United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued March 7, 2002 Decided May 24, 2002

No. 00-1012

United States Telecom Association, et al.,
Petitioners

v.

Federal Communications Commission and
United States of America,
Respondents

Bell Atlantic Telephone Companies, et al.,
Intervenors

Consolidated with
01-1075, 01-1102, 01-1103

No. 00-1015

United States Telecom Association, et al.,
Petitioners

v.

Federal Communications Commission and
United States of America,
Respondents

AT&T Corporation, et al.,
Intervenors

Consolidated with
00-1025

On Petitions for Review of Orders of the
Federal Communications Commission

Michael K. Kellogg argued the cause for petitioners and supporting intervenors in 00-1012 & 00-1015. With him on the briefs in 00-1012 were Mark L. Evans, Sean A. Lev, James D. Ellis, Paul K. Mancini, Roger K. Toppins, Gary L. Phillips, Lawrence E. Sarjeant, Linda L. Kent, Keith Town-send, John W. Hunter, Julie E. Rones, William P. Barr, Michael E. Glover, Edward H. Shakin, John P. Frantz, Richard M. Sbaratta, and James G. Harralson. With him on the briefs in 00-1015 were Mark L. Evans, Sean A. Lev, David L. Schwarz, Lawrence E. Sarjeant, Linda L. Kent, Keith Townsend, John W. Hunter, Julie E. Rones, Sharon J. Devine, Robert B. McKenna, William T. Lake, John H. Harwood II, Jonathan J. Frankel, James D. Ellis, Paul K. Mancini, Roger K. Toppins, Gary L. Phillips, Michael E. Glover, Edward H. Shakin, William P. Barr, John P. Frantz, Jonathan B. Banks, Richard M. Sbaratta, and James G. Harralson. Donna M. Epps entered an appearance in 00-1012. Daniel L. Poole and William R. Richardson, Jr. entered appearances in 00-1015.

Laurence N. Bourne, Counsel, Federal Communications Commission, argued the cause for respondents in 00-1012. With him on the brief in 00-1012 were Charles A. James, Assistant Attorney General, Daniel M. Armstrong, Associate General Counsel, John E. Ingle, Deputy Associate General Counsel, James M. Carr, Counsel, Catherine G. O'Sullivan and Nancy C. Garrison, Attorneys, U.S. Department of Justice. Lisa S. Gelb, Counsel, Federal Communications Commission entered an appearance in 00-1012.

Richard K. Welch, Counsel, Federal Communications Commission, argued the cause for respondents in 00-1015. With him on the briefs in 00-1015 were Charles A. James, Assistant Attorney General, Daniel M. Armstrong, Associate General Counsel, John E. Ingle, Deputy Associate General Counsel, Laurence N. Bourne and James M. Carr, Counsel, Catherine G. O'Sullivan and Nancy C. Garrison, Attorneys, U.S. Department of Justice. Lisa S. Gelb, Counsel, Federal Communications Commission, entered an appearance in 00-1015.

Jonathan Jacob Nadler argued the cause for intervenors AT&T Corp., et al. in 00-1012. With him on the brief in 00-1012 were David W. Carpenter, Peter D. Keisler, James P. Young, Mark C. Rosenblum, Lawrence J. Lafaro, Richard H. Rubin, Donald B. Verrilli, Jr., Maureen F. Del Duca, Michael B. DeSanctis, Thomas F. O'Neil III, William Single, IV, Theresa K. Gaugler, Charles C. Hunter, Catherine M. Hannan, Albert H. Kramer, Robert McDowell, Jay C. Keithley and H. Richard Juhnke. John J. Heitmann, Jonathan E. Canis and Roy E. Hoffinger entered appearances in 00-1012.

David W. Carpenter argued the cause for intervenors AT&T, Corp., et al. in 00-1015. With him on the brief in 00-1015 were Peter D. Keisler, James P. Young, C. Frederick Beckner III, Mark C. Rosenblum, Lawrence J. Lafaro, Richard H. Rubin, Donald B. Verrilli, Jr., Maureen F. Del Duca, Michael B. DeSanctis, Thomas F. O'Neil III, William Single, IV, Rodney Joyce, Christy C. Kunin, Russell I. Zuckerman, Francis D.R. Coleman, Richard E. Heatter, Marilyn H. Ash, Douglas G. Bonner, Albert H. Kramer, Charles C. Hunter and Catherine M. Hannan. Roy E. Hoffinger, Lawrence G. Acker, John J. Heitmann and Jonathan E. Canis entered appearances.

Before: Edwards and Randolph, Circuit Judges, and Williams, Senior Circuit Judge.

Opinion for the Court filed by Senior Circuit Judge Williams.

Williams, Senior Circuit Judge: Petitioners in these two cases--certain incumbent local exchange carriers ("ILECs") and the U.S. Telecom Association, representing approximately 1200 such carriers--seek review of two rulemaking orders of the Federal Communications Commission. One order requires ILECs to lease a variety of "unbundled network elements" ("UNEs") to competitive local exchange carriers ("CLECs"), and the other unbundles a portion of the spectrum of local copper loops so that CLECs can offer competitive Digital Subscriber Line ("DSL") internet access. We grant both petitions, and remand both rules to the Commission.

I. Background

Congress passed the Telecommunications Act of 1996, Pub. L. 104-104, 110 Stat. 56, codified at 47 U.S.C. § 151 et seq. (the "1996 Act" or the "Act"), to "promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies." 1996 Act, preamble. In pursuit of that goal, § 251 of the Act requires that ILECs "unbundle" their network elements--that is, provide them on an individual basis to competitive providers on terms prescribed by the Commission. 47 U.S.C. § 251(c)(3). To guide the Commission in deciding which network elements are to be unbundled, the Act goes on to specify:

> (2) Access standards
>
> In determining what network elements should be made available for purposes of subsection (c)(3) of this section, the Commission shall consider, at a minimum, whether--
>
> (A) access to such network elements as are proprietary in nature is necessary; and
>
> (B) the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer.

47 U.S.C. § 251(d)(2) (emphasis added).

In its first effort at implementation, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, First Report and Order, CC Docket No. 96-98, 11 FCC Rcd 15499 (1996) ("First Local Competition Order"), the Commission gave this section the following reading:

> The term "impair" means "to make or cause to become worse; diminish in value." We believe, generally, that 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. We believe we must consider this standard by evaluating

> whether a carrier could offer a service using other unbundled elements within an incumbent LEC's network.

Id. at 15643, p 285 (emphasis added). In AT&T Corp. v. Iowa Utilities Board, 525 U.S. 366 (1999), the Supreme Court found the Commission's view far too broad, saying that under such a standard it was "hard to imagine when the incumbent's failure to give access to the element would not constitute an 'impairment.' " Id. at 389. It specifically criticized the Commission's having "blind[ed] itself to the availability of elements outside the incumbent's network," including self-provisioning and leasing from other providers. Id. It criticized the Commission's view that "any increase" in the competitor's cost (resulting from lack of access to an incumbent's element) would be an "impairment." Id. at 389-90 (emphasis in original). Summarizing the overall picture, it said that if "Congress had wanted to give blanket access to incumbents' networks," it "would simply have said (as the Commission in effect has) that whatever requested element can be provided must be provided." Id. at 390.

In Iowa Utilities Board, the Supreme Court also addressed the Act's provisions on rates for UNEs, reversing the Eighth Circuit's holding that the Commission had no authority to set such rates. Id. at 377-86. It accordingly returned the remaining rate issues to the Eighth Circuit, which on remand invalidated the Commission's rate-setting principle, known by the acronym TELRIC (for "total element long-run incremental cost"). See Iowa Utilities Board v. FCC, 219 F.3d 744 (8th Cir. 2000). The Supreme Court reversed, upholding the TELRIC principle. Verizon Communications, Inc. v. FCC, No. 00-511, 2002 WL 970643 (May 13, 2002).

Following the Supreme Court's remand on the "impairment" standard, the Commission again tackled that issue in the rulemakings now on review. In what we will call the "Local Competition Order," Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 15 FCC Rcd 3696 (1999), it revised its definition of "impair" so as to require unbundling if, "taking into consideration the availability of alternative elements outside the incumbent's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to that element materially diminishes a requesting carrier's ability to provide the services it seeks to offer." Local Competition Order, 15 FCC Rcd at 3725, p 51 (emphasis added); 47 C.F.R. § 51.317(b)(1). In weighing the availability of alternative network elements, the Commission noted that it would examine five factors--cost, effect on timeliness of entry, quality, ubiquity, and impact on network operations. Local Competition Order, 15 FCC Rcd at 3731, p 65, 3734-45, p p 71-100; 47 C.F.R. § 51.317(b)(2). Finally, it said that beyond looking simply to "impairment," it would consider five factors that it believed would further the Act's goals, namely whether unbundling would lead to "rapid introduction of competition in all markets," promote "facilities-based competition, investment, and innovation," reduce regulatory obligations, promote certainty in the market, and be administratively practical. 15 FCC Rcd at 3745-50, p p 101-16; 47 C.F.R. § 51.317(b)(3).

Of particular importance to this case, the Commission decided to make its unbundling requirements (except for two elements) applicable uniformly to all elements in every geographic or customer market. We return in detail to this issue after a survey of the elements unbundled by the Local Competition Order:

. Local loops, defined as "all features, functions and capabilities of the transmission facilities, including dark fiber and attached electronics (except those used for the provision of advanced services, such as DSLAMs [DSL Access Multiplexers]) owned by the incumbent LEC, between an incumbent LEC's central office and the loop demarcation point at the customer premises." 15 FCC Rcd at 3772, p 167; 47 C.F.R. § 51.319(a)(1). The Commission also required that incumbent LECs "condition" loops so as to allow CLECs to offer advanced services. 15 FCC Rcd at 3775, p 172; 47 C.F.R. § 51.319(a)(3). Conditioning, for these purposes, means removing devices such as bridge taps, low-pass filters, range extenders, etc., that improve voice transmission but may decrease a loop's advanced services capabilities. Id.

. Subloops, i.e., those "portions of the loop that can be accessed at terminals in the incumbent's outside plant." 15 FCC Rcd at 3789, p 206; 47 C.F.R. § 51.319(a)(2). Points of access might include the pole near the customer's premises, the network interface device ("NID"), and the feeder distribution interface (where the trunk line from the central office interfaces with the distribution line to the subscribers). 15 FCC Rcd at 3789-90, p 206.

. Network Interface Devices, which include all "features, functions, and capabilities of the facilities used to connect the loop distribution plant to the customer premises wiring, regardless of the particular design of the NID mechanism." Id. at 3801, p 233; 47 C.F.R. § 51.319(b). This broad definition is intended to make the unbundling requirement "flexible and technology-neutral," so as to apply to any new NID technologies that may develop. 15 FCC Rcd at 3801, p 234.

. Circuit switching, defined as the "basic function of connecting lines and trunks," including "all the features, functions and capabilities of the switch." Id. at 3805, p 244; 47 C.F.R. § 51.319(c). The Commission made one narrow exception to circuit switch unbundling, which we discuss below.

. Packet switching under some circumstances. Packet switches perform "the function of routing individual data units based on address or other routing information contained in the units." 15 FCC Rcd at 3833, p 302; 47 C.F.R. § 51.319(c)(4). The Commission for the most part denied

unbundling for packet switching, requiring it only where the ILEC has used digital loop carrier systems, placing a DSLAM at a remote terminal and refusing to allow the competitor to collocate its own DSLAM at that remote terminal. 15 FCC Rcd at 3838, p 313. That is, if the loop is such that a remote DSLAM is necessary to provide DSL service at all, and the ILEC has denied the CLEC the right to collocate a DSLAM remotely, then unbundling the packet switching (i.e., the ILEC's own DSLAM) would be the only way to allow the CLEC to provide DSL service.

. Dedicated transport, defined as "facilities dedicated to a particular customer or carrier that provide telecommunications between wire centers owned by incumbent LECs or requesting telecommunications carriers, or between switches owned by incumbent LECs or requesting telecommunications carriers." Id. at 3842, p 322; 47 C.F.R. § 51.319(d)(1)(i). The Commission expanded this traditional definition so as to include all high-capacity transmission facilities of specified types and "such higher capacities as evolve over time," 15 FCC Rcd at 3843, p 323, as well as dark fiber, id. at 3843-46, p p 325-30; 47 C.F.R. § 51.319(d)(1)(ii).

. Shared transport, defined as "transmission facilities shared by more than one carrier, including the incumbent LEC, between end office switches, between end office switches and tandem switches, and between tandem switches in the incumbent LEC's network." 15 FCC Rcd at 3862, p 370; 47 C.F.R. § 51.319(d)(1)(iii).

. Signaling networks and call-related databases. Signaling networks include signaling transfer points, to which each local switch must be connected. 15 FCC Rcd at 3868, p 384; 47 C.F.R. § 51.319(e). Call-related databases are "used in signaling networks for billing and collection or the transmission, routing, or other provision of telecommunications service." 15 FCC Rcd at 3875, p 403. The databases specifically unbundled include the calling name database, the 911 database, the toll free calling database, and several others. Id.

. Operations support systems. These are the "functions supported by an incumbent LEC's databases and information," including "pre-ordering, ordering, provisioning, repair and

maintenance, and billing." 15 FCC Rcd at 3884, p 425; 47 C.F.R. § 51.319(g).

So far as we understand, this list is narrower than that which the Court reversed in Iowa Utilities Board only in its exclusion of some circuit switches, as well as of operator services and directory assistance. See 15 FCC Rcd at 3822-31, p p 276-98, 3890-92, p p 438-42. In other areas, the Commission's list has actually been expanded, now including high-capacity loops, id. at 3777, p 176, 3780, p 184, dark fiber, id. at 3785, p 196, 3843-46, p p 325-30, subloops, id. at 3788-89, p p 202-05, and packet switches in a few circumstances, id. at 3832-35, p p 300-06.

In what we call the "Line Sharing Order," In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Third Report and Order in CC Docket No. 98-147 and Fourth Report and Order in CC Docket No. 96-98, 14 FCC Rcd 20912 (1999), the Commission refined unbundling further. Copper loops have a range of spectrum in which the transmission of information is possible. Analog telephone service uses only the lower frequencies of that spectrum (typically 300 to 3400 hz), leaving higher frequencies unused. Recent technological development allows the provision of DSL high-speed internet access over the high-frequency (i.e., 20,000+ hz) spectrum.[1] By fitting the loop with splitters (which split apart voice and digital signals) and DSLAMs (Digital Subscriber Line Access Multiplexers) (which send voice traffic to the circuit-switched telephone network and data traffic to the packet-switched data network), local carriers can provide both plain old telephone service and DSL internet access at the same time.

In the "Line Sharing Order" the Commission decided that the high frequency portion of copper loop spectrum should be unbundled as to those loops on which ILECs are currently providing telephone service. The Commission defined the "high frequency" portion as simply any frequency "above the voiceband on a copper loop facility used to carry analog circuit-switched voiceband transmissions." Line Sharing Order, 14 FCC Rcd at 20926, p 26; 47 C.F.R. s 51.319(h)(1).

Such unbundling means, of course, that CLECs and ILECs would share the same copper loop to provide two different services at once. See, e.g., 14 FCC Rcd at 20923, p 17. The Commission clarified that the unbundling obligation extends to only one competitor per line. Id. at 20948, p 47.

The Commission also required ILECs to condition loops, that is, to remove loading coils, bridge taps, and other voice-band transmission enhancing equipment that tends to interfere with DSL service. Id. at 20917; 20952-54, p p 81-87; 47 C.F.R. § 51.319(h)(5). An ILEC can escape this obligation by demonstrating that conditioning would significantly degrade analog voice service.

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[1] There are numerous types of DSL technology: ADSL (asymmetric DSL, in which upstream transmissions are much slower than downstream), HDSL (high-speed DSL), UDSL (universal DSL), VDSL (very-high-speed DSL), and RADSL (rate-adaptive DSL). See Line Sharing Order, 14 FCC Rcd at 20915 n.5. The Commission here and elsewhere refers to these technologies collectively as "xDSL," the "x" serving as a generic identifier. In the interests of judicial economy, we shall simply use "DSL" as the generic term.

The Commission explicitly recognized that such a showing would be practically impossible for loops under 18,000 feet. 14 FCC Rcd at 20954, p 86.

II. The Local Competition Order

We note at the outset the extraordinary complexity of the Commission's task. Congress sought to foster competition in the telephone industry, and plainly believed that merely removing affirmative legal obstructions would not do the job. It thus charged the Commission with identifying those network elements whose lack would "impair" would-be competitors' ability to enter the market, yet gave no detail as to either the kind or degree of impairment that would qualify. We review the two orders with this in mind.

A. Unvarying Scope

As to almost every element, the Commission chose to adopt a uniform national rule, mandating the element's unbundling in every geographic market and customer class, without regard to the state of competitive impairment in any particular market. As a result, UNEs will be available to CLECs in many markets where there is no reasonable basis for thinking that competition is suffering from any impairment of a sort that might have the object of Congress's concern.

One reason for such market-specific variations in competitive impairment is the cross-subsidization often ordered by state regulatory commissions, typically in the name of universal service. This usually brings about undercharges for some subscribers (usually rural and/or residential) and overcharges for the others (usually urban and/or business). Petitioners' opening brief in the Local Competition Order case cites testimony of a former FCC Chairman for the proposition that 40% of telephone service is charged below cost, Petitioners' Br. at 35 & n.16, and the Commission and its supporting intervenors do not demur. See also, e.g., Robert W. Crandall & Thomas W. Hazlett, Telecommunications Policy Reform in the United States and Canada, at 18, Working Paper 00-9, AEI-Brookings Joint Center for Regulatory Studies (Dec. 2000) (chart showing that in many American cities, businesses are charged substantially more than residences for single lines); see also generally Robert W. Crandall & Leonard Waverman, Who Pays for Universal Service? When Subsidies Become Transparent (2000).

Competitors will presumably not be drawn to markets where customers are already charged below cost, unless either (1) the availability of UNEs priced well below the ILECs' historic cost makes such a strategy promising, or (2) provision of service may, by virtue of economies of scale and scope, enable a CLEC to sell complementary services (such as long distance or enhanced services) at prices high enough to cover incomplete recovery of costs in basic service. The Commission never explicitly addresses by what criteria want of unbundling can be said to impair competition in such markets, where, given the ILECs' regulatory hobbling, any competition will be wholly artificial. And, although it offers an explanation as to why it is desirable as a general matter that CLECs should have "ubiquitous" unimpaired access to network elements, see Local Competition Order, 15 FCC Rcd at 3744, p p 97-98, it never explains why the record supports a finding of material impairment where the element in question--though not literally ubiquitous--is significantly deployed on a competitive basis in those markets where there is no reason to suppose that rates are artificially low, compare id. at 3847, p 335 (finding that 47 of the top 50 areas have 3

or more competitors providing interoffice transport), with id. at 3849, p 340 (finding absence of requisite ubiquity for such transport).

But it is in the other segments of the markets, where presumably ILECs must charge above cost (at least above average costs allocated in conventional regulatory fashion) in order to offset their losses in the subsidized markets, that the gap in the Commission's reasoning is greatest. In finding that the CLECs' lack of access to each of the many elements "materially diminish[ed]" their ability to provide service, the Commission nowhere appears to have considered the advantage CLECs enjoy in being free of any duty to provide underpriced service to rural and/or residential customers and thus of any need to make up the difference elsewhere. As a matter of pure language, perhaps, one might regard as an "impairment" any cost disadvantage that the CLECs suffer in markets where ILECs are hampered by regulatory redistribution, even if the disadvantage is fully offset by the exigencies faced by ILECs. But the Commission has never explained why such a view makes sense. Indeed, pointing to evidence of considerable investment by CLECs in facilities for service in what are evidently the relatively overcharged markets, see, e.g., Petitioners' Br. at 16 (noting that as of 1999, CLECs had deployed transport facilities in all of the top 50 markets), the petitioners argue that there has been little or no real net impairment. The Commission responds with an expression of doubt whether these "data accurately reflects [sic] the extent to which alternatives are actually available to competitors." Local Competition Order, 15 FCC Rcd at 3849, p 341. But because the Commission has loftily abstracted away all specific markets, and because its concept of impairing cost-differentials is so broad (an issue discussed below), we have no way of assessing the real meaning of that conclusion.

We now turn to the reasons offered by the Commission for adopting an undifferentiated national rule for each element (with narrow exceptions). Having found legal authority to adopt such a rule, it said that it would help achieve the goals of the Act, to wit: (1) rapid introduction of competition, (2) promotion of facilities-based competition, investment and innovation, (3) certainty in the marketplace, (4) administrative practicality and (5) reduced regulation. See Local Competition Order, 15 FCC Rcd at 3754-62, p p 124-143; see also 47 C.F.R. § 51.317(b)(3) (identifying same five factors as guiding Commission decision whether to unbundle a network element).

We first address the third and fourth justifications, both of which seemingly turn on how clear any non-universal rule can be. The Commission appears simply to assume that any such rule would be unpredictable and hard to apply. Yet the Commission itself, in regard to circuit switches, chose a partial rule, denying unbundling for local circuit switches serving customers with four or more lines in the highest-density zone in any of the top 50 Metropolitan Statistical Areas ("MSAs"). See Local Competition Order, 15 FCC Rcd at 3823-31, p p 278-99. The Commission's order has no explanation of why comparable differentiation was not available for other elements.

As to reduced regulation, the Commission says that a national list "will result immediately in reduced regulation." Id. at 3762, p 143. It does not elaborate on this counterintuitive proposition. It goes on to say that a national list is consistent with "the deregulatory goals of the Act":

> Reduced regulation will occur as we remove elements from the list as requesting carriers are no longer impaired without access to those

> elements, and it otherwise does not further the goals of the Act to continue requiring incumbent LECs to unbundle them.

Id. We understand that elimination of an entire universal mandate at one whack will achieve more deregulation than removal of a partial mandate. But imposition of a national mandate does not itself entail national elimination, and in any event we cannot see how imposition and then retraction of a national mandate is more deregulatory, overall, than imposition and retraction of a partial one.

This leaves the more substantive justifications--the ideas that universal rules would promote the goals of the Act by leading to rapid introduction of competition, Local Competition Order, 15 FCC Rcd at 3754-57, p p 125-33, and to promotion of facilities-based competition, investment, and innovation, id. at 3757-60, p p 134-39. Using certain definitions, the first point--more rapid introduction of competition--indeed follows automatically. If competition performed with ubiquitously provided ILEC facilities counts, the more unbundling there is, the more competition. The Commission, here in unison with the ILEC petitioners, evidently assumes that the Commission-imposed prices are highly attractive to CLECs; on that assumption, universal rules encompassing as many elements as possible would indeed generate a rapid spread of "competition."

But the Commission never makes the argument in quite so stark a form, unwilling to embrace the idea that such completely synthetic competition would fulfill Congress's purposes. Thus it turns to the argument that universal rules promote investment and facilities-based competition.

The Commission says that "adoption of a national list" will "facilitate the deployment" of competitive facilities. Id. at 3757, p 134. There are plainly two sides to the effects on investment of ubiquitously available UNEs at Commission-mandated prices. On one side, the more widespread the availability of elements that can be more efficiently provided by the incumbent (presumably because of economies of scale and scope--an issue to which we'll return), the quicker competitors will set about providing the other elements and offering of complete competitive service, including long distance service. Compare Iowa Utilities Board, 525 U.S. at 416-17 (Breyer, J., concurring in part and dissenting in part), cited at Respondent's Br. 32-33. Further, access to UNEs may enable a CLEC to enter the market gradually, building a customer base up to the level where its own investment would be profitable.

On the other side, the petitioners argued before the Commission that mandatory unbundling at Commission-mandated prices reduces the incentives for innovation and investment in facilities. Their reasoning, of course, is that a regulated price below true cost will reduce or eliminate the incentive for an ILEC to invest in innovation (because it will have to share the rewards with CLECs), and also for a CLEC to innovate (because it can get the element cheaper as a UNE). Indeed, many prices that seem to equate to cost have this effect. Some innovations pan out, others do not. If parties who have not shared the risks are able to come in as equal partners on the successes, and avoid payment for the losers, the incentive to invest plainly declines.[2] See Iowa

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[2] The Commission's standard for deciding that a network element should be unbundled--whether lack of access to it "materially diminishes" the requesting carrier's "ability" to provide the services in question--implicitly builds in a relation to the prices at which CLECs get access to UNEs. (The Commission is rarely clear on precisely what costs are being compared, but in saying that lack of

Utilities Board, 525 U.S. at 428-29 (Breyer, J., concurring in part and dissenting in part); cf. FPC v. Hope Natural Gas Co., 320 U.S. 591, 647-53 (1944) (Jackson, J., dissenting) (discussing supply implications of cost-based regulation of natural gas production). In any event, the Commission's own assumption that universal access to virtually all network elements would prove attractive (leading to rapid introduction of "competition") suggests that such a disincentive effect cannot be discounted a priori.

The Commission's only response is to point to evidence that both CLECs and ILECs have built facilities since passage of the 1996 Act (the same evidence invoked by the ILECs to show the existence of many markets where unbundling is unneeded), despite the Act's obviously having created a prospect of unbundling. Local Competition Order, 15 FCC Rcd at 3758-59, p p 135-38. But the existence of investment of a specified level tells us little or nothing about incentive effects. The question is how such investment compares with what would have occurred in the absence of the prospect of unbundling, compare Sugar Cane Growers Cooperative of Florida v. Veneman, No. 01-5335, 2002 Westlaw ----, slip op. at 7 (D.C. Cir. May 10, 2002); Competitive Enterprise Institute v. NHTSA, 956 F.2d 321, 325 (D.C. Cir. 1992), an issue on which the record appears silent. Although we can't expect the Commission to offer a precise assessment of disincentive effects (a lack of multiple regression analyses is not ipso facto arbitrary and capricious), we can expect at least some confrontation of the issue and some effort to make reasonable trade-offs.

In the end, then, the entire argument about expanding competition and investment boils down to the Commission's expression of its belief that in this area more unbundling is better. But Congress did not authorize so open-ended a judgment. It made "impairment" the touchstone. The Commission argues that § 251(d)(2), directing it to consider necessity and impairment "at a minimum," clearly allows it to consider other elements. We assume in favor of the Commission that that is so. But to the extent that the Commission orders access to UNEs in circumstances where there is little or no reason to think that its absence will genuinely impair competition that might otherwise occur, we believe it must point to something a bit more concrete than its belief in the beneficence of the widest unbundling possible.

Besides the analysis described above, the Commission addressed the question whether Iowa Utilities Board precluded its adoption of universal rules for each network element. It concluded that nothing in that opinion would require it "to determine, on a localized state-by-state or market-

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access to unbundled elements would cause a material increase in cost it often uses terms implying that the comparison is to the Commission-mandated price of unbundled elements, i.e., at present TELRIC. See, e.g., 15 FCC Rcd at 3815, p 263; id. at 3864, p 375.) Lack of access would not diminish the requester's ability at all if it could secure the function more cheaply on its own. Thus, the closer the Commission's pricing principle is to the low end of what it may lawfully set, the greater the probability that lack of access would cause "material diminution." As a result low UNE prices would not only have the direct effect mentioned in the text, but would inherently tend to expand the sphere of these effects. As the "price squeeze" jurisprudence shows, even prices that are set within the band of what is lawfully permissible may have perverse effects, and the Commission may be obligated to consider them. Cf. FPC v. Conway Corp., 426 U.S. 271, 278-79 (1976); Sprint Communications Co. L.P. v. FCC, 274 F.3d 549, 555 (D.C. Cir. 2001).

by-market basis which unbundled elements are to be made available." Local Competition Order, 15 FCC Rcd at 3753, p 122. We certainly agree that the Court's brief passage reversing the Commission on the impairment issue contained little detail as to the "right" way for the Commission to go about its work. But the Court's point that if "Congress had wanted to give blanket access to incumbents' networks," it "would simply have said (as the Commission in effect has) that whatever requested element can be provided must be provided," Iowa Utilities Board, 525 U.S. at 390, suggests that the Court read the statute as requiring a more nuanced concept of impairment than is reflected in findings such as the Commission's--detached from any specific markets or market categories.

B. Kinds of Cost Disparities

Petitioners complain that the Commission myopically focused on "cost differences," thereby skewing its inquiry to produce the maximum unbundling.

Of course any cognizable competitive "impairment" would necessarily be traceable to some kind of disparity in cost. Indeed, the ILECs argued before the Commission and the Supreme Court that Congress intended that the impairment standard embody the criteria of the "essential facilities" doctrine, see Iowa Utilities Board, 525 U.S. at 388, which itself turns on concepts of cost. The doctrine's basic idea is that where one firm controls some facility (such as a bridge) that is essential for competition in a broader market, and it would make no economic sense for competitors to duplicate the facility, and certain other criteria are satisfied, see generally Phillip E. Areeda & Herbert Hovenkamp, 3A Antitrust Law p p 771-73 (1996), the owner may be compelled to share the facility with its competitors. The classic case where competitor duplication would make no economic sense is where average costs are declining throughout the range of the relevant market. See Areeda & Hovenkamp, supra, at p 771c; see also 2 Alfred E. Kahn, The Economics of Regulation: Principles and Institutions 119 (1989). In such a case, duplication, even by the most efficient competitors imaginable, would only lead to higher unit costs for all firms, and thus for customers. See Areeda & Hovenkamp, supra, at p 771c; 2 Kahn, supra, at 122; see also generally Iowa Utilities Board, 525 U.S. at 416-17, 427-31 (Breyer, J., concurring in part and dissenting in part).[3] Thus the Supreme Court in Verizon observed that "entrants may need to share some facilities that are very expensive to duplicate (say, loop elements) in order to be able to compete in other, more sensibly duplicable elements (say, digital switches or signal-multiplexing technology)." Verizon, slip op. at 38 n.27 (emphasis added). See also id. at 39 n.27 (characterizing the elements with respect to which new entrants and incumbents are not required to compete (i.e., the elements to be unbundled) as those " 'the duplication of [which] would prove unnecessarily expensive' ") (quoting Justice Breyer, post, at 8, dissenting).

Petitioners' position here is fundamentally that the Commission relied on cost disparities that, far from being any indication that competitive supply would be wasteful, are simply disparities faced by virtually any new entrant in any sector of the economy, no matter how competitive the sector.

[3] Compare William J. Baumol, On the Proper Cost Tests for Natural Monopoly in a Multiproduct Industry, 67 Amer. Econ. Rev. 809 (1977) (proposing concept of "subadditivity" for ascertainment of natural monopoly), and William W. Sharkey, The Theory of Natural Monopoly (1982) (further development of subadditivity).

See Petitioners' Br. at 28. Indeed, the Commission's order does reflect an open-ended notion of what kinds of cost disparity are relevant.

For example, in the discussion of local switching, the Commission notes that there are economies of scale in switches, Local Competition Order, 15 FCC Rcd at 3812-13, p 259, and that it is cheaper to buy a 20,000-line switch than four increments of 5000 lines each, id. at 3813, p 260. The Commission refers explicitly to a CLEC's probable inability to enjoy scale economies comparable to ILECs' "particularly in the early stages of entry." Id. at 3814, p 261 (emphasis added). But average unit costs are necessarily higher at the outset for any new entrant into virtually any business. The Commission has in no way focused on the presence of economies of scale "over the entire extent of the market." 2 Kahn, supra, at 119 (emphasis added). Without a link to this sort of cost disparity, there is no particular reason to think that the element is one for which multiple, competitive supply is unsuitable. See generally id. at 119-26.

The Commission of course has recognized that marketplace changes and increases in competition may justify later reductions in unbundling mandates. See, e.g., Local Competition Order, 15 FCC Rcd at 3704, p 15. But this acknowledgement doesn't respond to the analytical problem. To rely on cost disparities that are universal as between new entrants and incumbents in any industry is to invoke a concept too broad, even in support of an initial mandate, to be reasonably linked to the purpose of the Act's unbundling provisions.

Each unbundling of an element imposes costs of its own, spreading the disincentive to invest in innovation and creating complex issues of managing shared facilities. See Iowa Utilities Board, 525 U.S. at 428-29 (Breyer, J., concurring in part and dissenting in part). At the same time--the plus that the Commission focuses on single-mindedly--a broad mandate can facilitate competition by eliminating the need for separate construction of facilities where such construction would be wasteful. Id. at 416-17. Justice Breyer concluded that fulfillment of the Act's purposes therefore called for "balance" between these competing concerns. Id. at 429-30. A cost disparity approach that links "impairment" to universal characteristics, rather than ones linked (in some degree) to natural monopoly, can hardly be said to strike such a balance. The Local Competition Order reflects little Commission effort to pin "impairment" to cost differentials based on characteristics that would make genuinely competitive provision of an element's function wasteful.

Petitioners here do not explicitly attack the Commission for its refusal to incorporate the essential facilities doctrine, and we do not intend to suggest that the Act requires use of that doctrine's criteria.[4] But what we do say is that cost comparisons of the sort made by the Commission, largely devoid of any interest in whether the cost characteristics of an "element" render it at all unsuitable for competitive supply, seem unlikely either to achieve the balance called for explicitly by Justice Breyer or implicitly by the Court as a whole in its disparagement of the Commission's readiness to find "any" cost disparity reason enough to order unbundling. The

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[4] We note that scholars have raised very serious questions about the wisdom of the essential facilities doctrine as a justification for judicial mandates of competitor access, and accompanying judicial price setting. See, e.g., Areeda & Hovenkamp, supra, at p 771c. But a doctrine that is inadequate for that purpose may nonetheless offer useful concepts for agency guidance when Congress has directed an agency to provide competitor access in a specific industry.

Commission's addition of a materiality notion, see Local Competition Order, 15 FCC Rcd at 3725, p 51 (finding impairment in any case where lack of access to an element "materially" diminishes ability to provide services), submits to the Court's ruling in a nominally quantitative sense (though the reality of such acquiescence cannot be measured and may be belied by the virtual identity of the old and new orders). More important, adding the adjective "material" contributes nothing of any analytical or qualitative character that would fulfill the Court's demand for a standard "rationally related to the goals of the Act." Iowa Utilities Board, 525 U.S. at 388.

Because the Commission's concept of "impairing" cost disparities is so broad and unrooted in any analysis of the competing values at stake in implementation of the Act, we cannot uphold even the two non-universal mandates adopted by the Commission (for circuit switches and packet switches).

Petitioners also attack the rules on specific elements. Some of these attacks parallel the universality and cost-disparity issues already discussed. Petitioners' critique as to advanced services equipment coalesces with the issues they raise about the Line Sharing Order (see below). This leaves two issues, neither of which we need address here. First, petitioners attack the Commission's requirements of certain information disclosure and "loop conditioning." After remand, these issues may well be moot, and if they recur will do so in a different context. Second, petitioners argue that the "enhanced extended link" condition to the exception to the switch unbundling mandate is in reality a mandate to combine otherwise uncombined network elements, and is therefore invalid. The Supreme Court appears to have definitely removed the basis of this claim, holding that the Commission has authority to require such combinations, affirmatively--that is, not merely as a condition to an unbundling exception. See Verizon, slip op. at 58-68. If any comparable claim somehow survives, it too can be raised in the remand proceedings.

III. The Line Sharing Order

Petitioners primarily attack the Line Sharing Order on the ground that the Commission, in ordering unbundling of the high frequency spectrum of copper loop so as to enable CLECs to provide DSL services, completely failed to consider the relevance of competition in broadband services coming from cable (and to a lesser extent satellite). We agree.

The Commission's own findings (in a series of reports under § 706 of the 1996 Act) repeatedly confirm both the robust competition, and the dominance of cable, in the broadband market. The first § 706 report found that "[n]umerous 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," including "cable television companies, incumbent LECs, some utilities, and 'wireless cable' companies." In the Matter of 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, 14 FCC Rcd 2398, 2404 p 12 (1999). The Commission also noted that the "most popular offering of broadband to residential consumers is via 'cable modems'...." id. at 2426, p 54, that "no competitor has a large embedded base of paying residential consumers," id. at 2423, p 48, and that the "record does not indicate that the consumer market is inherently a natural monopoly," id. The most recent § 706 Report (not in the record of this case) is consistent: As of the end of

June 2001, cable companies had 54% of extant high-speed lines, almost double the 28% share of asymmetric DSL. Third Report Pursuant to § 706, 2002 FCC LEXIS 655, at p p 44, 48 (Feb. 6, 2002). Even in the Local Competition Order on review in this case, the Commission said, "Competitive LECs and cable companies appear to be leading the incumbent LECs in their deployment of advanced services." 15 FCC Rcd at 3835, p 307.

Relying on the Commission's repeated findings, petitioners argue that it is "antithetical to the 1996 Act's language and deregulatory objectives" to mandate unbundling in a market that "already has intense facilities-based competition." DSL Petitioners' Br. at 3. They note the Supreme Court's observation that a proper "impairment" standard should be limited by the "goals of the Act." Id. at 23 (quoting Iowa Utilities Board, 525 U.S. at 388).

The Commission's response to this argument is to say that it was "merely adhering" to the letter of the statute: Thus it quotes the instruction of § 251(d)(2)(B) that it consider whether "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." DSL Respondent's Br. at 20, quoting 47 U.S.C. § 251(d)(2)(B) (emphasis added by Respondent). On this theory the Commission believes it was justified in focusing solely on DSL because that is what "CLECs seek to offer when they request line sharing." Id. at 21. The Commission thus appears to acknowledge that it adopted the Line Sharing Order with indifference to petitioners' contentions about the state of competition in the market.

The Commission's inference from § 251(d)(2)(B)'s allusion to the services the requester "seeks to offer" strikes us as quite unreasonable. See Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc., 467 U.S. 837, 842-43 (1984). As Justice Breyer's separate opinion carefully explained, mandatory unbundling comes at a cost, including disincentives to research and development by both ILECs and CLECs and the tangled management inherent in shared use of a common resource. Iowa Utilities Board, 525 U.S. at 428-29. And, as we said before, the Court's opinion in Iowa Utilities Board, though less explicit than Justice Breyer on the need for balance, plainly recognized that unbundling is not an unqualified good--thus its observation that the Commission must "apply some limiting standard, rationally related to the goals of the Act," id. at 388, and its point that the Commission "cannot, consistent with the statute, blind itself to the availability of elements outside the incumbent's network," id. at 389. In sum, nothing in the Act appears a license to the Commission to inflict on the economy the sort of costs noted by Justice Breyer under conditions where it had no reason to think doing so would bring on a significant enhancement of competition. The Commission's naked disregard of the competitive context risks exactly that result.

Accordingly, the Line Sharing Order must be vacated and remanded. Obviously any order unbundling the high frequency portion of the loop should also not be tainted by the sort of error identified in our discussion of the Local Competition Order and identified by petitioners here as well.

Petitioners also claim that the Commission without explanation reversed a prior decision that a portion of the spectrum of a loop cannot qualify as a "network element." The Commission urges that any language suggesting such a view is explicable as simply reflecting a judgment on technical

feasibility, which it here reversed on the basis of a reexamination of the facts. Line Sharing Order, 14 FCC Rcd at 20942-43, p 63. We think the Commission's view is convincing.

Finally, petitioners attack the Commission's pricing rule, which limited an ILEC's charges for access to the high frequency portion of the loop to the value the ILEC "allocated to [asymmetric] DSL services when it established its interstate retail rates for those services," even where this rule would reduce the charges below the level derived from the Commission's general UNE pricing principles. Line Sharing Order, 14 FCC Rcd at 20975-76, p 139. As in the case of the element-specific claims raised in the Local Competition Order case, we think the possible mootness, and certainty that any recurrence will be in a different context, warrant deferring the issue to another day.

* * *

We grant the petitions for review, and remand both the Line Sharing Order and the Local Competition Order to the Commission for further consideration in accordance with the principles outlined above.

So ordered.