

the two-volume *The Economics of Regulation*, reprinted in 1988 by MIT Press, *Letting Go: Deregulating the Process of Deregulation*, published last year by Michigan State University Institute of Public Utilities, and have written and testified extensively in the area of direct economic regulation and particularly regulation of public utilities. Of especial relevance to my statement here, I am the co-author of *Fair Competition, The Law and Economics of Antitrust Policy*; was a member of the Attorney General's National Committee to Study the Antitrust Laws and the National Commission on Antitrust Laws and Procedures in the Eisenhower and Carter Administrations, respectively; I have served as consultant with both the Antitrust Division of the Department of Justice and the Federal Trade Commission; and I have published numerous articles, particularly in recent years, on the requisites of efficient competition in regulated and previously regulated industries. I attach a copy of my full resume.

3. In its Second Further Notice of Proposed Rulemaking on local competition, the Federal Communications Commission requested comments on a number of issues related to the mandatory provision of unbundled network elements by incumbent local exchange carriers ("ILECs"). The purpose of this Declaration is to respond to the Commission's questions and tentative conclusions from an economic perspective.

4. The questions that appear to be most critical are:

- Should there be a uniform national list of network elements that all ILECs must unbundle?
- Should an "essential facilities" criterion be the basis for determining the composition of the list or lists?

- How should any such list evolve over time as technology and competition develop?
- Should new network functions and elements be treated differently from the elements that currently provide voice telephony over circuit switches?

5. In framing its answers to these questions, I will submit, the Commission must be guided above all other considerations by the goal of promoting efficient and dynamic competition in the service of the consuming public, rather than the fostering or protecting of individual competitors, as such. There is no economic principle, or principle of antitrust policy, more fundamental than the distinction between these two goals, whenever the two conflict.

6. Closely related, in economic principle, is the superiority of facilities-based competition over competition based on using the facilities of the incumbent firms, in whole or in part. This is not to contradict the recognition, in the Telecommunications Act, of the need to require the incumbent local telephone company monopolies, so long as they remain monopolies, to lease unbundled elements of their networks to aspiring entrants or make retail services available to them for resale, at regulatorily-stipulated rates, particularly in the transition to full-blown competition. It is to say that the designation of elements subject to mandatory sharing must be informed by a recognition of the elementary fact that the more liberal that definition, both in scope and in time (and the lower the mandated price), the less the incentive for facilities-based entry *and* for creative investment by incumbents and entrants alike; and the more, therefore, the Commission will have erred on the side of increasing the count of *competitors* at the expense of creative and dynamic *competition*.

II. THE ECONOMIC PRINCIPLES THAT MUST INFORM THE MANDATORY UNBUNDLING REQUIREMENTS

7. In order to understand why the Supreme Court was absolutely correct, in economic terms, in instructing the Commission to give some substance to the qualifications imposed by the “necessary” and “impair” standards in section 251(d)(2) of the Telecommunications Act for identifying the network elements that ILECs were to be required to make available to their competitors—beyond the “need” that might be inferred from the mere request by the latter for such access—and in order for the Commission to comply with its instructions, it is essential that it be guided by the following fundamental economic principles:

- a. The socially beneficial competition in the service of the public that it was the intention of the Act to encourage consists, in its essence, in the quest for differential advantage, whether because of the achievement of superior efficiencies or in the offer of superior goods and services to the public.
- b. The most creative and productive form of competition is innovation—in the methods of producing and supplying existing products and services and in developing new product and service offerings.
- c. Innovation is, by its inherent nature, risky; it involves the expenditure of resources on endeavors whose outcome cannot be predicted with certainty.
- d. Because, in a competitive market economy, those risks are borne by private investors, the risk of losses from ventures that turn out unsuccessfully must be balanced by the prospect of exclusive enjoyment of the fruits of successful

ones.¹ This is of course the essential logic of our patent laws. But the principle extends beyond patentable inventions, deserving of governmental guarantees of exclusivity: it is also the basis of the general principle, under the antitrust laws, that

There is no general duty to share. Compulsory access, if it exists at all, is and should be very exceptional.²

- e. Further underlining the generality of this proposition is Judge Hand's famous—and, to our knowledge, universally accepted—warning, in his *Alcoa* decision, that “the successful competitor, having been urged to compete, must not be turned upon when he wins.”³ In view of the fact, as I have already emphasized, that competition and innovation themselves consist in a quest for differential advantage, a requirement that the benefits be shared, on regulatorily dictated terms, in the cases in which that quest has been successful would interfere with the competitive process itself.

- f. A reasonable case can be made in the context of public utilities, however, that an incumbent company is typically in command of some facilities “essential” or

¹ The ECONOMIST has recently cited a study that

found that the overall rate of return for some 17 successful innovations made in the 1970s averaged 56 percent. Compare that with the 16 percent average return on investment for all American business over the past 30 years. (February 20, 1999)

² Philip E. Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841, 852 (1989). In par. 21 of its *Second Further Notice of Proposed Rulemaking*, the Commission sought comment on the relevance of the essential facilities standard in determining unbundled elements, pursuant to section 251(d)(2). In the present context, an essential facility is an input to production that meets three conditions: (1) it is used to produce a competitive telecommunications service, (2) it is only available from a monopoly supplier that competes in retail markets, and (3) it cannot be economically or technically duplicated.

“necessary” to rivals not because of superior enterprise on its part but primarily because of its franchised monopoly, and that requiring it to share the benefit of those facilities with rivals at a compensatory price would not entail penalizing successful competitive efforts or innovation. The mandatory sharing requirements of the Telecommunications Act do not, therefore, in themselves conflict with the requirements of effective competition. On the contrary, they can, if properly administered, contribute to it.

g. Recognition of this possibly exceptional character of the situation in public utility industries in process of deregulation must not be permitted to obscure the fundamental propositions to which it provides the exception, however, and its application must be consistent with the governing principles I have previously enunciated. In particular:

- It justifies mandatory sharing only of facilities carried over from the public utility past: promotion of aggressive competition and risky investments in innovation henceforward would still be frustrated if those obligations were extended to the fruits of such efforts.
- Wherever mandatory sharing, for the sake of jump starting the entry of competitors, would interfere with the more creative and dynamic investment in facilities-based competitive entry and innovation by incumbents and challengers alike, it is the latter that must take primacy.

³ *United States v. Aluminum Co. of America*, 148 F. 2d. 416, 430 (1945). This decision also contains the admonition against a monopoly being condemned if the monopoly power was “thrust upon” its possessor, or if

h. These considerations converge to compel the conclusion that the Commission should adopt a criterion for identifying network elements subject to mandatory unbundling based on the economic principles that underlie the essential facilities doctrine as it has been developed in antitrust jurisprudence—but without any need, such as successful antitrust prosecution and remedy have typically required, to demonstrate exclusionary practices or an intent to monopolize.

8. The test that the Commission should apply is a simple one: the element in question must be one without which it is not economically feasible to offer the end-product or service in question *and* that is economically infeasible for the would-be competitor to obtain from any source other than the ILEC, whether by purchase or by constructing its own facility. The ILEC, in other words, must enjoy a monopoly in its supply, in the simple and original meaning of that term.

9. Conversely, if, *within the relevant market*—a condition that I will amplify presently—competitors—indeed, a single competitor—are demonstrably acquiring that element from some source other than the ILEC, whether by purchase, lease or direct investment, that fact demonstrates that obtaining it from the incumbent is not “essential” in the most elementary meaning of the term, and sharing of that element should not be required. This assertion might be taken as implying that duopoly is synonymous or consistent with effective competition, a proposition that in itself most economists would probably be unwilling to accept. In the context of rapidly developing technologies (copper wire, coaxial cable, wireless, satellite, fiber) and correspondingly rapidly evolving and diverse service mixes, the entry of only a single rival

one company had survived by virtue of its “superior skill, foresight, and industry.” *Id.* at 429-430.

is likely to make a very significant difference. More directly pertinent, the ability of such an entrant to use its own facilities, whether by purchase or construction, without dependence upon those of the incumbent, clearly demonstrates in itself that the network elements of the incumbent are not “essential” to competition—a conclusion reinforced by consideration of the diverse technologies and capabilities converging on the offer of telecommunications services.

10. It follows that the economically proper identification of essential network elements that are to be subject to mandatory sharing must proceed element by element. The requirement, instead, that an ILEC provide a “platform” composed of *all* the elements of its network, without determination that each and every component is truly essential, flatly violates the foregoing principles. Whereas a required sharing of particular facilities the competitive duplication of which is truly infeasible cannot, by definition, discourage competitive investment, the mandatory offer of an entire “platform” deters facilities-based competition across the board.

11. It is worth reemphasizing, in conclusion, that the purpose of defining strictly the network elements properly subject to mandatory unbundling is *not* to limit the exposure of incumbent local exchange companies to competition. Much more important, from the standpoint of the public interest, is to avoid the anti-competitive consequences of a looser definition, which would discourage new, risky investment—not only by the incumbents but also by *existing* facilities-based CLECs, which have already invested billions of dollars of their own capital in challenging the historical monopolists and are investing billions more each year, and by new would-be entrants, by offering them the opportunity instead to free ride on the facilities of others.

III. THE REQUISITE MARKET ANALYSIS AND CRITERIA OF ESSENTIALITY

12. The foregoing principles unequivocally require the Commission, in determining which network elements the ILECs must make available to competitors, to apply the criterion of essentiality network–element-by-network-element and market-by-market.

Market definition

13. In general, analysis of market power first requires definition of markets along product and geographic dimensions. In the present case, the relevant products are the particular network elements required to provide local exchange service and exchange access.

14. Both logic and experience—in particular the expansion of local competition for business customers in concentrated metropolitan areas (the profundity of which change since passage of the Act the Commission has itself acknowledged⁴) and much slower development of competition for residential subscribers in most of the country—compel the conclusion that the market to be analyzed cannot be nationwide, with the UNEs so identified comprising a single uniform list. The assessment of competition and of the availability of necessary inputs from sources other than the ILEC clearly requires an assessment element-by-element and market-by-market (or group of markets).

15. The exercise of market definition is essentially the same as the one the Commission performed when it declared AT&T non-dominant in the provision of long-distance service.⁵ As the afore-mentioned experience with the rapid emergence and growth of CLECs has already

⁴ *Second Further Notice of Proposed Rulemaking*, par. 3.

⁵ *Motion of AT&T Corp. to be Reclassified as a Non-Dominant Carrier*, October 12, 1995.

clearly demonstrated, the definition and grouping of the relevant markets will have both a geographic and a class-of-customer dimension.

16. Moreover, those definitions will, manifestly, differ among the several network elements. Subscriber loops tend to have the same geographic and customer dimensions as the end-services whose provision they make possible; other elements, such as switches and transport, are likely to have very different dimensions: they are supplied without distinction by customer type and the geographic scope of their markets.

17. These elementary considerations lead inevitably to the conclusion that the Commission was both premature and mistaken, in terms of elementary principles, when it tentatively concluded that there should be a national list of unbundled elements subject to mandatory unbundling.⁶ This error is all the more surprising in consideration of the fact that in calculating its measure of the long-run incremental cost of providing access service, in its universal service proceedings, the Commission has clearly recognized the necessity of distinguishing among zones varying in their cost characteristics.⁷ It would clearly be absurd to offer the same subsidy, putatively necessary to compensate for the difference between basic residential rates and the costs of efficient facilities-based entry, in all these markets. Manifestly, the same need for differentiation applies to the designation of UNEs. The experience to date clearly demonstrates, to take the most elementary example, that even subscriber loops—the archetypical essential inputs, according to general conception—are not essential facilities by any reasonable test for the provision of local telephone service (or, at

⁶ *Id.*, par. 14.

⁷ See *In Re Federal State Joint Board on Universal Service*, 12 FCC Rcd. 8776, at par. 250 (May 8, 1997).

least, high-capacity services) to large business customers in large metropolitan areas. And as telephone service via cable becomes available and wireless subscriber access becomes more fully competitive, the ILECs' loops may likewise cease to be "essential."

18. As the foregoing discussion also clearly illustrates, however, the need for market analyses more highly differentiated than implicitly underlay the Commission's tentative identification of a single national list need not open the door to the necessity, at the other extreme, of a large number of separate analyses of every individual market. Just as the Commission has recognized in its universal service proceedings, reasonable groupings, both geographic and by category of customer and service, are obviously available.

Stipulating the requisite degree of "necessity" or "essentiality"

19. The Commission's Notice (pars. 25 and 26) seeks comment on whether it is possible to specify some particular degree of the cost disadvantage that will be imposed on a would-be competitor by its inability to employ the UNEs of an incumbent, as a basis for determining whether an element should or should not be placed on the list that the latter company would be required to make available. The question is a plausible one; but a brief consideration of what would be involved in any such endeavor will, I submit, disclose the superiority, by far—on ground both of economic principle and practicality—of the Commission's confining itself to the criterion of "essentiality," as it has been developed in the antitrust jurisprudence. This implies a simple yes or no determination—even though intuition would suggest that competitive advantage or disadvantage must logically be a matter of *degree*—along with a reliance on the objective evidence of market behavior to make that finding: have competitors in fact been able to enter using either their own facilities or inputs purchased from others than

the ILECs? The following considerations, I suggest, counsel a negative answer to the Commission's query:

- First, the complexity of the tasks suggested by it—determining (or professing to determine) market-by-market and element-by-element what percentage cost disadvantage would be sufficient to prevent competition from emerging.
- Second, the object of the quest is by its very nature a will-of-the-wisp. The cost disadvantage imposed on a potential competitor by lack of access to a particular ILEC network element would not necessarily be the same for each such competitor. There could therefore logically be no single critical degree of handicap applicable to all of them. A cost disadvantage that would preclude entry by one competitor would not do so for another, depending upon the way in which each of these proposed ventures would fit within the operations of the particular aspirant.
- The point is that a narrow focusing on a particular cost advantage or disadvantage associated with the availability or unavailability of a specific network element could not ascertain a specific cut-off point as permitting or precluding competition, because it fails to take into account the likely offsetting advantages that CLECs are likely to enjoy—in varying degrees depending upon their own situations—economies of scale and scope that they would be in a position to exploit by offering local exchange services in combination with their own particular mixes of offerings, as well as the ability to take advantage of available new technologies. An obviously important example is AT&T's declaration of intention to offer local exchange service via the cable facilities of TCI and MediaOne, in combination with long-

distance, Internet access and video—a project on which it is betting some \$100 billion. Such economies clearly can far more than offset any particular cost disadvantages with respect to particular network elements acquired or acquirable only from ILECs: there is no single percentage disadvantage that can be stipulated as critical to *competition* in the market.

- The quest for a critical measure of cost disadvantage is further confounded by the method on which the Commission has decided unbundled network elements are to be priced. The critical degree of competitive disadvantage—element-by-element, market-by-market—that would be the object of the proposed search would be the difference in *cost*—the cost of the incumbent on the one side, the cost of alternative sources of supply available to the CLEC, on the other. But the price the Commission has decided to require an ILEC to charge is not to be based on or equated to its costs, either embedded or incremental, but on the putatively lower cost of a hypothetical, most efficient supplier. In other words, the possible cost disadvantage of the would-be competitor is converted to new cost advantage, with the additional quixotic consequence, in principle, of making facilities-based entry foolish: why incur the risks of constructing one's own facilities if one can instead acquire them at a price that regulators, in their omniscience, have determined would be the cost of an ideally efficient provider?
- As the foregoing recital clearly demonstrates, the venture suggested by the Commission's query is an intensely regulatory one and administratively infeasible: the regulator is supposed to ascertain—for each market and potentially, in principle,

for each possible UNE and perhaps even each potential CLEC—what degree of cost disadvantage would actually prevail if provision of the UNE by the ILEC were not mandated and, at least in principle, what charge would just eliminate that disadvantage (the latter question clearly not the one that the Commission set out to answer in settling on its TELRIC method of pricing the elements).

The test of essentiality

20. The essential facilities doctrine, as we have proposed it be interpreted and applied in the present context, would rely instead on the evidence of the market. Are local exchange providers offering or capable of offering service with their own facilities—whether facilities similar to those of the ILECs or other? Are entrants purchasing or able to purchase inputs from others than the ILEC in a wholesale market? If so, provision of them by the ILECs is not, by the objective evidence of the market, essential to *competition* in that market.

21. The fundamental question this test poses is whether competition *in any market or class of markets* can proceed absent the availability of particular unbundled elements from the ILECs, that is, (1) do firms need particular elements that they can obtain only from an ILEC *and* (2) are there no other ways to produce the services in question. Therefore, a particular element is essential to the development of *competition* only if (1) it cannot be obtained from another source, including self-supply and (2) there are no other firms offering the services without using the network elements of the ILEC in question. For example, by this reasoning, switches and high-capacity transport facilities in metropolitan areas served by facilities-based CLECs are not essential facilities, because the CLECs have demonstrated that there are alternative sources of supply. The point is that the actual deployment of network facilities by

CLECs, taking advantage of whatever economies of scale or scope may be available to them, is of much greater competitive significance than necessarily imprecise estimations of cost advantages or disadvantages to which they might be subject if they could not acquire particular network elements from an ILEC. As Commissioner Powell has observed:

[T]o the extent other facilities-based competitors do *not* use elements of the incumbent's network, the presence of those competitors in a particular market should be probative in evaluating whether other firms would be "impaired" in their ability to provide service in that market absent mandated access to the incumbent's elements.⁸

The relevance of the Commission's pricing rules

22. While recognizing that the Commission's proposed method of pricing network elements is not at issue in this proceeding, a complicating fact, as a matter of economic reality, is that the issues of essentiality and the requirement to share cannot be separated from the regulated price that is established for these elements. This issue is important for two reasons. First, whether or not it is economical for other suppliers to provide network elements to other CLECs depends on the prices the ILEC charges for comparable elements. At the extremes, regulators can make all ILEC elements "non-essential" by setting prices too high, or make them all "essential" by setting prices so low that it becomes uneconomic for entrants to compete on a facilities basis.⁹ Second, widespread availability of network elements in combination with

⁸ Separate Statement of Commissioner Powell at 4, *Second Further Notice of Proposed Rulemaking* (emphasis in original).

⁹ This reasoning might suggest, additionally, that actual facilities-based entry should not be dispositive, because the economics of that entry (from the perspective of the entrants) depends on regulatorily-established prices of retail services, and it is a historical fact that the charges for service to businesses in concentrated metropolitan areas were indeed so high as inefficiently to have encouraged such entry. While this observation may have some theoretical merit, history suggests that because facilities-based entry requires the commitment of sunk costs, actual entry has considerable economic significance. For both long-distance and high capacity dedicated services, some entry was undoubtedly encouraged by the high prices for incumbent services in those markets. Competition persisted, however, and grew even as those prices came down. Conversely, entry that occurs in the face of charges by incumbents below their own actual costs is a conservative indicator of competitive

Commission-dictated rates for them below the actual incremental costs of the incumbents can inefficiently discourage the development of facilities-based local exchange competition, especially in the case of new technologies and new services. In considering the Commission's sharing rules, therefore, the economic reality is that

- while the obligation to share whatever network elements competitors demand in itself violates the principle that in a deregulated world innovation requires the prospect of exclusive enjoyment of the fruits of successful ventures, the *price* at which sharing is mandated, if it is to be mandated at all, becomes an essential part of the equation;
- in these circumstances, the Commission's prescription of a price purportedly equal to the minimum costs that would be incurred by an efficient supplier, using the most modern technology and writing, as it were, on a clean slate, completes the process of *destroying the incentive to innovate*. The notion that the ILECs are likely to find it profitable to engage in such unprecedentedly risky investments as they now contemplate—the most notable example being the digitalization of subscriber lines—under a regulatory regime that requires them immediately to share those facilities with any and all competitors who ask for them—competitors who are subject to no such obligation—at prices based on the Commission's hypothetical,

significance, because prices reflecting those actual costs would have encouraged even more—as efficient use of society's resources would have dictated.

most-efficient-firm cost standard seems flatly in conflict with the long-run prerequisites of innovation.¹⁰

- The discouraging effect of the Commission's prescription for pricing UNEs is not confined to risk-taking innovations by the ILECs; it is equally destructive of the other part of the process of competitive innovation—the efforts of rivals of the successful innovator, by their own efforts, to invent around and surpass the initiator and achieve the market's reward for those efforts. In contrast, the Commission's sharing and pricing rules encourage free riding. If rivals can share use of whatever ILEC facilities they ask for—with their mere asking constituting sufficient demonstration that access is “necessary” to them—at prices explicitly intended to recover only the minimum cost of supply employing the most modern technology, it cannot but have a fatally discouraging effect on their own imitative and innovative efforts: when every applicant can be a free rider, at such minimum prices, who is going to build the vehicle? The Commission appears completely to have ignored the discouraging effect of their rules on facilities-based competition with the ILECs.
- It might appear that these last considerations are irrelevant to the present proceeding, in which the pricing of unbundled UNEs is not at issue. But the Commission cannot ignore the interrelationship in the real world, as a matter of simple economics, between the issues before it here and the pricing formula it has

¹⁰ See the reference to the study finding an average rate of return of 56 percent from some 17 successful innovations made in the 1970s and comparing that with the 16 percent average return on investment for all American business, in note 1, above. A more directly pertinent comparison in the present context would be with the traditional regulatorily-prescribed rates of depreciation and return typically incorporated in the models on the

settled upon elsewhere. These combined considerations emphasize the need for the Commission to exercise extreme caution in compiling its list of elements that must be unbundled. Specifically, the newer the elements that would be priced at the Commission's version of TELRIC, the more their provision calls for large, risky investments, the more anti-competitive it would be to subject them to mandatory sharing.

Other Commission queries: The absence of obligation of CLECs to unbundle and the availability of resale

23. The heavy weight that I believe should be given to the availability of network elements from facilities-based competitors provides the proper context for considering two other questions posed by the Commission: (1) the significance of the fact that only ILECs have a legal obligation to unbundle and (2) the importance of resale in determining what elements must be unbundled.¹¹

24. In answering these questions, it is important once again to keep the Act's fundamental purpose in mind—the development of competition, not the appearance of particular types of competitors. If the combination of facilities-based entry—even though the CLECs have no obligation to make elements of their networks available to *other* CLECs—and the Act's requirement that ILECs make their retail services available for resale at regulatorily-prescribed discounts are sufficient to produce competition, it is of very little economic consequence whether unbundled elements are used to a small or large extent.

basis of which the FCC and State Commissions have been purporting to measure the TELRICs that the FCC prescribed for the pricing of UNEs.

¹¹ *Second Further Notice of Proposed Rulemaking*, pars. 42-43.

25. As for the first question, it is likely that an efficient amount of unbundling on the part of CLECs will develop without Commission compulsion. Despite the fact that they have no legal obligation to unbundle, the economies of scale in the provision of many of their inputs gives those companies an incentive to offer them to other CLECs. PNR & Associates report that several firms, including Intermedia, Focal Communications, Frontier, and GST are either providing network elements to, or obtaining them from, other CLECs.¹² Similarly, there are alliances involving CLECs (e.g., e-spire and Hyperion) and electric utilities (e.g., ICG) that enable the former to obtain network facilities from sources other than the ILECs. Metromedia Fiber Network offers a particularly interesting example.¹³ It provides network facilities on a wholesale basis to other CLECs in both Bell Atlantic and GTE territories; it is supplying fiber facilities to Time Warner in New York and New Jersey and to Allegiance in the Dallas area, and it is also providing facilities to *ILECs*, including Bell Atlantic. This kind of market development is observable in other countries and markets as well. For example, a facilities-based CLEC in Western Canada has reported its willingness to make parts of its network available to other carriers, in direct wholesale competition with Canada's ILECs.¹⁴ And some cable operators have sold fiber to CLECs.¹⁵

¹² PNR & Associates, "Competitive Network Alternatives in Eight Typical GTE Markets," at 23 (May 24, 1999) (attached as Appendix D to GTE's Comments).

¹³ Salomon, Smith, Barney, *MFN MFX 1Q99 Better Than Expected*, May 12, 1999.

¹⁴ The Canadian trade press reports overtures by Group Telecom, Inc., one of the three licensed facilities-based carriers, and Sprint Canada. In particular, Group Telecom is interested in offering Sprint loop and transport facilities in the cities in which it is establishing facilities (Vancouver, Calgary, and Toronto) in competition with incumbent LEC unbundled elements. See *Group Telecom Says AT&T Canada - MetroNet Merger Opens Niche for Local Competition*, NETWORK LETTER, March 22, 1999, pages 4-5.

¹⁵ See Peter E. Huber & Evan T. Leo, UNE Fact Report (submitted by USTA on behalf of Ameritech, Bell Atlantic, BellSouth, GTE, SBC, U S WEST) ("UNE Fact Report").

26. As for the second question, current developments suggest there is no need for the Commission to try to answer it explicitly: competition will produce the proper combination of unbundling and resale, without the need for extensive regulation. CLECs appear to be following a strategy similar to the one adopted by AT&T's challengers in the interLATA business—combining resale and facilities-based operation, and using only a minimal number of UNEs (primarily loops) of the dominant incumbent in the interim.¹⁶ For example, Winstar employs a wireless technology to serve business customers. It reports that it serves some customers with resale and then migrates them to its own facilities as soon as possible.¹⁷ Birch Telecommunications, which serves metropolitan areas in Texas and Missouri, follows a similar strategy in building its base of business customers.¹⁸

27. In addition to a rationale and process for identifying network elements to be unbundled, the Commission has sought comments also on how elements may be removed from the list (par. 37-38). In view of the rapid changes in technology and expansion of telecommunications markets, and the necessity for achieving minimum efficient scale if a CLEC is to find it possible to invest in its own facilities, access to ILEC facilities that may be

¹⁶ PNR & Associates provide additional examples of CLECs making limited or no use of UNES as a transition strategy. These include Allegiance, AT&T, e spire, ICG, KMC, MCI, Nextlink and USX.

The long-distance business has been particularly susceptible to competition by pure resellers because of (a) the historically gross overpricing of this service—far above incremental costs—and (b) AT&T's need, therefore, to offer very large discounts to preclude private carriage (after the above 890 decision). Once the FCC required it to permit reselling of its services, those discounts provided wide margins within which resellers could operate—margins considerably wider than have typically been prescribed by regulatory agencies under the terms of the Telecommunications Act. The experience I cite here demonstrates, however, that whatever the adequacy of those prescribed discounts for pure reselling, they have in fact sufficed to permit use of resale as part of a transition strategy for predominantly facilities-based CLECs, without substantial use of ILEC UNEs.

¹⁷ Winstar Reports Fourth Quarter and Year-End Results, March 4, 1999.

¹⁸ David Scott, *The Future of Local Exchange Competition*, Presented at the 25th Annual Rate Symposium, St. Louis, Missouri, April 27, 1999.

necessary today may very well cease to be necessary tomorrow. This clearly suggests that the even quite general instructions of the Supreme Court require a periodic reconsideration of whatever list of elements the Commission decides are “necessary.”

IV. ASSESSMENT OF THE ESSENTIALITY OF ILEC NETWORK ELEMENTS

A. Summary

28. The facts provided by the UNE Fact Report, PNR and NECI¹⁹ demonstrate that only some ILEC network elements are essential in only some markets. Taken in conjunction with the economic principles I have expounded in the preceding sections, they counsel the Commission to impose mandatory unbundling only in those situations.

29. In the following subsections, I summarize these facts and the conclusions they suggest with respect to (1) switching, (2) transport, (3) subscriber loops, (4) directory assistance and operator services and (5) advanced network functions and services. I demonstrate briefly how, taken in conjunction with the preceding exposition of the applicable economic principles, they support the following conclusions:

- Switching is not an essential input, because CLECs are providing their rapidly growing volume of services that compete with ILEC services by relying predominantly on their own switches.
- In the case of transport, CLECs have placed facilities in areas where demand is concentrated—that is, contiguously with the largest ILEC wire centers. In these areas, they rely predominantly on their own facilities—or facilities provided by

other CLECs—as transport inputs. Transport is therefore manifestly not an essential input in these areas.

- The evidence with respect to subscriber loops and its policy implications are similar: CLECs have concentrated on providing them to medium to large businesses (defined, roughly, as users with volume sufficient to make DS-1 access economic) in concentrated metropolitan areas and are actually providing such facilities to a large share of these customers. Subscriber loops are, therefore, not essential inputs in these markets. While CLEC inroads into other markets with their own subscriber loops is not as far along, there are strong indications that alternatives will rapidly become available. For example, AT&T has invested or committed itself to invest over \$90 billion to acquire cable television facilities that would allow it to provide telephone, video and advanced services directly to over 50 percent of US households.²⁰ Similarly, AT&T and other PCS providers are now marketing their PCS service as a substitute for first and second wireline telephones. While therefore the Commission may properly treat loops as essential for competition in most residential markets today, it should be alert to the need to remove them from the list when and as, in particular geographic markets, CLECs (including, prominently, cable, wireless and electric companies) demonstrate their ability to compete by using their own facilities.

¹⁹ Network Engineering Consultants, Inc. (NECI), “An Analysis of Alternative Network Elements Available to CLECs” (May 26, 1999) (filed as Appendix C to GTE’s Comments).

²⁰ Cable television firms not currently affiliated with AT&T already are providing these capabilities to some of their subscribers.

- In the case of directory assistance and operator services, numerous alternatives to ILEC products are already being provided. In fact, even some ILEC affiliates purchase these services rather than provide their own. Consequently, there is no economic justification for mandatory unbundling.
- ILEC competitors are offering advanced network services without reliance on ILEC inputs. If anything, it is the CLECs, not the ILECs that have the stronger position in these markets. Because the provision of such *new* services is clearly going to be competitive from the outset, and the incumbent companies are evidently going to have to make very large investments to catch or keep up, not only does the case for mandatory unbundling and sharing at regulatorily-prescribed rates not apply, such treatment of these network elements is likely to conflict with the requirements of dynamic competition.

B. Switching functions

30. The description in the UNE Fact Report of how CLECs use alternative sources of switching clearly demonstrates that ILEC unbundled switching does not meet the “necessary” and “impair” standards from an economic perspective. There is therefore no economic basis for mandatory unbundling of these functions.

31. The UNE Fact Report describes how the local exchange switch and the associated rate exchange areas (or rate centers) constitute a basic building block of the ILEC network and examines the alternatives to ILEC switching available to CLECs at the rate center level. This examination produced the following findings.

- One third of the rate centers in RBOC/GTE territories are served by at least one CLEC switch.
- In contrast to ILEC networks, CLEC switches tend to serve multiple rate centers: the average CLEC switch serves 14. The “footprint” of these switches is even larger. For example, as the UNE Fact Report points out that (1) AT&T says its switches can serve customers within a 125 mile radius and (2) switch manufacturers document that a CLEC switch can serve customers up to 600 miles away. The UNE Fact Report reports also that a CLEC switch can serve customers throughout a LATA. This fact has two economically significant implications. First, CLECs can take advantage of economies of scale in switching by serving larger areas than are typically served by ILECs. Second, according to the calculations in the UNE Fact Report, CLEC switches now have 94 percent of all the RBOC/GTE rate centers within their reach.
- A rapidly increasing number of switches are being deployed by a large number of CLECs. Over 150 CLECs have deployed at least one. The total number has increased 10-fold in the last three years—from 65 before the Telecommunications Act was passed to over 700 switches by March 1999. The time necessary to install switches has decreased, with CLECs providing estimates in the range of 40 days to 28 weeks.

- In addition to standard local exchange switches, CLECs can obtain switching functions from other sources, including long-distance,²¹ wireless, packet, and PBX switches. Indeed, the Commission recently described how switching can be provided by network equipment that serves other functions as well.²²

C. Transport

32. The UNE Fact Report provides a conservative answer to the question: when must CLECs rely on interoffice transport²³ provided by ILECs in order to serve their customers. The Report points out that:

- CLECs tend to locate their facilities in areas of high concentration of telecommunications demand, focusing on large wire centers— locations serving 20,000 - 40,000 lines.
- They have collocated their networks (or have collocation agreements pending) in a substantial fraction of such wire centers, accounting for roughly one-half of all ILEC lines. When CLECs collocate in these wire centers, they rely on their own networks or on facilities provided on a wholesale basis by other CLECs; they do not purchase very much from ILECs.

²¹ For example, AT&T serves its larger business customers with Digital Link service, which connects these customers to its long-distance switches through high capacity connections.

²² See *In re Deployment of Wireline Services Offering Advanced Telecommunications Capability*, First Report and Order and Further Notice of Proposed Rulemaking, CC Docket 98-147, FCC NO. 99-48, at pars. 27-31 (March 31, 1999) (discussing new telecommunications equipment, such as DSLAMs, routers, ATM multiplexers and remote switching modules, that combines switching and other functions).

²³ Local exchange carriers use transport to establish connections (1) among their own switching locations, (2) to the switching locations of other local exchange carriers, and (3) to the networks of long-distance carriers.

- Dr. Foreman's analysis of collocation in GTE's territories²⁴ indicates that the size at which collocation tends to occur is smaller for GTE; his analysis concludes that collocation is almost 20 times more likely in offices above 15,000 lines than in smaller offices. He observes also that CLECs generally do not purchase unbundled transport in offices in which they have collocated. Instead they rely on their own facilities, transport provided by other CLECs, and/or ILEC-provided special access.

33. These facts lead to the clear conclusion that ILEC interoffice transport is *not* an essential input in areas served by the larger ILEC wire centers. Consequently, mandatory unbundling of ILEC transport in these markets would not be justified.

- This does not necessarily rule out the essentiality of ILEC transport at smaller wire centers. I suggest, conservatively, therefore, that transport network elements outside of the ILEC's high-density wire center areas—and only outside those areas—be subjected to mandatory unbundling. At the same time, in view of the apparent tendency of CLECs to use resale to supplement what they can provide with their own facilities, I recognize that this invitation from the FCC might turn out to be to a party that no one decided to attend.

D. Subscriber loops

34. As the CLEC business strategies that I have already described clearly demonstrate, the treatment of subscriber loops must logically vary from one market—defined both

²⁴ See Declaration of Dr. R. Dean Foreman (filed as Appendix C to GTE's Comments).