic theory. The share-weighted (negative) own-price elasticity of demand equals the sum of the share-weighted cross-price elasticities of demand. *See, e.g.*, HENDERSON & QUANDT, *supra* note 154, at 22-24.

122. Because competition takes place at the margin, only a small proportion of the ILEC's customers needs to defect to defeat its attempted price increase. In a simple example, it is possible to calculate that necessary proportion. Suppose that an ILEC attempted to increase prices on end-user access by 5 percent. How much traffic would that ILEC need to lose before the increase would be unprofitable? The formula to calculate that "critical share" is:

$$(1 - MC/P)\ Q_1 \leq (1.05 - MC/P)\ Q_2.$$

An important empirical fact for network elements is that fixed costs are a very large component of the overall cost, so that marginal cost is a relatively small component. Assume, for example, that the ratio of marginal cost to price, $MC/P$, is 0.2. Thus, we calculate $Q_2$ to be $0.94Q_1$, so that the critical share is 6 percent. Thus, if the ILEC attempts to raise its price by 5 percent, and if, as a result, it loses more that 6 percent of its traffic, the attempted price increase would be unprofitable and thus unilaterally rescinded.[198]

## C. A Proposed Test for the "Impairment" Standard

123. As our discussion makes clear, the existing essential facilities doctrine sets forth necessary but not sufficient conditions for defining "impairment" under section 251(d)(2).[199] The

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198. For a more extensive discussion of critical share, see Jerry A. Hausman, Gregory K. Leonard & Christopher A. Vellturo, *Market Definition Under Price Discrimination*, 64 ANTITRUST L.J. 367 (1996).

199. We have previously argued that the essential facilities doctrine identifies necessary, but not sufficient, conditions for mandatory unbundling at long-run incremental cost. *See* Hausman, *Regulation by TSLRIC, supra* note 138, at 22 ("Economic principles suggest that only the 'essential facility' elements of the network, which cannot be economically reproduced in the short run by new competitors, should be unbundled by regulation."); Paul W. MacAvoy & J. Gregory Sidak, *What Is Wrong with American Telecommunications?*, MULTIMEDIA UND RECHT, Mar. 1999, at 15, 15 ("Surely it is economic folly to mandate unbundling of any network element that is not 'essential' in the antitrust sense—that is, a network element that cannot be readily duplicated by the entrant or procured at competitive prices from the same vendors who supply the element to the incumbent firm subject to the unbundling obligation."). *See also* Robert W. Crandall, Managed Competition in U.S. Telecommunications 17

complete set of necessary and sufficient conditions includes a fifth requirement, responsive to the explicit text of section 251(d)(2), to address whether the denial of access to that network element at TELRIC prices would impair competition at the end-user level. Our five-part test is as follows:

> The FCC shall mandate unbundling of a network element if and only if
>
> (1) it is technically feasible for the ILEC to provide the CLEC unbundled access to the requested network element in the relevant geographic market;
>
> (2) the ILEC has denied the CLEC use of the network element at a regulated price computed on the basis of the regulator's estimate of the ILEC's total element long-run incremental cost;
>
> (3) it is impractical and unreasonable for the CLEC to duplicate the requested network element through any alternative source of supply;
>
> (4) the requested network element is controlled by an ILEC that is a monopolist in the supply of a telecommunications service to end-users that employs the network element in question in the relevant geographic market; and
>
> (5) the ILEC can exercise market power in the provision of telecommunications services to end-users in the relevant geographic market by restricting access to the requested network element.

It is clear that the FCC's requirement of any "technically feasible" unbundling, articulated in the *Local Competition First Report and Order*, is subsumed within our framework and hence demonstrated as properly being a necessary, but not sufficient, condition for mandatory unbun-

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(AEI-Brookings Joint Center for Regulatory Studies, Working Paper 99-1, Mar. 1999) ("the decision to unbundle everything and to require its leasing at cost-based rates is wildly excessive"). For a similar conclusion by German scholars, applying American antitrust principles to German telecommunications law, see CHRISTOPH ENGEL & GÜNTER KNIEPS, DIE VORSCHRIFTER DES TELEKOMMUNIKATIONSGESETZES ÜBER DEN ZUGANG ZU WESENTLICHEN LEISTUNGEN (Nosmos Verlagsgesellschaft 1998); Christoph Engel, *Der Weg der deutscher Telekommunikation in den Wettbewerb*, MULTIMEDIA UND RECHT, Mar. 1999, at 7, 12–13. As noted earlier, *see* text accompanying notes 140-41 *supra*, Canada employs an essential facilities approach to mandatory unbundling.

dling at TELRIC prices. Moreover, we have rearranged the order of the requirements in increasing degree of evidentiary burden. Stated another way, if a CLEC cannot demonstrate that a network element meets the first requirement, then that element is immediately declared inessential, and society is spared the expenditure of the resources needed to perform the more intensive analysis required in the subsequent parts of the test.[200]

124. To implement the fifth element of our test, one needs to modify the *Merger Guideline*'s test for unilateral market power only slightly to address the relevant question in the *Second Further Notice of Proposed Rulemaking*—namely, whether it would impair competition for an ILEC not to sell a particular unbundled network element to a CLEC at a TELRIC price.[201] Intuitively, our impairment test asks whether the ILEC can exercise market power when restricting access to a particular network element to the CLEC in a particular geographic market.

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200. We focus here on the "impairment" standard. As we shall explain presently, our understanding of the "necessary" standard is that it would raise the bar of our five-part test in cases where the desired element embodied some type of intellectual property to which the ILEC had a legally recognizable form of protection.

201. Assume, as the Telecommunications Act requires (*see* 47 U.S.C. §§ 251(c)(2)(D), 251(c)(3), 252(d)(1)(A)(ii)), that the ILEC must charge nondiscriminatory prices for end-user access. If the hypothetical monopolist has the ability to identify the inframarginal customers, it will have the incentive to charge customers different prices depending on their willingness to pay for the product. Thus, even though the hypothetical monopolist may not find it profitable to raise price 5 percent above the competitive level uniformly across all its customers, it may find it profitable to raise price 5 percent to some of its customers.

Let $c\ (p, u_n)$ be the critical share of customers that the ILEC must lose to deter the ILEC from raising end-user access above $p$ when all elements except the $n^{th}$ network element are available to CLECs at competitive prices. For example, $c(30, 2)$ indicates the critical share of customers the ILEC must lose to deter the ILEC from raising end-user access above $30 when all elements except the second network element are available to CLECs at competitive prices. Additionally, let $q\ (p)$ be the residual demand for end-user access faced by the ILEC for any given end-user access price $p$. We are now ready to state our proposed test for the "impairment" standard of section 251(d)(2):

> **Impairment Test**: Assume within a market that, by regulatory fiat, the ILEC must charge nondiscriminatory prices. The regulator should mandate unbundling of some network element $n$ at its TELRIC price only when $1 - [q\ (1.05p) / q\ (p)] < c\ (p, u_n)$.

Stated another way, if the share of departing ILEC customers, $1 - [q\ (1.05p) / q\ (p)]$, exceeds the critical share that the ILEC can profitably sustain, $c\ (p, u_n)$, then the ILEC could not exercise market power.

If the ILEC cannot exercise market power (in the output market) when declining to offer a particular network element at a TELRIC price, then all of the consumer benefits associated with a competitive outcome have already been secured. Therefore, the regulator should not order the network element in question to be unbundled. In contrast to the method employed by the Commission, our test is focused on protecting competition as opposed to competitors.

125. What market forces may prevent, in general, the ILEC from successfully implementing that price increase? There are at least three such forces. First, if the ILEC attempts to raise the output price, CLECs will find it profitable to increase their supply of the output. CLECs could self-supply the network element in question (for example, switches) or purchase the use of the element from non-ILEC sources (for example, transport). Second, if the ILEC raises price, customers will shift their demand to competing forms of access, such as cable telephony or wireless for residential customers and CAPs for business customers. With its proposed acquisition of MediaOne and TCI and its proposed joint venture with Time-Warner, AT&T has positioned itself to serve 95 percent of all households in the United States. It is not economically rational to claim that AT&T, MCI WorldCom, and all the other CLECs would conspire to keep landline access prices above the competitive level. Thus, the "critical share" analysis described above would indicate that, in many situations, CLECs would find it profitable to replace the ILEC's reduction in supply and thereby defeat any attempted exercise of unilateral market power by the ILEC. Third, falling wireless prices will continue to displace traditional wireline users. Those three constraining forces make it implausible that the ILEC could exercise market power as defined by the *Merger Guidelines*. If market forces can protect consumers from the harms of monopolization, then the Commission should not impose mandatory unbundling.

126. Some might argue that the *Merger Guidelines* approach simply highlights that ILECs have high market shares for certain services, such as residential access. But that reasoning is fallacious. Professor William E. Landes and Judge Richard A. Posner have noted that high market shares in a price-regulated industry are either meaningless from a competitive perspective or indicative of prices that are set at or below marginal cost—that is, at or below the price that would obtain in a competitive equilibrium:

> To the extent that regulation is effective, its effect is to sever market power from market share and thus render our analysis inapplicable. This is obviously so when the effect of regulation is to limit a monopolist's price to the competitive price level. A subtler effect should also be noted, however. Regulation may increase a firm's market share in circumstances where only the appearance and not the reality of monopoly power is created thereby. For example, in many regulated industries firms are compelled to charge uniform prices in different product or geographical markets despite the different costs of serving the markets. As a result, price may be above marginal cost in some markets and below marginal cost in others. In the latter group of markets, the regulated firm is apt to have a 100% market share. The reason is not that it has market power but that the market is so unattractive to sellers that the only firm that will serve it is one that is either forbidden by regulatory fiat to leave the market or that is induced to remain in it by the opportunity to recoup its losses in its other markets, where the policy of uniform pricing yields revenues in excess of costs. In these circumstances, a 100% market share is a symptom of a lack, rather than the possession, of market power.[202]

That assessment is directly relevant to the familiar assertion that an ILEC must possess market power because it has a high share of customers for a particular service. That reasoning is incorrect. Landes and Posner noted that in such a case "the causality between market share and price is reversed. Instead of a large market share's leading to a high price, a low price leads to a large market share; and it would be improper to infer market power simply from observing the

202. Landes & Posner, *supra* note 14, at 975–76.

large market share."[203] The Ninth Circuit well described that relationship when it said: "Reliance on statistical market share in cases involving regulated industries is at best a tricky enterprise and is downright folly where . . . the predominant market share is the result of regulation. In such cases, the court should focus directly on the regulated firm's ability to control prices or exclude competition."[204] Our proposed test for the "impairment" standard would provide that proper focus. Moreover, our "impairment" test would provide the FCC with "a mechanism for removing particular elements from the unbundling requirements" and for declining to subject particular elements to mandatory unbundling in the first place.[205]

### D. A Proposed Test for the "Necessary" Standard

127. As we noted in Part I, the elements of the test for establishing "impairment" are necessary, but not sufficient, conditions for the mandatory unbundling of a network element that is "proprietary in nature." For any element embodying a form of legally protected intellectual property, the "necessary" standard of section 251(d)(2) would apply. For such an element, the Commission should recognize that a heightened standard, beyond impairment of competition, should apply because of the importance to consumer welfare of innovation that leads to the creation of intellectual property and because of the uncertainty of successful outcomes that is inherent in the innovative process.[206] For these purposes, we accept as relevant to section

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203. *Id.* at 976.

204. Metro Mobile CTS, Inc. *v.* NewVector Communications, Inc., 892 F.2d 62, 63 (9th Cir. 1989); *accord*, Consolidated Gas Co. of Fla. *v.* City Gas Co., 880 F.2d 297, 300 (11th Cir.), *vacated and reh'g granted*, 889 F.2d 264 (11th Cir. 1989), *on reh'g*, 912 F.2d 1262 (11th Cir. 1990), *rev'd per curiam on other grounds*, 499 U.S. 915 (1991).

205. *SFNPRM*, *supra* note 1, at ¶ 37.

206. It has long been recognized in the economics literature that the private incentive to innovate is too low

251(d)2) the definition of intellectual property contained in the *Antitrust Guidelines for the Licensing of Intellectual Property*, issued in 1995 by the Department of Justice and the Federal Trade Commission.[207]

128. Although, as noted in Part I, the Commission relied on a dictionary definition for "impairment," it appears to have defined "necessary" without any similar reliance on a dictionary. The FCC stated: "'Necessary' means, in this context, that an element is a prerequisite for competition."[208] The proper dictionary definition of "necessary," however, is considerably more emphatic than the FCC's definition. The *Oxford English Dictionary* gives "necessary" the following primary definition: "Indispensable, requisite, essential, needful; that cannot be done without."[209] Similarly, *Webster's* defines "necessary" as "absolutely required; indispensable."[210]

129. The Commission then compounded its definitional problems by incorrectly subsuming "necessary" within the definition of "impair": "We believe that, in some instances, it will be 'necessary' for new entrants to obtain access to proprietary elements (e.g., elements with proprietary protocols or elements containing proprietary information), because without such elements, their ability to compete would be significantly impaired or thwarted."[211] By principally

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relative to the socially optimal outcome that maximizes consumer welfare even when a patent is granted. *See, e.g,*. JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 389-415 (MIT Press 1988). The Commission will further decrease the already insufficient incentive to innovate if it requires mandatory unbundling of elements based on intellectual property and requires them to be sold at TELRIC-based prices.

207. U.S. Department of Justice & Federal Trade Commission, Antitrust Guidelines for the Licensing of Intellectual Property § 1.0 & n.1 (patents, copyrights, trade secrets, and know-how agreements). The *Guidelines* state: "The intellectual property laws and the antitrust laws share the common purpose of promoting innovation and enhancing consumer welfare." *Id*. at § 1.0.

208. *Local Competition First Report and Order, supra* note 8, 11 F.C.C. Rcd. at 15,641-42 ¶ 282.

209. 10 OXFORD ENGLISH DICTIONARY 275 (Oxford University Press 2d ed. 1989).

210. WEBSTER'S II NEW RIVERSIDE UNIVERSITY DICTIONARY 787 (Riverside Publishing Co. 1988).

211. *Local Competition First Report and Order, supra* note 8, 11 F.C.C. Rcd. at 15,641-42 ¶ 282.

relying on "impairment" to define "necessary," the Commission created a logical circularity that failed to differentiate the two requirements.

130. While our impairment of competition standard is based on the ability of an ILEC to exercise significant market power for a service in the absence of unbundling, in the case of a proprietary element based on intellectual property we recommend a standard that provides for unbundling only if competition is impossible in the absence of unbundling. Thus, an ILEC might retain some degree of market power based on the intellectual property, as currently happens with respect to intellectual property in the rest of the economy.[212] However, so long as competition is possible without the use of the ILEC's intellectual property, economic incentives will exist for ILECs and CLECs to negotiate an agreement over terms, because the ILEC will not be able to control competitive entry into the market for end-user services by means of its control of the intellectual property. We refer to our approach for proprietary elements based on intellectual property as the "absolutely essential" standard because unbundling is appropriate only when the element is truly necessary for competition.

## IV. APPLYING THE PROPOSED TEST FOR "IMPAIRMENT" TO SPECIFIC NETWORK ELEMENTS

131. The consumer-welfare approach described in Part III not only guides our understanding of the "necessary" and "impair" standards, but also lends itself naturally into a decision framework for determining whether a particular network element in a particular market requires unbundling. We now apply our impairment test to the seven network elements in the *Second Further Notice of*

212. *See, e.g.*, David J. Teece & Mary Coleman, *The Meaning of Monopoly: Antitrust Analysis in High-*

*Proposed Rulemaking,* as well as to several additional network elements that embody new technologies or make possible new services. We understand Justices Scalia and Breyer to imply that there this an established body of antitrust case law that provides guidance on the application of the first four parts of our impairment test. Thus we focus primarily on how the fifth part of our test should be applied to network elements. The clear point that emerges from this analysis is that determining whether a particular network element in a particular geographic area actually is an essential facility requires a close empirical investigation based on the specific facts in that geographic market. In the sections that follow, we explain why demand-side constraints on market power apply to all of the ILEC's network elements in general, while supply-side constraints can be analyzed at the level of specific network elements.

### A. Supply-Side Effects Influence the Unbundling of Specific Network Elements

132. From a supply-side perspective, the correct way to assess whether an ILEC has the ability to exercise monopoly power is to ascertain the following: If the ILEC attempted to restrict its supply of a given network element to increase the price of end-user services above competitive levels, would *other providers* increase their supply of that network element or competing network elements sufficiently to defeat the attempted price increase? If competitors have no barriers to expansion or can access the network element from an alternative source, then the ILEC cannot exercise market power in the end-user service market by restricting the supply of a given

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*Technology Industries,* 43 ANTITRUST BULL. 801, 820-22 (1998).

element.[213] Typically, a competitor providing a network element will have no binding capacity constraints, and it will be able economically to increase its supply of a given element at current prices because it already would be supplying the element. Since marginal costs are not increasing for provision of network elements, a firm's current provision of a UNE will demonstrate its ability to expand supply.[214] Thus, for a given network element in which competitive supply exists, an ILEC will be unable to exercise market power in most situations.

133. The Supreme Court ruled in *Iowa Utilities Board* that the Commission needed to consider the availability of network elements from alternative suppliers to the ILEC in determining whether the ILEC's supply of a particular network element met the "necessary" and "impair" standards.[215] Thus, an economic analysis of the expected supply of a given network element would be required for the Commission to make a reasoned determination. Because of the underlying technology of network elements, where fixed costs are high relative to marginal (or variable) costs, the economic incentives for non-ILECs that have entered the market to expand their supply will be very high. With high supply elasticity from competing firms, the ILEC will not likely be able to exercise market power in the supply of network elements.

134. Our impairment test is necessarily stated in the abstract. Regulators attempting to employ our standard, however, may require simple, objective market characteristics that would serve as proxies for constraints on an ILEC's ability to exercise market power. With respect to

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213. The following analysis responds to the FCC's request for "comment on when we should deem a substitute sufficiently available so as to render access to the incumbent's network element unnecessary." *See SFNPRM*, *supra* note 1, at ¶ 21; *see also id.* at ¶ 24 (asking "how the Commission should consider the availability of network elements outside of the incumbent's network").

214. Indeed, marginal costs are either constant or decreasing for most UNEs. Otherwise, we would expect to see numerous small competitors entering the market to supply UNEs.

supply-side substitution constraints, two market characteristics should be incorporated. First, regulators should examine whether a CLEC is self-supplying the element in question in the relevant geographic market. If at least one CLEC is supplying the element in question, the ILEC cannot exercise market power in the end-user services market by restricting access to that element. If the element is not competitively supplied, regulators should next examine the nature of the costs of the network element to determine whether the element *could be competitively supplied* in the short term. In particular, if fixed (as opposed to sunk) costs represent a large share of the total costs of the element in question, then the element should not be unbundled. As explained in Part II, as long as the asset can be redeployed in a different geographic market at little cost, the CLEC will face no exit barriers. Because low exit costs encourage entry, the regulator need not rely on unbundling of that network element to stimulate competition.[216]

135. Furthermore, as a network element becomes competitively supplied, TELRIC pricing better approximates the element's market value. But the proper measure of TELRIC incorporates the value of the option associated with the forward-looking nature of the investment.[217] The competitive price and the element's TELRIC converge to the same value when only fixed cost but not sunk costs are present in the element, because the value of the option under those circumstances converges to zero. Thus, we would predict a socially perverse relationship between the sunk-cost nature of the

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215. 119 S. Ct. at 735.

216. It is well recognized that a barrier to exit becomes a barrier to entry. For a discussion of the absence of exit barriers in the wireless industry because fixed investment is amenable to redeployment by other firms or in other geographic markets, see SIDAK & SPULBER, *supra* note 7, at 78-79.

217. To a limited extent, the Commission recognized this notion of cost in its 1996 interconnection proceeding. *See Local Competition First Report and Order*, *supra* note 8, 11 F.C.C. Rcd. at 15,824-33 ¶¶ 638-52, 15,849-52 ¶¶ 686-95 (discussing testimony of Jerry Hausman). For further discussion, see Hausman, *Valuing the Effect of Regulation on New Services in Telecommunications*, *supra* note 11; Hausman, *Regulation by TSLRIC*,

ILEC's network investment on the one hand, and the CLEC's demand for mandatory unbundling on the other hand. The more likely it is that TELRIC accurately approximates the market-determined price of an unbundled network element, the *less* likely it is that the CLEC will demand mandatory unbundling of that element, because the value of the free option granted to the CLEC by the Commission will be near zero. Conversely, the less likely it is that TELRIC fully compensates the ILEC for the option value of mandatory unbundling of a particular network element when sunk costs are important, the *more* likely it is that the CLEC will demand mandatory unbundling of that element at a TELRIC-based price. This perverse effect flows from the FCC's failure to recognize the substantial option value that is associated with the CLEC's right to compel sharing of the ILEC's sunk investments in network infrastructure. The effect of the option value on the CLEC's demand for mandatory unbundling is in addition to the "reverse *Cellophane*" effect described earlier, which holds whether or not the element in question embodies sunk costs.

### 1. The Supply of Existing Network Elements Listed in the *Local Competition First Report and Order*

136. We now consider how our impairment test would apply to the two most significant of the seven network elements listed in the *Local Competition First Report and Order*. The first such element, local switching, illustrates how our test would apply to an element with primarily fixed but not sunk costs. The second network element, an unbundled loop, involves a relatively greater degree of sunk costs. After we have shown how the analysis would differ between elements depending on their degree of fixed versus sunk costs, we then briefly explain why the remaining five elements would require a regulatory commission to undertake geographically-

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*supra* note 138.

specific fact finding before it could conclude whether or not those elements meet the impairment standard of section 251(d)(2). Recall that in this subsection, we consider only *supply*-side substitution constraints on an ILEC's ability to exercise market power in the end-user services market.

**a. Local Switching**

137. The switch is a telephone company's central computer that processes cross-connections for telephone calls and makes routing decisions based on some parameter, such as the digits dialed by the customer.[218] The nature of costs for switches and the level of competition in their supply indicate, for at least three reasons, that switches should not be unbundled in any geographic market in the United States. First, switches are already competitively supplied. As of March 1999, over one-third of all RBOC and GTE rate centers in the United States were served by at least one CLEC voice switch, and 18 percent were served by at least two CLEC switches.[219]

138. Second, even if one were to assume counterfactually that switches are not competitively supplied, the nature of their costs still indicates that switches should not be unbundled. In particular, switches are highly substitutable across wide geographic areas. If a local switch is combined with digital loop carrier equipment, the switch can provide service to distant customers. At a certain point, the cost of transporting calls to a distant switch becomes more costly than the benefits achieved from the scale economies of increasing the switch load. According to AT&T,

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218. *See* REGIS J. BATES & DONALD GREGORY, VOICE AND DATA COMMUNICATIONS HANDBOOK 31 (McGraw-Hill 1998).

219. PETER W. HUBER & EVAN T. LEO, UNE FACT REPORT, Submitted by United States Telephone Association, and prepared for Ameritech, Bell Atlantic, BellSouth, GTE, and U S West (May 26, 1999). Huber and Leo computed those figures on the basis of Bellcore's *Local Exchange Routing Guide*.

such an arrangement is feasible within a 125-mile radius from the switch.[220] Consequently, the relevant geographic markets for switching are large.

139. Third, it is economical for competitors to self-supply (buy and install) switches across a wide range of geographic areas. As long as a CLEC believes that it can serve the minimum number of access lines needed to operate the switch in an economic fashion, self-supply is a viable alternative. Because there are no barriers to exit in the switch industry, mandatory unbundling of switches would not increase competition and therefore could not improve consumer welfare.

**b. Unbundled Loops**

140. In general, loops are much less substitutable than switching because a large portion of the facility is dedicated to an individual customer, or at least to a specific street or neighborhood, and is costly to redeploy. But in many suburban areas there are facilities-based local competitors for business services. Indeed, unbundled loops for businesses in downtown areas and other areas where CLECs (or competitive access providers, as they were formerly known) provide service cannot satisfy the "necessary" or "impair" standard. Supply-side analysis shows that it cannot impair competition to decline to lease unbundled loops to those firms at TELRIC prices. Over time, those CLECs should spread their service to residential customers as well. In some geographic areas, facilities-based competitors already serve residential customers.

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220. *See* Petition of AT&T Corp. to Deny Application, in the Matter of GTE Corp. & Bell Atlantic Corp. for Consent to Transfer of Control, CC Dkt. No. 98-184, at 24 (Nov. 23, 1998) [hereinafter *AT&T Petition to Deny*]. *See also* Memorandum of Robert H. Bork on behalf of AT&T Corp. at 10 (Apr. 7, 1999).

141. Given the pace of new technology deployment, suburban and even rural markets need to be analyzed on a case-by-case basis to determine whether and where unbundled loops are essential facilities. Even if one considers only the constraints on market power owing to CLEC supply opportunities, unbundled loops may be essential facilities in some markets but not in others.[221] The *Second Further Notice of Proposed Rulemaking*, however, presumes that loops must be unbundled: "It is our strong expectation that under any reasonable interpretation of the 'necessary' and 'impair' standards of section 251(d)(2), loops will be generally subject to the section 251(c)(3) unbundling obligations."[222] If the Commission were to incorporate demand-side substitution possibilities, as we do in the following section, the agency would have to revise its expectation that mandatory unbundling of loops will be necessary.

**c. Other Network Elements**

142. As the preceding discussion shows, the question of whether or not to mandate unbundling of a network element depends on factual questions concerning the level of actual competition in the supply of the requested element and the degree to which the costs of the element are sunk or fixed. The answers to those questions are likely to vary from one geographic market to another for the reasons we have discussed earlier. For four of the five remaining elements—namely, network interface devices (NIDs), interoffice transmission facilities, signaling networks, and operations support systems—the regulatory commission would have to undertake geographically-specific fact finding before it could conclude whether or not those elements are

221. This section addresses only supply-side effects. With respect to demand-side constraints on market power, as soon as AT&T begins to supply cable telephony, unbundled loops should no longer meet the impairment test. At that time, an ILEC should no longer be compelled to supply CLECs unbundled loops at a TELRIC price.

competitively supplied, and if not, whether they could be competitively supplied in a reasonable period of time. Finally, we believe operator services and directory assistance, the remaining element, need not be unbundled in *any* geographic market because they are competitively supplied, as one state PUC recently concluded.[223]

### 2. New Technologies for Which the FCC Potentially Could Mandate Network Unbundling

143. In terms of broadband networks and the services they deliver, market evidence demonstrates that mandatory unbundling of the ILECs' networks is not required to permit competition. Because an ILEC does not have market power in the delivery of broadband services, the network elements that the ILEC uses to supply those services cannot be essential facilities. Competition in broadband services is well underway without any compulsory unbundling of the ILECs' network elements. Indeed, in its 1999 report to Congress on the deployment of advanced telecommunications capabilities, the Commission recognized the current state of broadband competition that exists without any use of ILEC network elements:

> Numerous companies in virtually all segments of the communications industry are starting to deploy, or plan to deploy in the near future, broadband to the consumer market. Current providers include cable television companies, incumbent LECs, some utilities, and "wireless cable" companies.[224]

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222. *SFNPRM*, *supra* note 1, at ¶ 32.

223. In the Matter of Petition of U S WEST Communications, Inc. for Competitive Classification of Directory Assistance Services, Order Granting Petition, Dkt. UT-990259 (Wash. Utils. & Transp. Comm'n Apr. 29, 1999).

224. Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, Report, CC Dkt. No. 98-146, ¶ 12 (released Feb. 2, 1999) [hereinafter *Advanced Telecommunications Capability*].

Because cable companies currently pass more than 95 percent of U.S. homes, it follows that mandatory unbundling of the ILECs' broadband networks is not necessary for competition in broadband services, nor would competition be impaired if the ILECs' broadband networks were not unbundled.

144. Furthermore, although the ILECs' loops in certain geographical areas may be subjected to mandatory unbundling under the impairment standard, as we discussed above, the ILECs' broadband backbone facilities should not be unbundled. Again, the Commission recognized in its 1999 report to Congress that competition is proceeding without mandatory unbundling of the ILECs' broadband networks: "We consider investment in both backbone facilities and the 'last mile.' We find that broadband backbone facilities are being deployed in a reasonable and timely manner."[225] In the same report to Congress, the FCC also observed:

> Deployment of broadband, both backbone and last mile, is occurring on a major scale, for both business and consumer markets. American business and the capital markets are obviously betting that broadband will be successful in the business and consumer markets and many companies are rushing to seize part of that success. We expect that this sizeable investment by numerous companies will translate in the near future into significant deployment of broadband capability.[226]

Regulatory intervention is not required when competition is thriving, and unnecessary regulation can distort otherwise competitive markets. Thus, if the Commission applies to section 251(d)(2) a competition-based consumer-welfare standard as we have urged, and not a competitor-welfare standard, the factual findings in the Commission's own 1999 report to Congress demonstrate that no unbundling of the ILECs' broadband networks should be required.

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225. *Id.* at ¶ 13 (footnote omitted).
226. *Id.* at ¶ 36.

145. Furthermore, mandatory unbundling of the ILECs' broadband networks at TELRIC-based costs would very likely decrease innovation and the introduction of new broadband services to consumers for the reasons that we discussed previously. An ILEC is unlikely to invest in a new broadband service if it knows that the FCC will compel it to sell to its competitors at TELRIC prices the network elements used to supply that service if it proves to be commercially successful. The Commission seems to be oblivious to the impact of mandatory unbundling on ILEC investment in advanced services:

> We also see nothing in the statute or the Supreme Court's opinion that would preclude us from requiring that loops that must be unbundled must also be conditioned in a manner that allows requesting carriers supplying the necessary electronics to provide advanced telecommunications services, such as digital subscriber line technology (xDSL).[227]

The Commission's gift of a free option to CLECs is not costless to society as a whole, for it will decrease innovation and thereby harm consumers, contrary to the explicit goals of the Telecommunications Act of 1996.

### 3. Combinations of Elements

146. Our test can be adapted to treat combinations of elements. The Commission stated in its *Second Further Notice of Proposed Rulemaking* that "[t]he ability of requesting carriers to use unbundled network elements, including combinations of unbundled network elements, is integral to achieving Congress' objective of promoting rapid competition in the local telecommunications market."[228] Our proposed impairment test, as described earlier, supposes that all but a single network

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227. *SFNPRM, supra* note 1, at ¶ 32. *See also id.* at ¶ 34 (seeking comment on whether to "modify the definition of 'loops' or 'transport' to include dark fiber"); *id.* at ¶ 35 (seeking comment on mandatory unbundling of DSLAMs and packet switches).

228. *Id.* at ¶ 2.

element are competitively supplied to CLECs. If the CLEC can demonstrate that the ILEC's restriction of unbundled access to the remaining element at a TELRIC price would allow the ILEC to exercise market power in the output market, then that element should be unbundled at its TELRIC price. Stated differently, our impairment test is conducted on a "stand-alone basis." One may argue, however, that our test does not consider cases where sets of network elements are not competitively supplied. In those circumstances, would competition in the output market be impaired? Two cases need to be considered.

147. First, suppose two network elements failed to meet the impairment test on a stand-alone basis. If it would not impair the competitive supply of telecommunications services for the FCC to refrain from mandating the unbundling of a nonproprietary element, then it necessarily follows that such an element is one that, when assembled with other elements that failed to pass the impairment test on a stand-alone basis, produces a competitive service that the FCC should forbear from regulating entirely. In those cases, the set of network elements should not be unbundled at TELRIC-prices.

148. Second, suppose that one network element, *A*, failed to meet the impairment test on a stand-alone basis, while the restriction of access to another network element, *B*, was shown to impair competition at the output level. The Commission might reason in the following way: Element *A* only failed the impairment test because the CLEC could rely on element *B* in the hypothetical. Recall that all other network elements are assumed to be competitively supplied in the stand-alone test. In those cases, the burden of proof should be on the CLEC to demonstrate that the cost of supplying element *A conditional* on supplying element *B* is sufficiently less than the cost of supplying element *A* alone. If the CLEC could not demonstrate significant cost synergies, then element *A* could not be reclassified as essential.

149. Finally, consider the case of the "UNE platform," where all of the ILEC's network elements are considered simultaneously as an "element" unto itself. The logic developed earlier implies that, as long as any one element of the UNE platform fails to meet the impairment test on a stand-alone basis, then the UNE platform as whole should not be unbundled at TELRIC. The only condition under which the UNE platform should be unbundled at TELRIC prices is when *each* of the elements of the UNE platform individually passes the impairment test on a stand-alone basis. For the reasons discussed above, that condition cannot hold in the face of the clearly competitive supply of elements such as switching and directory assistance.

## B. Demand-Substitution Effects Influence the Unbundling of All Network Elements

150. In contrast to the supply-side effects articulated above, the demand-side effects do not influence each network element on an individual basis. From a demand-side perspective, the correct way to assess whether an ILEC has the ability to exercise monopoly power is to ascertain the following: If the ILEC attempted to raise prices for end-user access while restricting its supply to CLECs of a given network element, would *customers* find an alternative source of acceptable end-user service? Consumers could make that choice without considering whether a particular network element or set of network elements was competitively supplied to CLECs. Any consumer substitution in response to an increase in the price of end-user services constrains the ILEC's market power across all network elements. Demand elasticity at the output level does not differentially affect individual network elements at the input level. Thus it would be unproductive for the Commission to attempt to apply this portion of the impairment test at an element-specific level.

151. It is well known that the price elasticity of demand for any good increases with the availability of suitable substitutes.[229] In recent years, credible substitutes to traditional landline service have begun to emerge, which should increase the price elasticity of demand for traditional voice telephony services. For example, Cox Cable is offering local telephone service over its coaxial cable plant in parts of Orange County and San Diego, California; Phoenix, Arizona; Omaha, Nebraska; Hampton Roads, Virginia; and parts of New England.[230] AT&T's recent purchase of TCI, its bid for Media One, and its alliance with Time Warner would give the firm access to 55 percent of homes in the United States.[231]

152. In addition to cable, wireless technologies are being deployed in an increasing number of geographic areas. For example in Plano, Texas, AT&T's "Wireless Home Phone Option" is designed to compete directly with the local exchange service of the wireline incumbent, GTE. The plan offers unlimited airtime within the fixed local calling area (that is, the home cell site) at a comparable price to GTE's basic service. Also, AT&T is testing a fixed wireless local loop, known as "Project Angel," that is designed to fill in coverage gaps in AT&T's cable network. AT&T can provide users with up to four phone lines, each capable of carrying voice, high-speed data, and video through an antenna-like device installed outside one's house.[232] Wireless local loops are likely to be the preferred access technology in rural areas because they

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229. *See, e.g.*, STIGLER, *supra* note 18, at 24.

230. Alex Best, Senior Vice President of Engineering, Cox Communications, *New Service Rollout–1999: Presentation Before the Fifth Annual Goldman Sachs Communications Technology Retreat* (Mar. 1, 1999) (available at Cox website, Investor Center, http://www.cox.com).

231. Paul Farhi, *AT&T: Too Big Once Again?*, WASH. POST, Apr. 27, 1999, at E01. AT&T would *pass* a much higher percentage of homes.

232. Rebecca Blumenstein, *AT&T Plans to Enter Some Areas Using 'Fixed Wireless' Technology*, WALL ST. J., Mar. 19, 1999, at B6.

are a cost-effective way to transmit signals to remote residences. For example, in Regent, South Dakota, fixed wireless services from Western Wireless allow customers to connect regular home phones into wireless base station units to get competitively priced local and long-distance services while effectively bypassing the wireline local loop.[233] Such developments in the demand substitutability of alternative access technologies provide a clear answer when the Commission, asks in the *Second Further Notice of Proposed Rulemaking*, what is "the relevance, if any, to the interpretation of the 'necessary' and 'impair' standard, that we are reexamining these issues today, more than three years after passage of the Act."[234]

153. The first competitive constraint on any exercise of ILEC market power is cable telephony. Wireless telephony is an additional constraint on market power. Barring any coordinated interaction among firms providing competitive technology platforms, competition in voice telephony should be robust, demand substitutability should be high, and thus little regulatory intervention is warranted.

154. Demand substitution constraints on the ILEC's ability to exercise market power also may come from consumers' demand for bundles of services that include local voice telephony. As the FCC pursues a belief that competition requires extensive mandatory unbundling at TELRIC prices, competitors of the ILECs pursue a business strategy of acquiring (through the capital market) network elements at market prices on the presumption that consumers demand bundled services.

155. It would seem to have been an unstated premise of the FCC's interpretation of the mandatory unbundling provisions in section 251 and 252 of the Telecommunications Act of 1996 that

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233. Joe Gardyasz, *Phone Co–Op Pulls Plug on Wireless Competitor*, BISMARCK TRIB., Jan. 13, 1999, at 5.

those statutory provisions should be read in a demand-substitution vacuum. Although the Telecommunications Act of 1996 ostensibly removed artificial regulatory distinctions based on the particular technology employed to produce a communications service, the administrative rulemakings and federal court litigation that dominated the first three years of experience under the new statute focused on the traditional narrowband wireline access network. Indeed, developments in cable telephony and wireless local loops may soon make the entire exercise of wireline unbundling irrelevant. Yet, from considering the relevance of demand substitution to interpretation of section 251(d)(2), the *Second Further Notice of Proposed Rulemaking* asks whether the FCC should truncate its analysis of all relevant sources of supply substitution.[235] The FCC evidently does not contemplate *any* evaluation of demand substitution whatsoever.

156. It is inconsistent for the FCC to emphasize forward-looking TELRIC costs for pricing unbundled network elements and yet retain a backward-looking view of product definitions and demand substitution for telecommunications services. Put differently, it is not "forward-looking" for the Commission to presume that a current product definition for telecommunications service will remain constant over time, especially when there is strong evidence that the bundling of services may redefine the relevant product market for purposes of competitive analysis. In discussing the problems created by TELRIC pricing for unbundled network elements, one of us observed in 1997:

> Like Janus, regulators alternate between past and future perspectives on markets as doing so serves their purpose. The result, which we call the Janus artifice, is an inconsistent economic analysis of competition and pricing. When evaluating the prospects

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234. *SFNPRM, supra* note 1, at ¶ 14.

235. *Id.* at ¶ 28 (asking "whether and the extent to which the language of the statute and the Supreme Court's opinion constrain the factors that we can or should consider in evaluating the availability of elements outside the incumbent's network").

> for competition, regulators often look to the past, emphasizing the sunk costs of the incumbent LECs and past market share. For pricing purposes, however, regulators look to the future, promoting their notion of forward-looking costs. Regulators can only compound the fallacies inherent in the forward-looking cost approach when they engage in shifts in perspective that are meant to facilitate desired policy outcomes.[236]

In contrast, antitrust analysis implies that the relevant product markets for an end product or an essential facility must be continually revised over time. Given those considerations and given the growth of bundled services successfully offered by the ILECs' competitors, the FCC runs the risk that its unbundling policy will be irrelevant to competition before it is even fully implemented—and thus obsolete and harmful to consumer welfare.

### C. The Relationship between an "Efficient-Competitor" Standard and the Consumer-Welfare Standard

157. We have argued at length that the FCC should use consumer welfare, not competitor welfare, at the touchstone for interpreting the "impairment" standard of section 251(d)(2). That said, suppose that the Commission nonetheless inclined toward a competitor-welfare approach, but attempted to mitigate the harm that such an approach would impose on consumers by mandating unbundling only if the CLEC were deemed to be an *efficient* competitor. In other words, the FCC would ask whether the ILEC's failure to unbundle the network element at a TELRIC-based price would impair an efficient competitor's ability to provide telecommunications services to end users. What would be the practical difference between an efficient-competitor standard and the consumer-welfare test that we propose? How would the FCC or a reviewing court reconcile the two seemingly disparate techniques?

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236. SIDAK & SPULBER, *supra* note 7, at 425.

158. To compare the two approaches, it is useful first to articulate the circumstances under which both standards would produce the same result for a given unbundled network element. Recall that our five-part consumer-welfare standard asks whether the ILEC can exercise market power in the *output* market for end-user services. That is, can the ILEC raise prices in the output market in a nontrivial way for a nontransitory period of time? In contrast, the efficient-competitor standard focuses on competition in the *input* market and asks whether there is a competitive supply of network elements. It is critical to recognize, however, that competition in the output market does not depend solely on the level of competition for one of the inputs. Competition in the input market is a sufficient, *but not necessary*, condition for competition to be effective in the output market.

159. Thus, whenever competition is apparent in the input market for a particular network element, both the efficient-competitor and consumer-welfare standards will indicate that mandatory unbundling would be inappropriate. According to the efficient-competitor standard, a CLEC could, under those conditions, self-supply the network element or purchase it at competitive rates and thereby effectively compete against the ILEC. Similarly, the consumer-welfare standard would indicate that, under those conditions, the ILEC would be constrained from exercising market power in the end-user services market through an attempt to deny a CLEC access to the competitively supplied network element in question.

160. Under other conditions, however, the two standards would produce divergent outcomes. Suppose that within a well-defined geographic market the ILEC is the sole supplier of the network element requested by a CLEC. Suppose further that, within the same geographic market, the ILEC faces intense competitive pressure in the end-user services market from AT&T in the

form of voice telephony provided over TCI's coaxial and fiber-optic infrastructure. Under those circumstances, the efficient-competitor standard would indicate mandatory unbundling of the requested network element. To the contrary, the consumer-welfare standard would indicate that no mandatory unbundling of the network element in question would be warranted. That example highlights the major shortcoming of the efficient-competitor standard—*it ignores that alternative sources of supply in the output market constrain the ILEC's ability to exercise market power.* It is clear from the *Second Further Notice of Proposed Rulemaking* that, consistent with an efficient-competitor standard, the FCC's approach to interpreting section 251(d)(2) incorrectly focuses on competition in the input market while ignoring competition in the output market.[237] Table 1 summarizes, for various scenarios, the differences in outcomes that would result, under TELRIC prices, from the Commission's use of the consumer-welfare standard, the efficient-competitor standard, and the original standard in the *Local Competition First Report and Order* (namely, any unbundling that is "technically feasible").

**TABLE 1: COMPARISON OF THE OUTCOMES RESULTING FROM THE APPLICATION OF THREE DIFFERENT STANDARDS FOR MANDATORY UNBUNDLING AT TELRIC PRICES**

| **Scenario (Is unbundling feasible? Is the network element competitively supplied? Is the output competitively supplied?)** | **Technical-Feasibility Standard** | **Efficient-Competitor Standard** | **Consumer-Welfare Standard** |
|---|---|---|---|
| Unbundling is not technically feasible, UNE is competitively supplied, output is competitively supplied (N, Y, Y) | Do Not Unbundle | Do Not Unbundle | Do Not Unbundle |
| Unbundling is not technically feasible, UNE is competitively supplied, output is not competitively supplied (N, Y, N) | Do Not Unbundle | Do Not Unbundle | Do Not Unbundle |
| Unbundling is not technically feasible, UNE is not competitively supplied, output is competitively supplied (N, N, Y) | Do Not Unbundle | Do Not Unbundle | Do Not Unbundle |

237. *SFNPRM, supra* note 1, at ¶ 42 ("[W]e seek comment on whether the existence of a competitive market for a network element is necessary to demonstrate that an element is sufficiently available outside the incumbent's network so that failure of the incumbent to provide the element would not be 'necessary' or would not 'impair' a carrier's ability to provide service.").

| | | | |
|---|---|---|---|
| Unbundling is not technically feasible, UNE is not competitively supplied, output is not competitively supplied (N, N, N) | Do Not Unbundle | Do Not Unbundle | Do Not Unbundle |
| Unbundling is technically feasible, UNE is competitively supplied, output is competitively supplied (Y, Y, Y) | Unbundle | Do Not Unbundle | Do Not Unbundle |
| Unbundling is technically feasible, UNE is competitively supplied, output is not competitively supplied (Y, Y, N) | Unbundle | Do Not Unbundle | Do Not Unbundle |
| Unbundling is technically feasible, UNE is not competitively supplied, output is competitively supplied (Y, N, Y) | Unbundle | Unbundle | Do Not Unbundle |
| Unbundling is technically feasible, UNE is not competitively supplied, output is not competitively supplied (Y, N, N) | Unbundle | Unbundle | Unbundle |
| **Unbundling Results** | **4 of 8** | **2 of 8** | **1 of 8** |

*Note*: We assume that the efficient-competitor standard, like the consumer-welfare standard, incorporates a technical-feasibility requirement.

As Table 1 shows, the FCC's original rule of "technically feasible" unbundling would mandate unbundling in half of the possible scenarios. With respect to its outcomes (as opposed to its intellectual grounding), the efficient-competitor standard more resembles the FCC's original "technically feasible" unbundling rule than our proposed consumer-welfare standard.

161. The preceding comparison of the efficient-competitor standard with our proposed consumer-welfare standard presupposes that it would be feasible for the FCC to define in the abstract, and identify in the concrete, an "efficient" CLEC. There are multiple reasons, however, to expect that such an exercise would be daunting. There is no reason to expect CLECs to be homogeneous firms, such that the FCC could make uniform assumptions about production technologies. CLECs vary in size, lines of business, regulatory burdens or advantages, brand name recognition, and so forth. AT&T, for example, has cable television and wireless businesses with which to offer local access for voice telephony, as well as a brand name that is immediately recognizable to consumers. MCI WorldCom, as of May 1999, had neither cable television nor wireless, and the company presumably still faces challenges in uniting the separate corporate identities of MCI and WorldCom. Meanwhile, Sprint has wireless, no cable television, and extensive operational experience as a traditional ILEC in a number of geographic markets. Which

of those three firms would the FCC deem the most "efficient" for purposes of an efficient-competitor standard for section 251(d)(2), and why? Furthermore, how would the FCC evaluate the efficiency of smaller CLECs, such as Winstar or Teligent or RCN, relative to the efficiency of the large IXCs?

162. The FCC, of course, could undertake engineering cost modeling of a hypothetically efficient CLEC. But that prospect cannot be regarded as appealing or promising. By comparison, the Commission undertook to model the costs of a hypothetically efficient ILEC for purposes of generating TELRIC estimates with which to establish proxy rates for UNEs. That exercise generated controversy and litigation.[238] More fundamentally, as a matter of both jurisdiction and economic policy, the FCC would tread shaky ground if, in the name of implementing its policy of mandatory unbundling, it was resorted to creating ersatz cost-of-service regulation for *unregulated* CLECs.

163. In short, if the FCC were to interpret section 251(d)(2) under an efficient-competitor standard, it would invariably be compelled to make precisely the kinds of predictions about "best" technologies that Congress resolved, in the Telecommunications Act of 1996, that the market is better suited to supply. The Commission emphasized shortly before its issuance of the *Second Further Notice of Proposed Rulemaking* that it would not hazard to make such predictions.[239] Clearly, such intervention would not "reduce regulation" in the pursuit of "lower prices and higher quality services for American telecommunications consumers."[240]

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238. *See* Hausman, *Regulation by TSLRIC*, *supra* note 138; SIDAK & SPULBER, *supra* note 7, at 421 (discussing the Hatfield model).

239. In early 1999, the FCC stated: "Our role is not to pick winners and losers, or to select the best

## V. EFFICIENT PROCEDURES FOR ADMINISTERING THE IMPAIRMENT TEST

164. Economic analysis should guide the Commission in establishing evidentiary rules for mandatory unbundling proceedings and in allocating fact-finding responsibilities between the state public utility commissions and the FCC itself.

### A. Evidentiary Burdens and Sunset Mechanisms

165. Through its design of evidentiary rules, the FCC should create efficient incentives for ILECs and CLECs to discover and reveal information about optimal network design, usage, and investment. Here, the Commission should apply the legal scholarship on economic analysis of evidentiary law.[241] Evidentiary presumptions and burdens of proof under section 251(d)(2) should be assigned to the party (ILEC versus CLEC) that is the most efficient producer of the information

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technology to meet consumer demand. We intend to rely as much as possible on free markets and private enterprise." *Advanced Telecommunications Capability, supra* note 225, at ¶ 5.

240. Telecommunications Act of 1996, Pub. L. No. 104–104, 110 Stat. 56, 56 (preamble).

241. In a 1998 symposium on the economics of evidentiary law, Professor Richard Friedman of the University of Michigan summarized the economic questions posed by the allocation of evidentiary burdens in terms that are directly pertinent to questions posed in the *SFNRPM, supra* note 1, at ¶ 12:

> [C]osts and burdens [of producing evidence] must be allocated between the parties. Here, I think we can see a strong connection between a basic concept of evidentiary analysis, the best evidence principle, and one of the keystones of economic analysis of law, the concept of the cheapest cost avoider. Under the best evidence principle, evidence that is beneficial to the truth-determining process can be excluded in hopes of inducing the proponent to produce evidence that is better yet; the better evidence may include the originally proffered evidence but with a supplement, such as a foundation. Suppose, however, that the opponent is at least as able to produce the better evidence, or the supplement necessary to make it better. Then perhaps it is better to allow the proponent to introduce her evidence, leaving it to the opponent to introduce the better or supplemental evidence. Similarly, differential ability to produce evidence is a factor in allocating the burden of production.

Richard D. Friedman, *Economic Analysis of Evidentiary Law: An Underused Tool, an Underplowed Field*, 19 CARDOZO L. REV. 1531, 1533 (1998) (citations omitted). For further applications of economic analysis to evidentiary allocations, see Bruce L. Hay, *Allocating the Burden of Proof*, 72 IND. L.J. 651 (1997); Jason S. Johnston, *Fact-Finding and Efficiency: Toward an Economic Theory of Liability Under Uncertainty*, 61 S. CAL. L. REV. 137 (1987); Richard A. Posner, *An*

sought. In most cases, that party will be the CLEC. The rebuttable presumption, therefore, should be that mandatory unbundling of any given network element at a TELRIC price is *not* required by section 251(d)(2). That allocation of evidentiary burden would be analogous to the plaintiff's burden of proof in an essential facilities doctrine case.[242]

166. If CLECs are currently the most efficient producers of the information sought regarding the competitive justifications for mandatory unbundling, then it is even more likely CLECs will also be the most efficient producers of information in the future. In the *Second Further Notice of Proposed Rulemaking*, the Commission "seek[s] comment on an approach that would allow sunset or modification of the unbundling obligations as technology and market conditions evolve over time."[243] At the end of a finite time horizon, or upon the entry of a facilities-based competitor, the unbundling order should sunset automatically. Specifically, the passage of two years (the time horizon used in the *Merger Guidelines*) or the entry of a facilities-based competitor of the stature of AT&T, MCI WorldCom, or Sprint should provide the Commission the requisite "passage of time or occurrence of certain events" after which the mandatory unbundling obligations for the ILEC's elements should sunset "without any subsequent action by the Commission."[244] The CLEC should bear the burden of proving that *continued* mandatory unbundling of the element is indispensable for consumer welfare.

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*Economic Approach to Legal Procedure and Judicial Administration*, 2 J. LEGAL STUD. 399, 410 (1973).

242. Apartment Source of Pa., L.P. *v.* Philadelphia Newspapers, Inc., 1999-1 TRADE CAS. (CCH) ¶ 72,502 (E.D. Pa. 1999).

243. *SFNPRM*, *supra* note 1, at ¶ 11; *see also id.* at ¶ 36 ("whether the Commission should adopt a mechanism by which network elements would no longer have to be unbundled at a future date"); *id.* ("whether affirmative steps by the parties or the Commission should be necessary to remove a particular element from unbundling requirements, or whether affirmative action should be necessary to continue requiring the unbundling of particular elements").

## B. The Proper Role of State Commissions in Administering the Proposed Test

167. The state public utilities commissions (PUCs) should play an active role in administering the "necessary" and "impair" requirements. The FCC is capable of announcing a general standard for determining whether a network element is subject, under section 251(d)(2), to mandatory unbundling at TELRIC prices. But the FCC correctly noted in its *Second Further Notice of Proposed Rulemaking* that "application of the 'necessary' and 'impair' standards that we develop pursuant to section 251(d)(2) may be relatively fact-intensive."[245] More important, many of the critical facts are likely to be unique to a particular geographic market and are thus directly "relevant to a decision to impose minimum national unbundling requirements."[246]

168. To apply our five-part test for "impairment," regulators should examine data on the network facilities and equipment that competitors have actually deployed, or intend to deploy or are capable of deploying over the relevant time horizon, to supply service in a relevant product market and geographic market. Regulators should examine as well the implications for facilities-based entry in that geographic market of the substantial acquisitions, by AT&T and other telecommunications carriers, of the nation's largest competitive access providers, cable television multiple system operators, and wireless carriers. AT&T's expenditure of (or commitment to spend) more than $100 billion on acquisitions of cable television networks, which has all occurred in the three years since the enactment of the Telecommunications Act, calls into question whether it is necessary for competition that AT&T receive unbundled access at TELRIC prices to ILEC network elements in

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244. *Id.* at ¶ 39.

areas where it now owns cable networks or has joint ventures with other cable network owners. Furthermore, it is extremely unlikely that competition would be impaired in those areas if AT&T did not have access to unbundled elements at regulated prices, because those cable networks pass over 95 percent of households and AT&T has announced that the networks will be used to provide telephone and internet services. Thus, application of our impairment test to the areas in which AT&T has cable networks would likely yield different conclusions from those for areas where AT&T does not own cable networks or have joint ventures with other cable partners.

169. The sheer volume of unbundling proceedings that can be expected, and the numerous questions that those proceedings will necessarily present regarding competitive conditions in particular geographic markets, will severely tax the FCC's resources, particularly because the Commission has properly committed itself to "resolving these fact-intensive questions . . . in an expedited time frame."[247] That administrative burden may prove to be especially great because the FCC acknowledged in late 1998 that "it does not yet possess the detailed information necessary to evaluate the current state of local telephone competition on a market-by-market basis."[248] Because markets create and process vast quantities of information, it is challenging enough for regulators to digest all of the pertinent economic facts concerning competition in a particular service in a particular geographic market. Surely it would overwhelm even the most indefatigable regulatory staff to try to digest, simultaneously and centrally from Washington, the salient facts in *all* of the relevant product markets and geographic markets for local telecommuni-

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245. *Id.* at ¶ 12.
246. *Id.* at ¶ 14.
247. *Id.*

cations services in the United States.[249] Yet, the FCC has no alternative to undertaking such geographically specific analysis—unless, of course, the agency's economic analysis of optimal unbundling principles (as opposed to the application of those principles to specific cases in specific geographic markets) would enable the FCC to conclude that a particular network element could not satisfy the "necessary" or "impair" requirement in *any* geographic market in the United States and thus should be removed altogether from the list of potential network elements subject to mandatory unbundling at TELRIC prices.[250]

170. Fortunately, the state PUCs have the resources and fact-finding experience to assist the FCC in conducting the analysis that is essential to administer the "necessary" and "impair" standards with the requisite degree of geographic specificity. Indeed, Congress already recognized that state regulators have the comparative advantage in compiling and analyzing facts regarding local competition in particular geographic markets. Congress did so through its design of both the local competition provisions[251] and the interLATA entry provisions[252] of the Telecommunications Act of 1996. Between the fall of 1996 and the Supreme Court's issuance of its decision in *Iowa Utilities Board* in January 1999, the state PUCs held *hundreds* of local arbitration proceedings to set the prices for unbundled network elements and the discounts for wholesale services.[253] Similarly, the checklist process under section 271 directly involves the state commis-

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248. *See* 1998 LOCAL COMPETITION REPORT, *supra* note 182, at 3.

249. *See generally* Friedrich A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519 (1945).

250. *Cf. SFNPRM*, *supra* note 1, at ¶ 36 (discussing "whether the Commission should adopt a mechanism by which network elements would no longer have to be unbundled at a future date").

251. *See* 47 U.S.C. § 252(b).

252. *See id.* at §§ 271(c)(1)(A) (state approval of the RBOC's generic interconnection plan), 271(c)(1)(B) (alternative procedures if no requests for interconnection are forthcoming), 272(b) (competitive checklist).

253. *See, e.g.*, Sidak & Spulber, *The Tragedy of the Telecommons*, *supra* note 5, at 1082-83.

sions in precisely the kind of geographically specific fact-finding that would properly inform the implementation of the "necessary" and "impair" requirements of section 251(d)(2).

171. In short, Congress concluded in 1996 that the states are competent to conduct the fact-intensive arbitration proceedings envisioned in section 252 and the equally fact-intensive analyses of local telecommunications markets envisioned in the competitive checklist of section 271. It is reasonable to expect that those same state commissioners are competent as well to apply a general rule enunciated by the FCC, pursuant to its *Second Further Notice of Proposed Rulemaking*, to the specific facts concerning the relevant product markets and geographic markets within those commissioners' respective states. Uniform national *outcomes* are neither necessary nor conducive to consumer welfare.

172. It is therefore appropriate to conclude that the "states may, consistent with the Supreme Court's decision, apply [the FCC's] interpretation of section 251(d)(2) to determine in the first instance that a network element need not be unbundled in light of the availability of that element outside the incumbent's network in that state."[254] Basic principles of the economics of information support the conclusion that Congress intended, through it enactment of the Telecommunication Act, for the states to play an active role in determining whether a particular network element in a specific geographic market is subject to mandatory unbundling at arbitrated (which is to say, regulated) prices. If, as seems most reasonable to infer, Congress already gave the states that authority, then it would be unnecessary for the FCC to adopt rules purporting "to delegate to the states responsibility for removing network elements from any national unbundling

254. *SFNPRM*, *supra* note 1, at ¶ 14.

requirements" that the FCC promulgated.[255] Economic reasoning counsels that Congress already commended that power to the states, such that the Commission in fact has no "opt out" authority to delegate to them. Like the unbundling rules themselves, the extent of the states' participation in the implementation of section 251(d)(2) should not be regarded by the FCC as being conditional on its exercise of "regulatory grace."[256]

173. As we discussed above, separate local telecommunications markets exist with different degrees of competition throughout the United States. For the FCC to attempt to establish rules for each of those local telecommunications markets would be extremely time consuming if the proper fact-intensive investigation were performed for each telecommunications market. If the FCC instead were to take a broad-brush approach without considering and analyzing the market-specific factors, the agency would likely err in many of its decisions. In turn, those errors would reduce both innovation in and the quality of telecommunications services available to consumers, a result that would frustrate the objectives of the Telecommunications Act.

## CONCLUSION

174. Even after the Supreme Court's remand in *Iowa Utilities Board*, the FCC continues to interpret its authority to mandate the unbundling of the local telecommunication network at regulated, cost-of-service prices in a manner that is at war with the antitrust laws. The agency's interpretation of "necessary" and "impair" for purposes of section 251(d)(2) cannot find support in sound economic analysis because no responsible economist could defend subordinating the welfare of consumers to the

255. *Id.* at ¶ 38.

welfare of individual competitors. The proper interpretation of section 251(d)(2) would give primacy to consumer welfare and would use the competitive analysis of demand and supply substitutability, as the long-established tools of economic analysis of competition and of antitrust jurisprudence, to ensure, as Congress directed, that the unbundling rules successfully "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 telecommunication technologies." [257]

175. Our impairment test is necessarily stated in the abstract—namely, it asks whether the ILEC could exercise market power in the end-user services market by restricting access to a particular network element. Regulators attempting to employ our standard, however, may require simple, objective market characteristics that would serve as proxies for constraints on an ILEC's ability to exercise market power in the end-user services market. In particular, three market characteristics should be incorporated into the decision-making process:

(1) whether a CLEC is self-supplying the element in question in the relevant geographic market. As long as one CLEC is supplying the element in question, the ILEC cannot exercise market power in the end-user services market by restricting access to that element;

(2) whether fixed (as opposed to sunk) costs represent a large share of the total costs of the element in question. As long as the asset is redeployable, the CLEC will not face barriers to exit, which in turn, implies low entry

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256. *Iowa Utilities Board*, 119 S. Ct. at 736.

barriers. Thus the ILEC cannot exercise market power in the end-user services market by restricting access to that element; and

(3) whether AT&T or any other firm offering cable telephony has established a presence in the relevant geographic market. As long as one firm is offering cable telephony service, the ILEC cannot exercise market power in the end-user services market by restricting access to that element.

The first two conditions represent supply-side substitution constraints, while the third condition is a demand-side substitution constraint on the exercise of market power in the end-user services market.

176. With respect to the Telecommunications Act's goal of "promoting competition," our analysis and proposed test of "impairment" are rooted in economic analysis of competition and antitrust law, which are designed to promote consumer welfare. Our proposed test for "impairment" would follow Congress's directive to "reduce regulation."[258] In contrast, the competitor-welfare approach of the *Second Further Notice of Proposed Rulemaking* and the *Local Competition First Report and Order* would *maximize* regulation because any CLEC could trigger regulatory intervention by its assertion that its profitability would be diminished by the inability to lease the ILEC's unbundled elements at TELRIC prices. Our approach requires that the CLEC's request for a particular unbundled network element satisfy the four existing

257. Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56, 56 (preamble).

requirements of the essential facilities doctrine and then also pass a fifth requirement, based on critical share, that examines whether an attempt by the ILEC to deny the CLEC access to the element in question would decrease competition in the output market for telecommunications services. In so doing, our impairment test advances consumer welfare and provides the "limiting principle" that the Supreme Court demanded in *Iowa Utilities Board*.

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258. *Id.*