integrity as we move to the new intercarrier compensation regime.[602] For many of the same reasons that we have authority to adopt comprehensive reform, we find that the Commission has clear authority to establish such a transitional structure to serve as a glide path to the new methodology we have developed in this order.

231. We find it reasonable to adopt a transition plan under these circumstances. As the D.C. Circuit has recognized, avoiding "market disruption pending broader reforms is, of course, a standard and accepted justification for a temporary rule,"[603] and here temporary rules setting forth a glide path are needed to mitigate potentially adverse rate or revenue effects that may be caused by our comprehensive intercarrier compensation reform, including the elimination of implicit universal service subsidies in those rates. Therefore, the Commission's exercise of its authority to create a transition plan is especially appropriate here, where the Commission is acting to reconcile the Act's "implicit tension between . . . moving toward cost-based rates and protecting universal service."[604] Not surprisingly, most commenters have affirmatively recognized the need for a transitional regime.[605] Indeed, every major plan submitted to us in this proceeding, whether the Missoula plan,[606] the ICF plan,[607] Verizon's plan,[608] AT&T's plan,[609] or the plan from CBICC,[610] ARIC,[611] NARUC,[612] or NASUCA,[613] has called for the Commission to establish

[602] This approach is consistent with Commission precedent set forth in Part V.A, which started reforming intercarrier compensation in the 1980s. There the Commission found that a "transitional plan is necessary" in part because "[i]mmediate recovery of high fixed costs through flat end-user charges might cause a significant number of local exchange service subscribers to cancel local exchange service despite the existence of a Universal Service Fund" and "[s]uch a result would not be consistent with the goals of the Communications Act." *1983 Access Charge Order,* 93 FCC 2d at 243, para. 4. As a result, the Commission initially limited the flat rate charge imposed on end users, also known as the subscriber line charge or SLC, to $1.00 (subsequent orders raised the cap on the subscriber line charge for residential users to $6.50).

[603] *Competitive Telecomms. Ass'n v. FCC*, 309 F.3d 8, 14 (D.C. Cir. 2002).

[604] *Southwestern Bell Tel. Co. v. FCC*, 153 F.3d 523, 538 (8th Cir. 1998).

[605] *See, e.g.*, BellSouth *ICC FNPRM* Comments at 17 ("In order to avoid the market disruption and dislocation that would be associated with instantaneous implementation of a unified plan, BellSouth proposes a two-phase transition plan."); CCG *ICC FNPRM* Comments at 2 ("Any plan that reduces access rates should be phased-in over as long a period as possible, at least for rural carriers, so these companies have time to prepare for and adjust to the economic impact."); Cincinnati Bell *ICC FNPRM* Comments at 12 ("The Commission must allow carriers the opportunity to earn this lost access revenue in the transition to a new compensation regime in order to make any regime change revenue neutral to the affected carriers."); CCAP *ICC FNPRM* Comments at 23 ("The CCAP believes that any reform of the existing intercarrier compensation regimes should take place over a three-to-five-year period . . . .").

[606] Missoula Plan, Executive Summary at 3 ("Recognizing the vast differences among carriers, the Plan creates three different transition schedules for intercarrier compensation rates.").

[607] Letter from Gary M. Epstein and Richard R. Cameron, Counsel for ICF, to Marlene H. Dortch, Secretary, FCC, CC Docket 01-92, Attach. 2 at 3 (filed Aug. 16, 2004).

[608] Verizon Sept. 12, 2008 *Ex Parte* Letter at 9–10.

[609] Letter from Henry Hultquist, Federal Regulatory Vice-President, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket 01-92, Attach 1 at 4 (filed July 17, 2008).

[610] Letter from Richard M. Rindler, Counsel for CBICC, to Marlene H. Dortch, Secretary, FCC, CC Docket 01-92, Attach. 1 at 2.

[611] ARIC *ICC FNPRM* Comments, Attach. 1 at 33.

[612] NARUC *ICC FNPRM* Comments, Attach. C at 6.

an orderly transition period. We take heed of these commenters and of our statutory responsibilities to ensure a smooth transition to the new regime by setting forth a multi-stage transition plan as part of our comprehensive reform of intercarrier compensation.

232. Moreover, we have several independent sources of legal authority to adopt the transition plan established in this order. For one, section 251 explicitly contemplates our authority to adopt a transitional scheme with regard to access charges. We agree with the United States Court of Appeals for the District of Columbia Circuit that section 251(g) created a "transitional enforcement mechanism"[614] preserving the access charge regimes that pre-dated the 1996 Act "until . . . explicitly superseded by regulations *prescribed by the Commission*."[615] Thus, section 251(g), by its terms, anticipates that the Commission may take action to end the regimes grandfathered by section 251(g), and inherent within the power to supersede the grandfathered access regime is the lesser power to prescribe regulations that determine *how* to transition to a cost-based pricing mechanism—a power that we have twice employed in the past to reduce access charges without explicitly superseding that regime.[616]

233. In addition, as the Supreme Court has further held, the Commission has authority to prescribe the requisite pricing methodology that the States will apply in setting rates under section 252(d)(2).[617] Consistent with our authority, the Commission here is providing for a transitional regime in the public interest to smooth the transition to the new pricing standard adopted by this order. The goal of this transition is to allow gradual changes to consumer rates while providing carriers with sufficient means to preserve their financial integrity as we move to the new intercarrier compensation regime.

234. Significantly, as discussed in greater detail above, although we elect to rely on the sections 251(b)(5) and 252(d)(2) framework for reform, that does not affect the Commission's jurisdiction

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[613] Letter from Philip F. McClelland, Senior Assistant Consumer Advocate, NASUCA, to Marlene H. Dortch, Secretary, FCC, CC Docket 01-92, Attach. 1 at 1 (filed Dec. 14, 2004).

[614] *WorldCom*, 288 F.3d at 433.

[615] 47 U.S.C. § 251(g) (emphasis added). At the least, section 251(g) preserved the interstate access regime the Commission had prescribed for all carriers (*see id.* (preserving "obligations (including receipt of compensation) . . . under any . . . regulation, order, or policy of the Commission . . . .")) and the intrastate access regime the Bell Operating Companies had agreed to in the Modified Final Judgment. *See United States v. AT&T*, 552 F. Supp. at 169. Recognizing, however, that it would be "'incongruous to conclude that Congress was concerned about the effects of potential disruption to the interstate access charge system, but had no such concerns about the effects on analogous intrastate mechanisms,'" the Commission has consistently interpreted section 251(g) to preserve the intrastate access regime pre-dating the Act for all carriers. *ISP Remand Order*, 16 FCC Rcd at 9168 n.66 (quoting *Local Competition First Report and Order*, 11 FCC Rcd at 15869, para. 732); *see also Competitive Telecomms. Ass'n v. FCC*, 117 F.3d 1068, 1072 (8th Cir. 1997) ("[I]t is clear from the Act that Congress did not intend all access charges to move to cost-based pricing, at least not immediately. The Act plainly preserves certain rate regimes already in place.").

[616] *See MAG Order*, 16 FCC Rcd 19613 (reducing interstate access charges for rate-of-return carriers); *CALLS Order*, 15 FCC Rcd 12962 (reducing interstate access charges for price-cap carriers), *aff'd in relevant part by Texas Office of Pub. Util. Counsel v. FCC*, 265 F.3d at 324 (reasoning that because the Commission had not yet superseded the pre-Act interstate access regime, it retained authority under section 201(b) to set just and reasonable rates for interstate access); *see also WorldCom*, 288 F.3d at 433 ("We will assume without deciding that under § 251(g) the Commission might modify LECs' pre-Act 'restrictions' or 'obligations,' pending full implementation of relevant sections of the Act. The Fifth Circuit appeared to make that assumption . . . .").

[617] *AT&T v. Iowa Utils. Bd.*, 525 U.S. at 384; *see also id.* at 378 ("The FCC has rulemaking authority to carry out the 'provisions of this Act,' which include §§ 251 and 252, added by the Telecommunications Act of 1996.")

over traffic or services otherwise subject to federal authority.[618] With respect to interstate services, the Act has long provided us with the authority to establish just and reasonable "charges, practices, classifications, and regulations."[619] The Commission also has authority over the rates of CMRS providers pursuant to section 332 of the Act.[620] The Commission thus retains full authority to adopt transition plans for traffic and services subject to federal jurisdiction, even when it is within the sections 251(b)(5) and 252(d)(2) framework. Because we re-affirm our findings concerning the interstate nature of ISP-bound traffic, it follows that such traffic falls under the Commission's section 201 authority preserved by the Act.[621] This conclusion is reinforced by section 251(i) of the Act. As the Commission explained in the *ISP Remand Order,* section 251(i) "expressly affirms the Commission's role in an evolving telecommunications marketplace, in which Congress anticipates that the Commission will continue to develop appropriate pricing and compensation mechanisms for traffic that falls within the purview of section 201."[622] It concluded that section 251(i), together with section 201, equips the Commission with the tools necessary to keep pace with regulatory developments and new technologies.[623] When read together, these statutory sections preserve the Commission's authority to address new issues that fall within its section 201 authority over interstate traffic, including compensation for the exchange of ISP-bound traffic. Consequently, in the *ISP Remand Order*, the Commission properly exercised its authority under section 201(b) to issue interim pricing rules governing the payment of compensation between carriers for ISP-bound traffic.[624]

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[618] *See supra* section V.B.3.

[619] 47 U.S.C. § 201(b).

[620] 47 U.S.C. § 332.

[621] We have consistently found that ISP-bound traffic is jurisdictionally interstate. ISP-bound traffic melds a traditional circuit-switched local telephone call over the PSTN to packet switched IP-based Internet communication to Web sites. *Declaratory Ruling*, 14 FCC Rcd at 3702, para. 18; *ISP Remand Order*, 16 FCC Rcd at 9175, para. 52. This conclusion has not been questioned by the D.C. Circuit. *See WorldCom*, 288 F.3d at 431; *Bell Atlantic v. FCC*, 206 F.3d at 5 ("There is no dispute that the Commission has historically been justified in relying on this method when determining whether a particular communication is jurisdictionally interstate"). In other contexts, the Commission has likewise found that services that offer access to the Internet are jurisdictionally interstate services. In 1998, for example, the Commission found that ADSL service is jurisdictionally interstate. *See GTE Tel. Operating Cos.*, CC Docket No. 98-79, Memorandum Opinion and Order, 13 FCC Rcd 22466, 22481, para. 28 (1998) ("finding that GTE's ADSL service is subject to federal jurisdiction" and is "an interstate service"). More recently, the Commission has confirmed this ruling for a variety of broadband Internet access services. *See Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities*, GN Docket No. 00-185, CS Docket No. 02-52, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd 4798, 4832, para. 59 (2002) (finding that, "on an end-to-end analysis," "cable modem service is an interstate information service"); *Wireline Broadband Internet Access Order*, 20 FCC Rcd at 14914, para. 110, *aff'd by Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.* (*Brand X*), 545 U.S. 967 (2005); *Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks*, WT 07-53, Declaratory Ruling, 22 FCC Rcd 5901, 5911, para. 28 (2007); *United Power Line Council's Petition for Declaratory Ruling Regarding the Classification of Broadband over Power Line Internet Access Service as an Information Service*, WC 06-10, Memorandum Opinion and Order, 21 FCC Rcd 13281, 13288, para. 11 (2006). In the *Vonage Order*, the Commission likewise found that VoIP services are jurisdictionally interstate, employing the same end-to-end analysis reflected in those other orders. *Vonage Order*, 19 FCC Rcd at 22413–14, paras. 17–18.

[622] *ISP Remand Order*, 16 FCC Rcd at 9174, para. 50.

[623] *See ISP Remand Order*, at 9175, para. 51.

[624] We thus respond to the D.C. Circuit's remand order in *WorldCom*, 288 F.3d at 434, and the court's writ of mandamus in *Core Communications*, 531 F.3d at 861–62, which directed the Commission to explain its legal

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235. This result is consistent with the D.C. Circuit's opinion in *Bell Atlantic*, which concluded that the jurisdictional nature of traffic is not dispositive of whether reciprocal compensation is owed under section 251(b)(5).[625] It is also consistent with the court's *WorldCom* decision, in which the court rejected the Commission's view that section 251(g) excluded ISP-bound traffic from the scope of section 251(b)(5), but made no other findings.[626] Finally, this result does not run afoul of the Eighth Circuit's decision on remand from the Supreme Court in the *Iowa Utilities Board* litigation, which held that "the FCC does not have the authority to set the actual prices for the state commissions to use" under section 251(b)(5).[627] At the time of that decision, under the *Local Competition First Report and Order*, section 251(b)(5) applied only to local traffic. Thus, the Eighth Circuit merely held that the Commission could not set reciprocal compensation rates for local traffic. The court did not address the Commission's authority to set reciprocal compensation rates for interstate traffic.[628] In sum, the Commission plainly has authority to establish pricing rules for interstate traffic, including ISP-bound traffic, under section 201(b), and that authority was preserved by section 251(i).

4. Additional Costs Standard

236. We now turn to reconsideration of our "additional costs" standard for implementing section 252(d)(2). Before describing our new standard, we briefly review the relevant statutory language and the Commission's implementation of the "additional costs" standard in the *Local Competition First Report and Order*. We then explain the importance of incremental cost in regulated pricing. Next we examine the incremental cost of call termination on modern networks. Finally we describe in detail the "additional costs" standard we adopt in this order.

a. Background

237. Section 252(d)(2)(A) sets forth the standard that state commissions, in arbitrating interconnection disputes, should apply in setting the "charges for transport and termination of traffic." That section states that "[f]or the purposes of compliance ... with section 251(b)(5), a State commission shall not consider the terms and conditions for reciprocal compensation to be just and reasonable unless (i) such terms and conditions provide for the mutual and reciprocal recovery by each carrier of costs associated with the transport and termination on each carrier's network facilities of calls that originate on the network facilities of the other carrier; and (ii) such terms and conditions determine such costs on the basis of a reasonable approximation of the additional costs of terminating such calls."[629] Section 252(d)(2)(B) provides that the preceding standard "shall not be construed (i) to preclude arrangements that afford the mutual recovery of costs through offsetting of reciprocal obligations, including arrangements that waive mutual recover (such as bill and keep arrangements); or (ii) to authorize the Commission or any State commission to engage in any rate regulation proceedings to establish with

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authority to issue the interim pricing rules for ISP-bound traffic adopted in the *ISP Remand Order*. Specifically, we find, for the reasons set forth above and in Part V.B.3, that the Commission had the authority to adopt the interim pricing regime pursuant to our broad authority under section 201(b) to issue rules governing interstate traffic.

[625] *See Bell Atlantic*, 206 F.3d at 5.

[626] *See WorldCom*, 288 F.3d at 434.

[627] *Iowa Utils. Bd. v. FCC*, 219 F.3d 744, 757 (8th Cir. 2000) (*Iowa Utils. II*), *rev'd in part sub nom. Verizon v. FCC*, 535 U.S. 467.

[628] Indeed, as discussed above, the court expressly confirmed the Commission's independent authority to set rates for CMRS traffic pursuant to section 332 and declined to vacate the Commission's pricing rules as they applied in the context of CMRS service. *See supra* para. 214; *Iowa Utils. I*, 120 F.3d at 800 n.21.

[629] 47 U.S.C. § 252(d)(2)(A).

particularity the additional costs of transporting or terminating calls, or to require carriers to maintain records with respect to the additional costs of such calls."[630]

238. In the *Local Competition First Report and Order*, the Commission adopted implementing rules interpreting section 252's pricing standards for interconnection and UNEs (section 252(d)(1)), and for reciprocal compensation (section 252(d)(2)). In setting the pricing methodology for interconnection and UNEs, the Commission directed the states to employ a forward-looking, long-run average incremental cost methodology, known as TELRIC.[631] The TELRIC methodology assumes that the relevant increment of output is all current and reasonably projected future demand, (i.e., it is designed to calculate the total cost of building a new, efficient network).[632] The Commission found that TELRIC rates should also include a reasonable allocation of forward-looking common costs, including overhead costs. Thus, TELRIC calculates the long-run average incremental cost of a network element. In setting the pricing methodology for reciprocal compensation, the Commission concluded that the statutory pricing standards for interconnection and UNEs (section 252(d)(1)), and for transport and termination of traffic (section 252(d)(2)), were "sufficiently similar" to permit the use of the same TELRIC methodology for establishing rates under both statutory provisions.[633]

239. Market developments since the adoption of the *Local Competition First Report and Order* demonstrate that application of the TELRIC methodology to reciprocal compensation has led to "excessively high reciprocal compensation rates."[634] More specifically, following the Commission's order, certain carriers began designing business plans to take advantage of above-cost reciprocal compensation payments by becoming a net recipient of local traffic. The most prevalent example of regulatory arbitrage for reciprocal compensation is ISP-bound traffic where the Commission found evidence that "CLECs appear to have targeted customers that primarily or solely receive traffic, particularly ISPs, in order to become net recipients" of reciprocal compensation payments.[635] As a result, the Commission has found that reciprocal compensation rates "do not simply compensate the terminating

[630] 47 U.S.C. § 252(d)(2)(B).

[631] *Local Competition First Report and Order*, 11 FCC Rcd at 15515, 15844–96, paras. 29, 672–732.

[632] *Local Competition First Report and Order*, 11 FCC Rcd at 15850–57, paras. 690–703, *see also* 47 C.F.R. § 51.505.

[633] *Local Competition First Report and Order*, 11 FCC Rcd at 16023, para. 1054. In applying the TELRIC methodology to reciprocal compensation, the Commission found that the "additional costs" to the LEC of terminating a call that originates on another carrier's network "primarily consists of the traffic-sensitive component of local switching." For purposes of setting rates, the Commission concluded that "only that portion of the forward-looking, economic cost of end-office switching that is recovered on a usage-sensitive basis constitutes an 'additional cost' to be recovered through termination charges." *Id.* at 16024–25, para. 1057. The Commission excluded non-traffic sensitive costs, such as the costs of local loops and line ports. *Id.* Further, the Commission concluded that termination rates established pursuant to the TELRIC methodology should include a reasonable allocation of forward-looking common costs because, the Commission reasoned, a rate equal to incremental costs may not compensate carriers fully when common costs are present. *Id.* at 16025, para. 1058. For transport, the Commission required the calling party's LEC to compensate the called party's LEC for the "additional costs" associated with transporting a call subject to section 251(b)(5) from the carriers' interconnection point to the called party's end office and for the additional costs of terminating the call to the called party. *Id.* at 16008–58, paras. 1027–118; see also 47 C.F.R. §§ 51.701(c), (d).

[634] *ISP* Remand Order, 16 FCC Rcd at 9185, para. 75); see also Letter from Norina Moy, Director, Government Affairs, Sprint Nextel, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-92, WC Docket No. 04-36 (filed Sept. 26, 2008) (Sprint Nextel Sept. 26, 2008 Ex Parte Letter).

[635] *Intercarrier Compensation NPRM*, 16 FCC Rcd at 9616, para. 11.

network, but also appear to generate profits for each minute that is terminated, thus creating a potential windfall."[636] In short, the evidence indicates that application of the TELRIC methodology to reciprocal compensation has not led to rates that accurately reflect a carrier's "additional costs" as the Commission initially envisioned and Congress intended. Rather, the Commission's existing pricing standard has led to rates that not only vary significantly among states,[637] but are generally too high, and which ultimately create regulatory arbitrage opportunities. Based on this evidence, and as detailed further below, we therefore conclude that we need to revise the current reciprocal compensation pricing methodology to align our standard more closely with the statutory text and with economic theory to eliminate, as far as possible, opportunities for regulatory arbitrage.

b. The Importance of Incremental Cost In Regulated Pricing

240. To provide a framework for our reconsideration of the proper "additional costs" methodology, we begin with a brief overview of long-standing principles for public utility pricing. As explained below, we believe the traditional economic definition of incremental cost, as applied to multiproduct firms, is most appropriate for setting intercarrier compensation rates. The Commission's existing TELRIC standard governing reciprocal compensation deviates from this more efficient version of incremental cost, and is likely to lead to rates that significantly exceed efficient levels. We also consider evidence in the record concerning costs of switches and fiber.

241. In economic theory generally and in its application to regulation, the relationship of price and marginal cost is of fundamental importance. Marginal cost can be simply defined as the rate of change in total cost when output changes by an infinitesimal unit. In economics, the term incremental cost refers to a discrete change in total cost when output changes by any non-infinitesimal amount, which might range from a single unit to a large increment representing a firm's entire output.[638] The terms additional costs and avoidable costs are commonly used to refer to incremental costs resulting from an increase or a decrease in output respectively.[639]

242. In a competitive market, it is assumed that both consumers and producers independently

[636] *See, e.g., Intercarrier Compensation NPRM*, 16 FCC Rcd at 9616, para. 11; *see also Intercarrier Compensation FNPRM*, 20 FCC Rcd at 4698 n.67 ("[R]eciprocal compensation rates often substantially exceed the per-minute incremental cost of terminating a call and therefore create a potential windfall for carriers that serve customers that primarily or exclusively receive traffic."); *ISP Remand Order*, 16 FCC Rcd at 9192, para. 87 ("[T]here may be a considerable margin between current reciprocal compensation rates and the actual costs of transport and termination."); BellSouth *ICC* NPRM Comments at 9 ("[R]eciprocal compensation payments enabled carriers to offer services to their customers at rates that bore little relationship to actual costs and provided the recipients of reciprocal compensation an advantage over their competitors."); Verizon *2000 Remand of ISP Declaratory Ruling Public Notice* Comments at 11–12 (noting that competitive LECs with ISP customers reap a "windfall profit" because of high reciprocal compensation rates).

[637] *See, e.g.,* Eastern Rural Telecom Ass'n *ICC FNPRM* Comments at 2–3 ("Depending on the assumptions used to develop a company's TELRIC study, the results can vary significantly and be open to challenge.").

[638] If $C(q)$ represents the cost of producing an output q and Δq represents an increment of output, then incremental cost is equal to $C(q+\Delta q) - C(q)$. If incremental cost is used as a guide to pricing, then price should be set equal to the average incremental cost $\frac{C(q+\Delta q)-C(q)}{\Delta q}$. If there are no fixed costs and initial output $q = 0$, then incremental cost pricing is equivalent to average cost pricing. If Δq is small, then incremental cost pricing approximates marginal cost pricing. *Cf. Local Competition First Report and Order,* 11 FCC Rcd at 15844, para. 675.

[639] 1 KAHN, THE ECONOMICS OF REGULATION at 65–66. *See also* PRINCIPLES OF PUBLIC UTILITY RATES at 393.

will choose outputs to purchase or to supply on the basis of a market price. In standard economic analysis, this price is determined by the intersection of a downward sloping demand function, which represents consumer valuations for additional units of consumption, and an upward sloping supply function, which represents the marginal cost of supplying an additional unit. The competitive price is efficient in the following sense. At any other price, consumer demands would no longer be equal to producer supply, and market transactions would be limited to the smaller of the two terms.[640] At this level of output, consumers would value an additional unit of output more than the cost of producing it as determined by the marginal cost function. Hence both consumers and producers could be made better off by increasing output by a small amount.[641] When price is equal to the competitive price, no alternative price can be found such that both consumer and producers are better off.

243. *Forward-looking versus Historical Cost:* When prices are determined in a regulated market, similar reasoning applies. In this context, there is a large amount of literature on practical rules and procedures that must be considered to achieve an outcome that is as close as possible to a fully efficient one.[642] The cost of any economic resource is equal to its value in the best alternative use. The cost which a regulated firm incurs in producing a particular output is therefore equal to the value of the economic resources that are used to produce it, and which are therefore no longer available for the production of alternative goods and services. It follows that from the standpoint of economic efficiency, the only costs that are relevant in pricing decisions of a regulated firm are current or future costs, and that historical costs can be ignored.[643] We acknowledge that economists and industry experts have often debated the relative merits of forward-looking (or reproduction) cost versus historical (or original) capital cost in administering rate-of-return regulation,[644] and that regulators, including state regulators and this Commission, have continued to use historical cost in rate setting for smaller, primarily rural telephone companies. Nevertheless, since the adoption of the *Local Competition First Report and Order,* the Commission has consistently concluded that it believes that forward-looking costs are the most appropriate measure of cost.[645] In this order, we reaffirm our conclusion that forward-looking costs should form the basis for regulation in a uniform intercarrier compensation regime.

244. *Short-Run versus Long-Run Incremental Cost:* Economists have also debated whether it is appropriate to use short-run or long-run incremental cost as a guide for regulatory pricing.[646] Short-run incremental cost refers to the cost of an increment of demand when some inputs to production are in fixed

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[640] If price is greater than the competitive level, consumer demand is less than supply, and demand would determine market volume. If price is less than the competitive level, then producers voluntarily would supply no more than the amount at which marginal cost is equal to price.

[641] Where the market price exceeds marginal cost, there will be an associated deadweight loss in social welfare. The deadweight loss represents the loss in consumer plus producer surplus caused by a deviation from the competitive equilibrium. *See, e.g.,* DENNIS W. CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANIZATION 84 (1990); KENNETH E. TRAIN, OPTIMAL REGULATION 185 (1992) (OPTIMAL REGULATION).

[642] *See, e.g.*, Ronald. H. Coase, *The Theory of Public Utility Pricing and Its Applications*, 1 BELL J. ECON. 113, 113–128 (1970) (*Theory of Public Utility Pricing*); 1 KAHN, THE ECONOMICS OF REGULATION at 63–86.

[643] *Theory of Public Utility Pricing*, 1 BELL J. ECON. at 122; Alexander C. Larson, *An Economic Guide to Competitive Standards in Telecommunications Regulation*, 1 COMMLAW CONSPECTUS 31, 47 n.100 (1993) (quoting *Theory of Public Utility Pricing*, 1 BELL J. ECON. at 121–22).

[644] *See, e.g.,* 1 KAHN, THE ECONOMICS OF REGULATION at 109–16.

[645] *Local Competition First Report and Order*, 11 FCC Rcd at 15813, 15846, paras. 620, 679.

[646] *See* 1 KAHN, THE ECONOMICS OF REGULATION at 70–75, 83–103; *see also* PHILLIPS, THE ECONOMICS OF REGULATION at 390–91 (rev. ed. 1969); PRINCIPLES OF PUBLIC UTILITY RATES at 417–25.

supply. Long-run incremental cost refers to the cost of an increment when all inputs are variable. In order to set prices so as to maximize economic efficiency at any particular point in time, it is clear that short-run incremental cost is the appropriate concept.[647] For example, if an airline carrier has empty seats for a particular scheduled flight, then it would make sense to sell capacity for those seats at any price that would recover the small additional costs of fuel and amenities for an additional passenger. Pricing based on short-run incremental cost, however, necessarily implies that prices can be adjusted freely and perhaps continuously during the day.[648] Moreover, in a regulatory context, such flexibility is likely infeasible.

245. Short- or intermediate-run costs might also be advocated on practical grounds, since some productive inputs (e.g., poles and conduits) can have extremely long lives. Nevertheless, regulators have traditionally relied on long-run incremental costs rather than short-run incremental costs in setting regulated prices. First, setting prices on the basis of short-run incremental cost may mean that a carrier would not recover its average total cost of investment over the life of the asset.[649] Second, to the extent that forward-looking costs are used, long-run incremental costs are more naturally and easily accommodated, since a forward looking cost study can legitimately assume that all inputs are variable. In the *Local Competition First Report and Order*, the Commission, in adopting its TELRIC methodology, explained that "[t]his 'long run' approach ensures that rates recover not only the operating costs that vary in the short run, but also the fixed investment costs that, while not variable in the short term, are necessary inputs directly attributable to providing the element."[650] We reaffirm here the Commission's decision in the *Local Competition First Report and Order* that long-run incremental cost rather than short-run incremental cost is the appropriate cost concept.[651]

246. *Peak Load Pricing*: Closely related to the question of short-run versus long-run costing is the issue of peak load pricing. When demand varies systematically by time of day, day of the week, or over longer periods, there may be periods of time when there is significant excess capacity, since productive inputs clearly cannot vary with such frequency. In such cases, economic efficiency might require that prices should vary by time or day or over longer periods even in the long run.[652] For example, many wireless telephone carriers offer free minutes of usage during weekends or evenings. Although these arguments are indisputable, it has proven difficult in practice to incorporate peak load pricing principles into regulated rate proceedings.[653] Accordingly, we conclude, as the Commission did in the *Local Competition First Report and Order,* that we should not require peak-load pricing as part of an intercarrier compensation regime, although we affirm that carriers should be free to voluntarily negotiate agreements including peak pricing principles.

247. *Common Costs*: Telecommunications carriers are multiproduct firms which provide a large array of services to different groups of consumers. Within the category of traditional telephony, these services include call origination, call termination, local transport, and either access to long distance transport or long distance service through an affiliated carrier. As networks evolve, the number of

[647] 1 KAHN, THE ECONOMICS OF REGULATION at 71; DANIEL F. SPULBER, REGULATION AND MARKETS 234 (1989) (REGULATION AND MARKETS).

[648] 1 KAHN, THE ECONOMICS OF REGULATION at 84.

[649] 1 KAHN, THE ECONOMICS OF REGULATION at 88.

[650] *Local Competition First Report and Order*, 11 FCC Rcd at 15851, para. 692.

[651] *Local Competition First Report and Order*, 11 FCC Rcd at 16023, para. 1054.

[652] 1 KAHN, THE ECONOMICS OF REGULATION at 89.

[653] *See Local Competition First Report and Order* at 15878, paras. 755–57. *See also* 1 KAHN, THE ECONOMICS OF REGULATION at 91–93.

services that a telecommunications network can provide is rapidly expanding to include Internet access and other data services and, in some cases, video distribution. Many of these services share common facilities.[654] For example, a copper loop can be used to provide analog voice service as well as data service using DSL technology. The cost of the loop is therefore common to both voice and DSL services. The incremental cost of voice service, assuming that DSL is already provided, therefore does not include any of the long run incremental cost of the loop itself. Similarly, the incremental cost of DSL, assuming voice is already provided, includes only that portion of the loop cost that may be required to condition the loop to meet the higher quality standards that may be required for data transmission.

248. *Methodology for Computing Incremental Cost in Multiproduct Firms:* Common cost and its relationship to incremental cost in multiproduct firms can be more precisely defined as follows using an analysis developed by Faulhaber, Baumol, and others.[655] Under this approach, one imagines a multiproduct firm in which a forward looking cost function is known, which allows one to compute the "stand alone cost" of any possible subset of products. For example, if the set of products is indexed by the set N = {1 , . . . , n}, then the stand alone cost of the entire firm can be represented by the value C(N). The incremental cost of any individual product j contained in N can then be represented by the value IC(j) = C(N) – C(N – j), where C(N – j) represents the stand alone cost of producing every product in the set N except product j. Under this definition, the incremental cost may be viewed as the *additional costs* of adding product j to a firm currently producing products (N – j). Alternatively, it may be viewed as the cost that may be *avoided* if the firm, currently producing products 1 through n, decides not to produce product j. The common cost for the firm as a whole is then equal to $C(N) - \sum_{j \in N} IC(j)$. When there is significant sharing of facilities used in providing groups of services to customers, common costs are typically positive, and may be a significant portion of the firm's total cost.

249. *Multiproduct Incremental Cost versus TELRIC:* In the *Local Competition First Report and Order*, the Commission adopted a pricing methodology, which it called Total Element Long Run Incremental Cost or TELRIC. Under the TELRIC methodology, prices for UNEs and interconnection would be determined by estimating the forward-looking cost of individual network elements, which the Commission defined as "physical facilities of the network, together with the features, functions, and capabilities associated with those facilities."[656] In adopting the TELRIC methodology, the Commission determined that forward-looking costs should be "based on the least cost, most efficient network . . . technology," assuming current wire center locations.[657] It further determined that the relevant increment should "be the entire quantity of the network element provided."[658] The Commission concluded that "forward-looking common costs shall be allocated among elements and services in a reasonable manner

[654] *Cf. Local Competition First Report and Order,* 11 FCC Rcd at 15845, para. 676 ("The term 'common costs' refers to costs that are incurred in connection with the production of multiple products or services, and remains unchanged as the relative proportion of those products or services varies (e.g., the salaries of corporate managers).").

[655] *See, e.g.*, Gerald R. Faulhaber, *Cross-Subsidization: Pricing in Public Enterprises*, 65 AM. ECON. REV. 966, 966–77 (1975). Faulhaber's objective in the paper was to define a test for cross subsidy, which could precisely define the maximum and minimum prices that a regulated firm should be allowed to charge to any subset of customers; WILLIAM J. BAUMOL ET AL., CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE 351–56 (1982); William J. Baumol, *Minimum and Maximum Pricing Principles for Residual Regulation, in Current Issues in* PUBLIC UTILITY ECONOMICS (A. Danielson & D. Kamerschen eds., 1983).

[656] *Local Competition First Report and Order*, 11 FCC Rcd at 15631, para. 258.

[657] *Local Competition First Report and Order*, 11 FCC Rcd at 15848–49, paras. 683–85.

[658] *Local Competition First Report and Order*, 11 FCC Rcd at 15850, para. 690.

. . . . "[659] In choosing to estimate the forward-looking cost of the entire network element, the Commission acknowledged that, when a requesting carrier leased access to that element, it would have exclusive control over that element.[660]

250. With respect to reciprocal compensation, the Commission determined that "the 'additional cost' of terminating a call . . . primarily consists of the traffic-sensitive component of local switching."[661] Nevertheless, the only non traffic-sensitive cost of the local switch that the Commission required states to exclude was the cost of line ports.[662] Similarly, in the rules that the Commission adopted regarding "shared transmission facilities between tandem switches and end offices," the Commission allowed the full forward-looking cost of those facilities to be recovered through usage sensitive charges.[663] Thus, with the exception of requiring recovery of the cost of line ports through flat-rated charges, the Commission's TELRIC rules permitted the full forward-looking cost of the local switch, tandem switch, and shared interoffice transmission facilities, including a reasonable allocation of common costs, to be recovered through usage-based charges. In effect, the Commission's TELRIC methodology permitted average-cost pricing using a forward-looking cost methodology.

251. The TELRIC methodology thus differs significantly from the definition of incremental cost for multiproduct firms proposed by Faulhaber and others. First, unlike TELRIC, the traditional economic approach for determining the incremental cost of a single service excludes all common costs. Second, although the TELRIC methodology is essentially an average cost methodology, the traditional economic approach focuses on identifying the additional forward-looking cost that a network would incur if it provided an additional service—in this case call termination. Under the traditional economic definition, the incremental cost of call termination would be determined by estimating the stand alone cost of a network which incorporates all existing services except call termination (including call origination, switching, etc.) and then subtracting this amount from a comparable estimate of the total cost of providing all the same existing services, including call termination. As should be obvious, the incremental cost of call termination under the traditional economic definition should be significantly lower than that calculated under a TELRIC methodology.

252. *The Relevance of Multi-part Pricing:* One common criticism of incremental cost pricing is that it may not permit a firm to recover its total costs, particularly if there are significant common costs.[664] Economists have pointed out, however, that multi-part pricing regimes can potentially lead to more efficient outcomes than uniform prices set equal to either marginal cost or average cost.[665] For example, if the firm is able to charge a fixed monthly fee and a variable usage charge, then it is possible for the firm to set the usage charge at or close to marginal cost and recover any residual costs through the fixed charge. In this case, the regulator must take account of both subscription and usage elasticities in order to minimize the possibility that higher fixed fees will cause some subscribers to drop off the

[659] *Local Competition First Report and Order*, 11 FCC Rcd at 15852–53, para. 696.

[660] *Local Competition First Report and Order*, 11 FCC Rcd at 15693, para. 385.

[661] *Local Competition First Report and Order*, 11 FCC Rcd at 16025, para. 1057.

[662] *Local Competition First Report and Order*, 11 FCC Rcd at 16025, para. 1057. *Cf.* 47 U.S.C. § 51.509(b) (requiring only that line port costs of the unbundled local switching element be recovered through a flat-rated charge).

[663] 47 U.S.C. § 51.509(d).

[664] *See, e.g.*, REGULATION AND MARKETS at 122–23.

[665] *See, e.g.*, *Theory of Public Utility Pricing*, 1 BELL J. ECON. at 117–20; OPTIMAL REGULATION at 191–213.

network.[666] We note that, in the access charge regime, the Commission recognized the efficiencies associated with multi-part pricing, even if it failed to reduce usage-based charges to marginal or incremental cost.

c. The Incremental Cost of Call Termination on Modern Networks

253. We now consider the evidence in the record concerning the incremental cost of terminating calls on modern telecommunications networks. We note at the outset that there appear to be no cost studies or analyses in the record that attempt to estimate the termination costs using Faulhaber's definition of incremental cost. Thus, we would expect the cost estimates in the record to be significantly lower if they had been calculated using Faulhaber's definition.

254. We consider first evidence concerning the cost of termination on modern circuit switches. We note that, in 1996, when the Commission adopted the TELRIC methodology, circuit switches and fiber optic transmission facilities were generally considered the "least-cost, most efficient" currently available technology. And it appears that state commissions in interconnection arbitrations analyzed the forward-looking costs of circuit switches and fiber optic transmission facilities in developing TELRIC rates. Sprint Nextel filed an *ex parte* in which it analyzed state UNE rates for unbundled switching and common transport.[667] Sprint Nextel reports that the national weighted average price per minute for unbundled local switching was $0.00058 (with individual rates ranging from a low of $0.00004 to a high of $0.0061). Similarly the national weighted average price per minute for common transport was $0.00057 (with individual rates ranging from a low of $0.00010 to a high of $0.00727). Sprint Nextel further observes that "the rates for companies in the survey with a relatively small number of lines were often lower than the rates for companies with a large number of lines, indicating scale and scope economies do not significantly affect the cost of traffic termination."[668] As Sprint Nextel notes, these rates are all based on the TELRIC methodology and thus represent estimates of average, traffic-sensitive forwarding-looking costs, plus an allocation of common cost and overheads.[669] These estimates, by definition, will significantly exceed incremental cost estimates using the Faulhaber definition; therefore they provide an upper bound on the rates that may result under a Faulhaber approach to incremental cost.

255. Some additional evidence concerning the incremental cost of terminating calls on modern circuit switches can be gleaned from a declaration filed by three economists in support of the Intercarrier Compensation Forum (ICF) plan.[670] The economists contend that modern circuit switches are to a large

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[666] Demand for subscription is generally estimated to be significantly less elastic than demand for usage. *See* Mercatus Center Sept. 22, 2008 *Ex Parte* Letter at 3 n.15; Jerry Hausman & Howard Shelanski, *Economic Welfare and Telecommunications Regulation: The E-Rate Policy for Universal-Service Subsidies*, 16 YALE J. ON REG. 19, 39 (1999) (estimating elasticity of demand for subscription to be -.005, whereas elasticity of demand for long-distance service is closer to -0.7); *Effects of Breakup of AT&T*, 83 AM. ECON. REV. at 182 (estimating elasticity of demand for basic access at -0.005 and elasticity of demand for long-distances service between -0.25 and -1.2).

[667] *See* Sprint Nextel Sept. 26, 2008 *Ex Parte* Letter. The data used in the analysis were obtained from the March 2006 "Survey of Unbundled Network Element Prices in the United States."

[668] Sprint Nextel Sept. 26, 2008 *Ex Parte* Letter, Attach. at 3–4.

[669] We note that NuVox disputes some of Sprint Nextel's assumptions. *See, e.g.*, Letter from Brad Mutschelknaus & John J. Heitmann, Counsel to NuVox, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-92 and WC Docket No. 04-36 (filed Oct. 27, 2008) (NuVox Oct. 27 *Ex Parte* Letter). There is insufficient information in the two *ex parte* submissions for us to resolve this dispute. Carriers remain free to raise issues for consideration in the course of state proceedings.

[670] Richard N. Clarke et al., *Economic Benefits from Reform of Intercarrier Compensation (ICF Economists), attached to* ICF *ICC FNPRM* Reply, Errata, App. A.

extent non-traffic sensitive.[671] According to the authors, whereas earlier generations of switching technologies had large shared resources that could be commandeered by any line needing to place or receive a telephone call, most of the resources in a digital switch are dedicated to individual lines through line ports and trunk ports.[672] In addition, according to the authors, because of the "massive increases in computing power offered by modern microchips," modern circuit switches include "call processing capacity . . . [that] is adequate to serve all reasonably offered demand."[673] In other words, modern switches are designed to be non-blocking, which would suggest that the incremental cost of termination is zero. The declaration thus concludes that the incremental cost of call termination on modern circuit switches should be de minimis.

256. The economists' declaration further argues that the incremental costs of adding additional fiber optic transmission capacity similarly are low. They contend that fiber optic technologies have large fixed costs associated with supporting structures (poles, trenches and conduits) and relatively low incremental costs of increasing the capacity of each fiber cable by installing improved laser transmission equipment (which in many cases is based on technological advances made subsequent to the initial fiber deployment). For these reasons, they conclude that "once a fiber cable has been laid on a route, the costs of increasing its transmission capacity are relatively small, so extra minutes of demand result in very little incremental costs. We note that this analysis suggests, at a minimum, that the incremental cost of adding capacity is significantly less—and likely orders of magnitude less—than the forward looking average cost of capacity, as estimated under TELRIC.

257. AT&T submitted evidence that attempts to estimate the incremental cost of a modern softswitch.[674] AT&T maintains that, to estimate the incremental cost of a softswitch, it is necessary to estimate two parameters: the total investment associated with a softswitch, and the percentage of this investment that is traffic-sensitive.[675] Using what it claims are "conservative" estimates, AT&T first compares the estimated investment cost per line of a Class 5 circuit switch with the estimated investment cost per line of a modern softswitch and finds that the investment cost per-line of a softswitch is significantly lower.[676] Although it estimates that the investment cost of a Class 5 switch is approximately $100 per line, it finds that the likely investment cost of a softswitch is between $34 and $80 per line.[677] AT&T then considers the likely percentage of the investment costs per line that are traffic-sensitive, and concludes that, depending on the particular softswitch, the traffic-sensitive costs are likely to be between zero and 20 percent of the total investment cost of the switch.[678] Using the higher estimate of 20 percent traffic-sensitive costs, and assuming that each line carries an average of 1400 minutes a month, AT&T derives a traffic sensitive incremental cost per minute of between $0.00010 and $0.00024.[679] For the

[671] *ICF Economists* at 22.

[672] *ICF Economists* at 20–21.

[673] *ICF Economists* at 21.

[674] Letter from Henry Hultquist, Vice President-Regulatory Affairs, AT&T Services, Inc., to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-92, 05-337, 96-45, 99-68, 07-135 (filed Oct. 4, 2008) (AT&T Oct. 4, 2008 *Ex Parte* Letter).

[675] AT&T Oct. 4, 2008 *Ex Parte* Letter at 2.

[676] AT&T Oct. 4, 2008 *Ex Parte* Letter at 3.

[677] AT&T Oct. 4, 2008 *Ex Parte* Letter at 2–3.

[678] AT&T Oct. 4, 2008 *Ex Parte* Letter at 3–4.

[679] AT&T Oct. 4, 2008 *Ex Parte* Letter at 4.

other softswitch that AT&T considers, however, the traffic-sensitive incremental costs of termination would be zero. Although we do not necessarily accept the precise estimates contained in AT&T's *ex parte* letter, we note that its analysis suggests that the incremental traffic-sensitive costs of modern softswitches are likely to be significantly lower than those of circuit switches and possibly zero, both because the investment cost per line is lower and because the percentage of traffic-sensitive costs to total costs is lower for modern softswitches.

258. Windstream Communications, Inc. and NuVox subsequently filed ex parte letters criticizing AT&T's analysis of the traffic sensitive costs of a softswitch,[680] and AT&T filed a response.[681] Essentially, both Windstream and NuVox criticize specific elements of AT&T's analysis. In addition, Windstream argues that it would be grossly inefficient for a rural carrier to immediately replace circuit switching equipment with softswitch technology, while NuVox contends that even a forward-looking network design would not consist entirely of soft switches. Significantly, NuVox criticizes AT&T for failing to apply the TELRIC methodology, and NuVox recalculates AT&T's estimates using TELRIC. Because we expressly reject use of the TELRIC methodology for purposes of setting reciprocal compensation rates, we conclude that many of the NuVox challenges are moot. To the extent that NuVox and Windstream are challenging cost assumptions that may be applied by states pursuant to our new additional costs methodology, such issues may be raised for consideration by the state commission during the cost proceeding to establish the uniform reciprocal compensation rate. We feel compelled, however, to point out a few of the most critical mistakes and misconceptions contained in the Windstream and NuVox ex parte letters.

259. First, Windstream argues that it is somehow inappropriate to consider the additional costs of softswitches in setting termination rates because it would be economically infeasible for an incumbent LEC to replace all its existing circuit switches with softswitches.[682] This argument fundamentally misconstrues the purpose of a forward-looking cost methodology. The adoption of a forward-looking cost standard does not imply in any way that existing carriers should replace fully functional plant and equipment simply because a more recent vintage of replacement equipment is available. Forward-looking costs are simply a measure of the economic value of future investments, and in a competitive marketplace, these values should determine the appropriate investment decisions regarding replacement of existing plant. More importantly, these values should be used as an appropriate guide in setting efficient prices for the utilization of existing plant and equipment. Second, although both Windstream and NuVox raise objections to AT&T's cost analysis, neither they nor AT&T actually attempt to estimate the incremental cost of call termination. For example, both Windstream and NuVox argue that AT&T's estimates of the cost of investment in forward-looking softswitch technologies are flawed because of the assumptions made about the number of lines served per switch.[683] Although this is may be a valid issue, as it relates to the extent to which softswitch technologies are scalable for deployment in wire centers with different numbers of final customers, the dispute does not really address the issue of the incremental

[680] Letter from Eric N. Einhorn, Vice President, Federal Government Affairs, Windstream Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 96-45, 99-68, 01-92 and WC Docket Nos. 05-337, 06-122, 07-135, 08-152 (filed Oct. 27, 2008) (Windstream Oct. 27, 2008 *Ex Parte* Letter); Letter from John J. Heitmann, Counsel for NuVox, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-92 (filed Oct. 24, 2008) (NuVox Oct. 24, 2008 *Ex Parte* Letter).

[681] *See* Letter from Henry Hultquist, Vice President Federal Regulatory, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 96-45, 99-68, 01-92 and WC Docket Nos. 05-337, 07-135 (Oct. 28, 2008) (AT&T's response appears specific to the NuVox Oct. 24, 2008 *Ex Parte* Letter).

[682] *See* Windstream Oct. 27, 2008 *Ex Parte* Letter at 2.

[683] *See* Windstream Oct. 27, 2008 *Ex Parte* Letter at 2–3; NuVox Oct. 24, 2008 *Ex Parte* Letter, Attach. at 8–9.

cost of call termination. Third, NuVox claims that the absence of line cards in softswitches is evidence that all switch costs are traffic sensitive.[684] This analysis ignores the potentially large fixed costs associated with a softswitch that are not related to line ports. Since softswitches resemble small computers, the appropriate analogy for estimating incremental cost would be the cost of additional memory cards, which could be inserted into the CPU. Fourth, NuVox maintains that both common costs to the firm as a whole and land and building costs associated with switching equipment should be included in any traffic sensitive cost computed for purposes of reciprocal compensation.[685] As explained above, we conclude that common costs should no longer be included in calculating the incremental cost of call termination.

260. Another approach to estimating the incremental cost of call termination is to examine the technology of next generation networks in which voice calls are carried on the same network platform as data and video services delivered to the same customer. Telecommunications carriers are currently deploying such networks at a rapid pace, although the transition to the new technology is far from complete. Nevertheless, most experts believe that IP technologies will be used to deliver the predominant share of voice and data traffic within a few years. Packet technologies, and the resulting commingling of voice and data traffic, make possible a dramatic reduction in the cost of originating and terminating voice traffic in the network. In addition, although the costs of circuit based switching technologies are difficult to quantify using public data sources, the Internet itself provides a variety of sources which can be used to provide at least a rough estimate of the costs associated with a next generation network.

261. Consider the case of a single customer who subscribes to a next generation network offering a full range of voice, video and data services. Suppose that this customer makes exactly one voice call lasting five minutes during each hour of the busy period (which we will unrealistically assume to last for 16 hours every day of the month). High quality (ISDN level) voice service requires a channel capacity of 64 kbps. Ignoring the possibility of signal compression, and making a conservative allowance for packet header overhead,[686] we assume that the single call per hour requires a network capacity of 100 kbps. This capacity requirement translates to 12,800 bytes per second, or 0.0000128 Gigabytes to be available for the duration of the call.[687] Publicly available estimates of the cost of serving residential customers on a broadband network range from $0.1 Gigabytes per month to $0.5 Gigabytes per month.[688] These estimates include the cost of the servers, routers and fiber links necessary to provide service to the residential customer, but do not include the substantial cost of the local broadband loop.[689] The

[684] *See* NuVox Oct. 24, 2008 *Ex Parte* Letter, Attach. at 14–15.

[685] *See* NuVox Oct. 24, 2008 *Ex Parte* Letter, Attach. at 18 & n.40.

[686] *See, e.g.*, VoIP-Info.org, Bandwidth Consumption, http://www.voip-info.org/wiki-Bandwidth+consumption (last visited Oct. 25, 2008); Westbay, Voice over IP Bandwidth, http://www.erlang.com/bandwidth.html (last visited Oct. 24, 2008) (investigating bandwidth requirements for the transmission of voice over an IP based network).

[687] In this analysis, we ignore the additional economies that can result because multiple packet streams for voice traffic can be transmitted simultaneously over the same channel capacity.

[688] The lower estimate is contained in the Wikipedia entry "Broadband Internet Access," http://en.wikipedia.org/wiki/Broadband_Internet_access (last visited Oct. 11, 2008). The higher estimate is contained the trade publication Telephony Online, "OFC: BellSouth Chief Architect warns of HD VOD costs," March 7, 2006, http://telephonyonline.com/iptv/news/BellSouth_VOD_costs_030706 (last visited Oct. 11, 2008). Both estimates are also reported in David Clark, A Simple Cost Model for Broadband Access: What Will Video Cost?, Presentation at the Telecommunications Policy Research Conference (Sept. 28, 2008), *available at* http://tprcweb.com/files/Cost%20analysis%20TPRC.pdf.

[689] The cost of the local loop is clearly a common cost that is shared by all of the voice, video, and data services consumed by the subscriber and should not be included under any reasonable definition of incremental cost.

hypothetical consumer described above places a demand of 0.000512 Gigabytes per month, and using the upper limit on the estimated cost, we estimate a monthly incremental cost to the consumer of delivering this level of voice service at 0.0256 *cents* per month.[690] Under these conservative assumptions the cost, on a per-minute basis, would be 0.00001 *cents* per minute.[691] Even if the cost estimates used above are wrong by several orders of magnitude, it is clear that the cost of voice traffic on a broadband network is vanishingly small.[692] Although we are not directing the states to consider the incremental cost of terminating voice telecommunications on such next generation networks,[693] we find that, as carriers move to an all IP broadband world, the incremental costs of terminating voice calls should drop dramatically.

d. Reconsideration of Additional Costs Standard

262. We adopt a new "additional costs" methodology using the traditional economic definition of the incremental cost of a service produced by a multiproduct firm, rather than continuing to rely on the TELRIC methodology.[694] The Supreme Court has made clear that an "'initial agency interpretation is not instantly carved in stone. On the contrary, the agency ... must consider varying interpretations and the wisdom of its policy on a continuing basis,' for example in response to changed factual circumstance, or a change in administrations."[695] Consistent with this, the Commission, in its 2005 *Intercarrier Compensation FNPRM*, solicited comment on whether the Commission should reinterpret "additional costs" to mean "incremental cost" in light of the need to reform intercarrier compensation due to market distortions.[696] In response, several commenters supported such a proposal noting that the additional incremental cost of terminating traffic is de minimis.[697] Based on the evidence highlighted above and for

[690] Broadband Internet service is typically priced on the basis of capacity—either the maximum instantaneous upload and download speed or, as in this example, total monthly traffic. A rigorous application of true incremental cost pricing would require measuring each customer's contribution to system costs, which primarily consists of the delays or packet losses imposed on other users. For this purpose, minutes of use are largely irrelevant.

[691] These estimated costs do not include the costs of billing, advertising, or other customer care expenses. As with the case of the local loop, we believe that such costs should not be included in any measure of long run incremental cost of call termination.

[692] It is very unlikely that the cost estimates are significantly low. Telecommunications carriers continue to upgrade their networks to provide precisely the range of video and data services that the articles in a previous footnote were concerned with. Indeed, the BellSouth estimate was given with concern that such services would not be viable unless that estimate of cost could be reduced in the near future. Very similar arguments were made exactly 20 years ago in ROBERT M. PEPPER, THROUGH THE LOOKING GLASS: INTEGRATED BROADBAND NETWORKS, REGULATORY POLICY, AND INSTITUTIONAL CHANGE (FCC, OPP Working Paper No. 24, Nov. 1988), *available at* http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp24.pdf.

[693] *See infra* section V.C.1.

[694] We find it preferable to shift entirely to an approach based on the traditional economic definition of incremental cost, rather than trying to achieve the same result through extensive revisions to the TELRIC methodology as some commenters suggest. *See, e.g.*, Rural Alliance *ICC FNPRM* Comments at 50–54 (calling for a more precise definition of TELRIC for purposes of reciprocal compensation).

[695] *Brand X*, 545 U.S. at 981 (quoting *Chevron U.S.A. Inc. v. Nat'l Res. Def. Council* (*Chevron*), 467 U.S. 837, 863–64 (1984) and citing *Motor Vehicle Mfrs. Ass'n of United States, Inc. v. State Farm Mut. Automobile Ins. Co.* (*State Farm*), 463 U.S. 29, 59 (1983) (Rehnquist, J., concurring in part and dissenting in part)).

[696] *Intercarrier Compensation FNPRM*, 20 FCC Rcd at 4719, para. 71.

[697] *See, e.g.*, CTIA *ICC FNPRM* Comments at 16 ("Because a call does not impose significant incremental costs on either the calling party's or called party's network, there is no justification for allowing the terminating network to impose any charge on the non-terminating network."); Frontier *ICC FNPRM* Comments at 7 ("However, there is virtually NO additional incremental cost of sending a minute-of-use across [dedicated hardware interfaces]."); (continued....)

the reasons set forth below, we revise our interpretation of the "additional costs" language in section 252(d)(2) to mean "incremental costs" as traditionally defined. We believe that this conclusion is supported by the economic theory discussed above, and represents a more appropriate interpretation of the "additional costs" standard than the TELRIC methodology.[698]

263. As an initial matter, the Commission plainly has the authority to revise its interpretation of "additional costs."[699] Indeed, the Supreme Court has recognized that the phrase "additional costs" is ambiguous.[700] Words like additional cost "give ratesetting commissions broad methodological leeway,"[701] and courts owe "substantial deference to the interpretation the Commission accords them."[702] The Commission, consistent with its obligation to "consider varying interpretations and the wisdom of its policy on a continuing basis" now revises its definition of "additional costs."[703]

264. Revising our interpretation of "additional costs" to follow the traditional economic definition of the incremental cost of a service is supported by the Commission's interpretation of the term "additional costs" in section 224 of the Act. Section 224, which addresses the pricing of pole attachments, is the only other place in the Act that uses the term "additional costs." The Commission consistently has found that the term "additional costs" in section 224 means incremental cost,[704] and that the legislative history for section 224 makes clear that Congress intended such a result.[705] Interpreting the term "additional costs" as used in two parts of the Act in the same manner is consistent with the

(continued from previous page)
Western Wireless *ICC FNPRM* Comments at 16 ("Independent Wireless Carriers urge the Commission to confine its analysis of 'additional cost' only to the incremental traffic-sensitive switching and transport costs actually incurred by the parties exchanging traffic for purposes of intercarrier compensation.").

[698] We reaffirm that the TELRIC methodology is appropriate for setting interconnection and network element rates pursuant to section 252(d)(1), where Congress directed the Commission to consider a "reasonable profit."

[699] The Supreme Court affirmed the Commission's authority to apply a cost methodology for the states to implement. *AT&T v. Iowa Utils. Bd.*, 525 U.S. at 378. *See also id.* at 378 n.6 ("[T]he question in these cases is not whether the Federal Government has taken the regulation of local telecommunications competition away from the States. With regard to the matters addressed by the 1996 Act, it unquestionably has."); 47 U.S.C. § 201(b); *United Telegraph Workers, AFL-CIO v. FCC*, 436 F.2d 920, 923 (D.C. Cir. 1970) (citations and quotations omitted) (finding that section 201(b) authorizes the Commission to "prescribe such rules and regulations as may be necessary in the public interest to carry out the provisions of this Act").

[700] *See Verizon v. FCC*, 535 U.S. at 499–501 ("[W]ithout any better indication of meaning than the unadorned term, the word 'cost' in section 252(d)(1), as in accounting generally, is 'a chameleon,' a 'virtually meaningless' term . . . .") (citations omitted).

[701] *See Verizon v. FCC*, 535 U.S. at 499–501 (quoting *AT&T Corp. v. Iowa Utils. Bd.*, 525 U.S. at 423 (Breyer, J., concurring in part and dissenting in part)).

[702] *Capital Network System, Inc. v. FCC*, 28 F.3d 201, 204 (D.C. Cir. 1994).

[703] *Brand X*, 545 U.S. at 981 (quoting *Chevron*, 467 U.S. at 863–64 and citing *State Farm*, 463 U.S. at 59 (Rehnquist, J., concurring in part and dissenting in part)).

[704] *See, e.g., Adoption Of Rules For The Regulation Of Cable Television Pole Attachments,* CC Docket No. 78-144, Memorandum and Opinion and Second Report and Order, 72 FCC 2d 59, 62, para. 8 (1979); *Adoption Of Rules For The Regulation Of Cable Television Pole Attachments,* CC Docket No. 78-144, Notice of Proposed Rulemaking, 68 FCC 2d 3, 15, App. (1978) (*Cable Television Pole Attachment NPRM*).

[705] *Cable Television Pole Attachment NPRM,* CC Docket No. 78-144, Notice of Proposed Rulemaking, 68 FCC 2d at 15, App. ("'Additional costs' are generally equivalent to what is referred to as incremental cost, and the proportional part of 'Operating expenses and actual capital costs' are generally equivalent to fully allocated costs." (quoting S. Rep. No. 95-580 at 19–21 (1977)).

"presumption that identical words used in different parts of the same act are intended to have the same meaning."[706]

265. In contrast, the statutory pricing standard for reciprocal compensation ("additional costs") is not the same as the statutory pricing standard for UNEs ("cost" plus "a reasonable profit").[707] Even though the two statutory provisions may, as the Commission found previously, be "similar," our subsequent experience indicates that TELRIC is not consistent with the "additional costs" standard. First, as discussed above, evidence indicates that reciprocal compensation rates based on TELRIC methodology were "excessive."[708] If reciprocal compensation rates truly reflected the incremental "additional costs," regulatory arbitrage should not occur because a carrier would not make a profit by recovering its incremental cost.[709]

266. Second, TELRIC includes the cost of the "total element" and, as a result, measures the long run incremental average cost of the switch including common costs and overhead, not just the additional costs of using the function to terminate another carrier's traffic. In other words, TELRIC measures the *average* cost of providing a function, which is not necessarily the same as the *additional* costs of providing that function. Because of this, we expect that the TELRIC methodology would continue to produce reciprocal compensation rates above the true "additional costs" of terminating such traffic, in light of evidence that the cost of terminating traffic today is low[710] and is decreasing even further as carriers transition to softswitches[711] and ultimately pure packet switches. Consistent with our change in methodology, we also disavow our finding in the *Local Competition First Report and Order* that "only that portion of the forward-looking, economic cost of end-office switching that is recovered on

[706] *See, e.g., Atlantic Cleaners & Dyers, Inc. v. United States*, 286 U.S. 427, 433 (1932).

[707] *Compare* 47 U.S.C. § 252(d)(1) *with* 47 U.S.C. § 252(d)(2).

[708] *See, e.g., Intercarrier Compensation FNPRM*, 20 FCC Rcd at 4694, 4697–98, 4717, 4719, paras. 16, 23–24, 66, 71–72; *Intercarrier Compensation NPRM*, 16 FCC Rcd at 9616-18, paras. 11–18; *ISP Remand Order*, 16 FCC Rcd at 9161–62, paras. 18–20.

[709] For the same reasons, we reject suggestions that TELRIC should be used to set a unified rate for intercarrier compensation. *See, e.g.*, Ohio PUC *ICC FNPRM* Comments at 20 ("[T]he Ohio Commission recommends the use of the TELRIC standard for setting intercarrier compensation rates."); Pac West et al. *ICC FNPRM* Comments at 9 ("The 'additional cost' standard should continue to be tied to TELRIC"); Time Warner Telecom et al. *ICC FNPRM* Comments at 1–2 ("[A] central component of reform must be the requirement that, to the extent possible, each carrier charge a single, cost-based rate for the exchange of all types of traffic. . . . [T]he Commission arguably has the authority to mandate that states use a cost-based methodology, in particular TELRIC, as the basis for setting all intercarrier termination rates."); Integra *ICC FNPRM* Comments at 3 ("Integra urges the Commission to . . . [u]nify access and reciprocal compensation rates at TELRIC based levels on a company-by-company basis."); KMC and Xspedius *ICC FNPRM* Reply at 3 ("[T]he Commission should support tariffed-based intercarrier compensation arrangements that: (i) set rates no higher than the comparable TELRIC (or similar cost-based) rates."); XO *ICC FNPRM* Reply at 11 ("[T]he only appropriate intercarrier compensation regime must include TELRIC-based rates.").

[710] The national average of TELRIC rates for transport and termination of calls was $0.00212 in 2004, which likely overstates the actual incremental costs because, as noted above, TELRIC includes common and overhead costs and examines the average cost of the function, not the additional cost of terminating traffic. Letter from Richard M. Rindler, Counsel for the Cost-Based Intercarrier Compensation Coalition, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-92 at 3 (filed Sept. 2, 2004) (CBICC Sept. 9 *Ex Parte* Letter); *see also* Sprint Nextel Sept. 26, 2008 *Ex Parte* Letter.

[711] *See* T-Mobile *ICC FNPRM* Comments at 29–30.

a usage-sensitive basis constitutes an "additional costs" to be recovered through termination charges."[712] In particular, as explained above, we specifically exclude common costs and overhead allocations from the calculation of what constitutes "additional costs" under our new pricing methodology.

267. We thus end our reliance on the TELRIC methodology for setting reciprocal compensation rates, and instead require that such rates be set pursuant to our new incremental cost methodology.[713] In our Implementation section below, we provide specific guidance to the states regarding how to apply this new methodology. We note that this Commission takes seriously its responsibility to ensure that rates for carriers are just, reasonable, and not confiscatory. In this order, we have set in motion mechanisms to help ensure that the financial viability of carriers will not be undermined. We feel confident that these mechanisms, in combination with the other avenues available for carriers to offset declines in access revenues, will be sufficient to achieve this result.[714]

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[712] *Local Competition First Report and Order*, 11 FCC Rcd at 16025, para. 1057.

[713] A number of parties advocate for or against Commission adoption of bill-and-keep for intercarrier compensation. *See, e.g.*, Letter from Jonathan Askin, Counsel for FeatureGroup IP, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-92 at 3–4 (filed Oct. 7, 2008); Letter from Paul W. Garnett, Assistant Vice President of Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-92 at 1 (filed Oct. 7, 2008); Corr *ICC FNPRM* Comments at 8; Cox *ICC FNPRM* Comments at 8–9; ICF *ICC FNPRM* Comments at 26, 30; Western Wireless et al. *ICC FNPRM* Comments at 6–8. *But see, e.g.*, Letter from Tamar E. Finn, Counsel for PAETEC, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-92, Attach. at 10 (filed Oct. 7, 2008) ("Mandatory Bill-and-Keep Is Not A Viable or Fair Solution"); Letter from Brad E. Mutschelknaus and Genevieve Morelli, Counsel for Cavalier Telephone et al., to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-92 at 2 (filed Oct. 3, 2008) ("[T]he adoption of mandatory bill-and-keep arrangements is extremely ill advised as a policy matter."); BellSouth *ICC FNPRM* Comments at 9 ("[A] plan to transition rates ultimately to bill-and-keep would not promote economic efficiency or preserve universal service, nor is bill-and-keep competitively neutral."); CCG Consulting Inc. (CCG) *ICC FNPRM* Comments at 7 ("[A]ccess rates should not be reduced to zero through implementation of a Bill and Keep mechanism."); CenturyTel *ICC FNPRM* Comments at 4 (". . . CenturyTel unequivocally opposes replacing intercarrier compensation with a "bill and keep" regime."); CCAP *ICC FNPRM* Comments at 11 ("The CCAP urges the Commission to avoid implementation of a bill and keep regime . . . ."); Frontier *ICC FNPRM* Comments at 6 (arguing that bill and keep is inappropriate because it does not account for asymmetric traffic patterns); SBA *ICC FNPRM* Comments at 7 (arguing that bill-and-keep is inappropriate between rural and larger LECs due to various asymmetries). We believe the reforms we adopt here are preferable to a pure bill-and-keep requirement and more appropriately balance the interests of consumers and carriers at this time. The approach we adopt in this order avoids the need to resolve disputes in the record regarding bill-and-keep in various circumstances because it allows parties to advocate for such an approach before state commissions and parties may negotiate such arrangements.

[714] Some carriers have suggested that our changes in ratemaking methodology will necessarily produce confiscatory rates and constitute a taking. *See, e.g.*, NTCA, Interim Universal Service & Intercarrier Compensation Reform Proposal (NTCA Interim Proposal) at 19–22, *attached to* Letter from Daniel Mitchell, Vice President, Legal & Industry, NTCA, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-337, CC Docket Nos. 96-45, 01-92 (filed Oct. 6, 2008) (NTCA Oct. 6, 2008 *Ex Parte* Letter) (contending that the Commission's current access regime, not to mention any reductions in access rates, threatens rate-of-return carriers with unconstitutional takings). *See also* Cincinnati Bell *ICC FNPRM* 11–12 ("The elimination of interstate switched access charges without an opportunity to earn the revenue in another fashion could be confiscatory . . . ."); GVNW Consulting *ICC FNPRM* Comments at 9 ("The existing system of cost recovery consisting of three equally important components of access charges, universal service support, and local rates is the only approach available to the Commission that will enable it to avoid valid claims of confiscation."). This argument lacks merit. Faced with a similar challenge to the TELRIC methodology previously adopted by the Commission, the Supreme Court stated unequivocally that "this Court has never considered a taking challenge on a ratesetting methodology without being presented with specific rate orders alleged to be confiscatory . . . ." *Verizon v. FCC*, 535 U.S. at 524 (citations omitted).

268. Moreover our decision to adopt a unified intercarrier compensation methodology is in no way arbitrary or adopted with any confiscatory purpose. In fact, the determinations made in this order reveal just the contrary, our decision to raise the cap on SLCs, our referral to the Federal-State Joint Board on Separations (Separations Joint Board) of the issue of whether to allow additional increases in SLC caps in Part V.C below, and our acknowledgment of the ability of a carrier to establish entitlement to supplemental universal service to help ensure that carriers can maintain their financial integrity.[715] Although in most cases the rates for intrastate and interstate terminating access will drop substantially, that alone is not the test for whether a taking has occurred; rather, a primary consideration for takings claims is whether the rates ultimately adopted will produce a reasonable return sufficient to enable a company to maintain its financial integrity.[716]

C. Implementation

269. In this section, we detail certain implementation items. First, we provide guidance to states with regard to their implementation responsibilities for the intercarrier compensation regime we adopt today. Importantly, this includes setting reciprocal compensation rates using the new incremental cost pricing methodology. We also provide guidelines for the states' application of the modification and suspension provisions of section 251(f)(2) of the Act. We explain the need to require symmetrical compensation arrangements without any exceptions under section 252(d)(2)(A)(ii) of the Act. And we discuss the effect of our intercarrier compensation reforms on existing interconnection and commercial agreements. Finally, we address the extent to which reduced revenue from carrier-to-carrier charges may be replaced through end-user charges or new universal service support, where needed.

1. Direction to the States

270. We set forth the timeline for states to implement our comprehensive reform and adopt an interim, uniform reciprocal compensation rate along with a transition plan in section [III.B.2] above. In this section, we set forth additional parameters for states to follow in implementing the reforms adopted in this order.

a. Setting Final Reciprocal Compensation Rates Based on Incremental Cost

271. Under our new methodology for setting final reciprocal compensation rates, states will need to set prices according to a forward-looking economic cost study or computer cost model using the Faulhaber principles to identify the traffic-sensitive incremental cost of transport and termination of traffic.[717] First, states will need to evaluate a forward-looking economic cost analysis of a stand-alone network that performs all functions of a modern telecommunications network, including transport and termination of other carriers' traffic. Second, states will need to evaluate a forward looking economic cost analysis of a stand-alone network that performs all the same functions except for the transport and termination of other carriers' traffic. Third, states must compare the costs of these two networks. The difference between the costs of the two networks is the additional costs of termination of traffic subject to

[715] *See FPC v. Hope Natural Gas Co.*, 320 U.S. 591, 605 (1944) ("Rates which enable the company to operate successfully, to maintain its financial integrity, to attract capital, and to compensate its investors for the risks assumed certainly cannot be condemned as invalid, even though they might produce only a meager return . . . .").

[716] *FPC v. Hope Natural Gas Co.*, 320 U.S. at 605.

[717] We recognize that the incremental cost of terminating traffic may include certain non-traffic-sensitive costs, such as the cost of a trunk port. Consistent with cost-causation principles, however, such non-traffic-sensitive costs may not be recovered through per-minute charges, but must rather be recovered through flat-rated monthly charges associated with interconnection trunks.

the "additional costs" standard we adopt in this order.[718]

272. We offer further guidance regarding specific aspects of these cost studies. First, these cost studies must use the least cost, most efficient network technology. We find that the least cost, most efficient switch today is a softswitch.[719] We further find that the least cost, most efficient technology for transport is fiber optic cable.[720] We observe that, when carriers deploy fiber, they typically deploy capacity significantly in excess of current needs.[721]

273. Second, consistent with the traditional economic definition of the incremental cost of a service,[722] the cost studies must exclude all common costs, including overhead costs. Third, all non-traffic-sensitive costs must be excluded from the cost studies.[723] Cost studies using the TELRIC methodology do not meet these requirements, given the differences between TELRIC and the traditional economic methodology for determining the incremental cost of a service discussed above.[724] Available evidence suggests that the incremental costs of terminating traffic, as determined using this methodology, are likely to be extremely close to zero.

274. We also require each state to set a single, uniform rate for all carriers in that state through their pricing proceedings. We find this approach warranted for several reasons. First, softswitches are easily scalable, and thus the incremental cost of termination does not vary with the number of lines the switch serves. Second, because carriers tend to deploy significant excess capacity when deploying fiber, the incremental cost of adding traffic is likely to approach, or equal, zero. Third, we find that setting a single uniform rate for all incumbent LECs and interconnecting carriers in a state simplifies the regulatory process, minimizes arbitrage that could arise, and reduces the likelihood that unidentifiable traffic would remain a problem. Finally, setting rates based on the costs of the current, least cost, most efficient technology creates incentives for carriers with less efficient networks to migrate more quickly to those more efficient technologies.

275. Following the transition, once carriers are charging the final uniform reciprocal compensation rate, we establish the following default rules regarding the network "edge."[725] These

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[718] *See supra* section V.B.4.c.

[719] *See supra* section V.B.4.c.

[720] *See supra* section V.B.4.c.

[721] *See, e.g., Federal-State Joint Board on Universal Service; Forward-Looking Mechanism for High Cost Support for Non-Rural LECs*, CC Docket Nos. 96-45, 97-160, Tenth Report and Order, 14 FCC Rcd 20156, 20237, para. 186 (1999) (subsequent history and citation omitted) ("As we explained in the *Inputs Further Notice*, in determining appropriate cable sizes, network engineers include a certain amount of spare capacity to accommodate administrative functions, such as testing and repair, and some expected amount of growth."); *Triennial Review Order*, 18 FCC Rcd at 17166, para. 312 n.919 (citing evidence that "the first carrier to lay fiber to a particular location will lay significantly more than it will need because the incremental cost of burying additional fibers is negligible").

[722] *See supra* section V.B.4.c.

[723] We thus go beyond the requirement in the *Local Competition First Report and Order* that only required states to exclude the cost of line ports, *see* 11 FCC Rcd at 16025, para. 1057, and mandate that *all* non-traffic sensitive costs be excluded.

[724] *See, e.g., supra* section V.B.4.c.

[725] *See* Letter from Hank Hultquist, AT&T Services, Inc., and Donna Epps, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-92 at 1–2 (filed Oct. 14, 2008) (AT&T and Verizon Oct. 14, 2008 *Ex Parte* Letter) (providing seven default rules). We reject PAETEC's assertion that the Commission lacked notice to adopt

(continued....)

default rules would not require changes to physical points of interconnection, but would simply define functions governed by a uniform terminating rate.[726]

- For every call, the calling party service provider (e.g., the calling party's LEC for a local call or the calling party's IXC for a long distance call) is responsible for the transmission and routing of the call to the network edge of the called party service provider.

- The calling party service provider may fulfill its responsibility for the transmission and routing of a call to the called party service provider network edge via its own facilitates and services, the facilities and service of another entity (including the called party's service provider), or any combination.

- The calling party service provider is also responsible for the payment of the uniform terminating rate to the called party service provider. The called party service provider is responsible for performing all network functions to deliver traffic from the network edge to the called party, including dedicated transport, common transport, tandem switching, end office switching, and SS7 messaging.

- The reciprocal compensation regime of section 251(b)(5) will apply to traffic from the called party service provider network edge to the called party.

- The called party service provider's network edge is the location of its end office, MSC, point of presence, or trunking media gateway, which PSTN routing conventions (e.g., NPAC or LERG) associate with the called party telephone number unless that location subtends a tandem switched owned or controlled by the called party service provider, in which case that tandem is the network edge for that call. A service provider that utilizes a tandem as its edge may require, upon reasonable request consistent with standard industry network interconnection principles, that calling party service providers groom their traffic onto segregated trunk groups.

- The called party service provider must either permit interconnection at its edge for purposes of exchanging traffic with the calling party service provider or provide transport at no charge to that edge from a location in the same LATA where it does permit such interconnection.

- The calling party service provider may at its sole discretion choose whether to interconnect directly or indirectly with the called party service provider.

b. Symmetry

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such rules. *See* Letter from Jonathan S. Frankel and Michael A. Romano, Counsel for PAETEC, CC Docket Nos. 99-68, 01-92 at 2-3 (Oct. 28, 2008) (PAETEC Oct. 28, 2008 *Ex Parte* Letter). The Commission expressly sought comment on this issue in the *Intercarrier Compensation FNPRM*. *Intercarrier Compensation FNPRM*, 20 FCC Rcd at 4687, 4702-03, 4712-13, 4727-30, paras. 4, 34, 40-44, 54, 91-97.

[726] Thus, the default "edge" rule we adopt today does not alter any obligations of incumbent LECs' to interconnect at any technically feasible point, nor does the rule alter carriers' ability to request interconnection. *See, e.g.*, Letter from Susanne A. Guyer, Verizon, to Chairman Kevin J. Martin, FCC, CC Docket Nos. 96-45, 01-92, WC Docket Nos. 05-337, 06-112 at 5 (filed Oct. 5, 2008). *See also, e.g.*, PAETEC Oct. 28, 2008 *Ex Parte* Letter at 5-6 (expressing concern that the adoption of rules regarding a network "edge" not alter existing rules and obligations regarding physical interconnection). Moreover, the "edge" rules we adopt, which will apply at the end of the transition period, are merely a default, and carriers are free to negotiate alternative arrangements.

276. We conclude that final uniform reciprocal compensation rates should be symmetrical.[727] In contrast to the approach taken in the *Local Competition First Report and Order*, we require, for the reasons described below, symmetry in all cases once the final uniform reciprocal compensation rates become effective.

277. *Background.* In the *Local Competition First Report and Order*, the Commission concluded that charges for reciprocal compensation were to be presumptively symmetrical and that it was "reasonable to adopt the incumbent LEC's transport and termination prices as a presumptive proxy for other telecommunications carriers' additional costs of transport and termination."[728] The Commission observed that "[b]oth the incumbent LEC and the interconnecting carriers usually will be providing service in the same geographic area, so the forward-looking economic costs should be similar in most cases."[729] Moreover, by using the incumbent LEC's costs of transport and termination, the Commission found that symmetry would provide an incentive for interconnected carriers to minimize costs because if the interconnected carrier could reduce its costs below the costs of the incumbent LEC, then it could realize additional termination revenue.[730] Symmetrical compensation also provided the incumbent LECs an incentive to minimize costs. The Commission further found that symmetry reduced incumbent LECs' bargaining strength because asymmetrical rates could have allowed incumbent LECs to negotiate high charges for traffic terminating on their networks and low charges for traffic originating on their networks, citing as an example incumbent LECs' treatment of CMRS providers.[731] A presumption of symmetric rates was administratively efficient and did not require a competing carrier to conduct a forward-looking cost study to enter the market, lowering the cost of entry and thus increasing competition.[732]

278. The Commission, however, carved out an exception to the presumption of symmetry. In the *Local Competition First Report and Order*, the Commission permitted interconnecting carriers to rebut the presumption of symmetry by submitting a forward-looking cost study to show that their costs of

[727] "Symmetrical compensation arrangements are those in which the rate paid by an incumbent LEC to another telecommunications carrier for transport and termination of traffic originated by the incumbent LEC is the same as the rate the incumbent LEC charges to transport and terminate traffic originated by the other telecommunications carrier." *Local Competition First Report and Order*, 11 FCC Rcd at 16031–32, para. 1069.

[728] *Local Competition First Report and Order*, 11 FCC Rcd at 16040, para. 1085. The Commission provided the following findings supporting its conclusion: (1) "using the incumbent LEC's forward-looking costs for transport and termination of traffic as a proxy for the costs incurred by interconnected carriers satisfies the requirements of section 252(d)(2)" and "is consistent with section 252(d)(2)(B)(ii)"; (2) "[i]f both parties are incumbent LECs, . . . the larger LEC's forward-looking costs should be used to establish the symmetrical rate for transport and termination"; (3) "larger LECs are generally in a better position to conduct a forward-looking economic cost study"; (4) "imposing symmetrical rates based on the incumbent LEC's additional forward-looking costs will not substantially reduce carriers' incentives to minimize those costs"; and (5) "states may establish transport and termination rates in the arbitration process that vary according to whether the traffic is routed through a tandem switch or directly to the end-office switch." *Id.* at 16040–42, paras. 1085–86, 1090.

[729] *See Local Competition First Report and Order*, 11 FCC Rcd at 16040, para. 1085.

[730] *See Local Competition First Report and Order*, 11 FCC Rcd at 16040, para. 1086 ("A symmetric compensation rule gives the competing carriers correct incentives to minimize its own costs of termination because its termination revenues do not vary directly with changes in its own costs.").

[731] *See Local Competition First Report and Order*, 11 FCC Rcd at 16041, para. 1087 (noting that incumbent LECs have used their greater bargaining power to negotiate asymmetrical rates with CMRS providers and to charge CMRS providers origination, as well as termination, charges).

[732] *See Local Competition First Report and Order*, 11 FCC Rcd at 16041–42, para. 1088.

termination were higher than the incumbent LEC's.[733] If the interconnecting carrier established that "the costs of efficiently configured and operated systems [were] not symmetrical," the state commission could adopt a "different compensation rate" for the interconnecting carrier.[734]

279. *Discussion.* We now require symmetric rates and conclude that the exception that permitted asymmetric rates under certain circumstances is no longer warranted.[735] We note that there is scant evidence of any competitive LECs seeking to establish their own, higher, costs during the last 12 years, let alone being successful in doing so.[736] We conclude that asymmetric rates could undermine the comprehensive reform we adopt by permitting different termination rates for traffic in the same geographic area, which could open the door for continued regulatory arbitrage and thwart the intended public interest benefits associated with reforming the patchwork of existing intercarrier compensation payments.

280. As noted above, symmetrical rates promote efficiency. Symmetry will encourage interconnecting carriers to deploy more efficient technology to reduce their costs. Notably, the Commission of the European Communities (European Communities) has also found that divergent regulatory treatment between different technology termination rates, as this rebuttable presumption exception allows, creates distortions among markets.[737] In the context of fixed versus mobile telephony, the European Communities recognized that some European countries have allowed smaller CMRS carriers to charge higher termination rates to compensate for these carriers' lack of economies of scale.[738] The European Communities concluded that these higher termination rates for mobile technology led to higher retail rates for customers and lower usage of this technology.[739] As the European experience shows, allowing the present exception to the symmetry rule could encourage higher termination rates, and asymmetric termination rates—particularly if such termination rates were high for one carrier—could reduce consumer welfare and lead to higher prices.

281. We conclude that requiring symmetrical compensation arrangements without any

[733] *See Local Competition First Report and Order*, 11 FCC Rcd at 16042, para. 1089.

[734] *See Local Competition First Report and Order*, 11 FCC Rcd at 16042, para. 1089.

[735] We note that the rates that will apply under our transition plan, discussed *supra* Part V.B.2, will not necessarily be symmetric. For example, we do not permit CMRS providers to assess access charges during the transition. *See supra* para. 197; 47 U.S.C. § 251(f)(2). Our symmetry rules thus apply outside the transition framework, i.e., for carriers exchanging traffic at the final, uniform reciprocal compensation rate, or for carriers that have received a suspension or modification of our intercarrier compensation requirements pursuant to 251(f)(2).

[736] Indeed, we are only aware of one case where a competitive LEC attempted to rebut the presumption and, in that case, the state commission found that the competitive LEC had failed to do so. *See* Petition of Sprint Spectrum L.P. d/b/a Sprint PCS, Pursuant to Section 252(b) of the Telecommunications Act of 1996, for Arbitration to Establish an Intercarrier Agreement with Verizon New York Inc., Case 01-C-0767, Arbitration Order, 2002 WL 31505732 (N.Y. P.S.C. 2002) (holding that Sprint did not rebut the presumption that its costs were higher than the incumbent LEC's).

[737] *See* THE COMMISSION OF THE EUROPEAN COMMUNITIES, DRAFT COMMISSION RECOMMENDATION ON THE REGULATORY TREATMENT OF FIXED AND MOBILE TERMINATION RATES IN THE EU 3, para. 3 (2008), *available at* http://ec.europa.eu/information_society/policy/ecomm/doc/library/public_consult/termination_rates/termination.pdf (last visited Oct. 24, 2008) (EUROPEAN COMMUNITIES).

[738] *See* EUROPEAN COMMUNITIES at 2, para. 2.

[739] *See* EUROPEAN COMMUNITIES at 3, para. 3.

exceptions is proper under section 252(d)(2)(A)(ii) of the Act.[740] We also confirm that this mandatory symmetry requirement applies without regard to whether traffic exchanged by the interconnected carriers is balanced or not. Given the substantial benefits of symmetrical rates as described above, the likelihood that allowing asymmetrical rates would give carriers an incentive to find ways to arbitrage the higher rates, and the minimal costs associated with terminating calls,[741] we find that an exception to symmetrical rates where traffic is out of balance is not warranted.

c. Modifications and Suspensions under Section 251(f)(2)

282. In light of the importance of bringing uniformity and symmetry to intercarrier compensation, eliminating opportunities for regulatory arbitrage, and providing regulatory certainty to carriers in making investment plans, we find it appropriate to adopt guidelines regarding the application of section 251(f)(2). Section 251(f)(2) of the Act gives state commissions the ability to suspend or modify our intercarrier compensation rules implementing section 251(b) and (c) under certain conditions. Specifically, section 251(f)(2) of the Act permits a "local exchange carrier with fewer than 2 percent of the Nation's subscriber lines installed in the aggregate nationwide" to "petition a State commission for a suspension or modification of the application of a requirement or requirements of [section 251] (b) or (c)."[742] The state commission shall grant such petition "to the extent that, and for such duration as, the State commission determines that such suspension or modification (A) is necessary (i) to avoid a significant adverse economic impact on users of telecommunications services generally; (ii) to avoid imposing a requirement that is unduly economically burdensome; or (iii) to avoid imposing a requirement that is technically infeasible; and (B) is consistent with the public interest, convenience, and necessity."[743] In the *Local Competition First Report and Order,* the Commission "decline[d] . . . to adopt national rules or guidelines" regarding the specific implementation of section 251(f), but explained that the Commission "may offer guidance on these issues at a later date, if we believe it is necessary and appropriate."[744] The Supreme Court subsequently confirmed that the Commission has the authority to interpret section 251(f).[745] The only existing Commission guideline regarding section 251(f)(2) provides that the burden of proof is on the LEC seeking suspension or modification of particular requirements.[746]

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[740] This section requires that, in setting rates under interconnection agreements, states must ensure that reciprocal compensation charges are a "reasonable approximation of the additional costs of terminating such calls." *See* 47 U.S.C. § 252(d)(2)(A)(ii). In the *Local Competition First Report and Order,* the Commission found that the incumbent LEC's costs were a reasonable proxy for other carriers' costs. 11 FCC Rcd at 16040, para. 1085. We reaffirm that finding, especially given that our pricing methodology focuses on the costs of the least cost, most efficient network technology. Moreover, per the express terms of the Act, the "additional costs" standard applies only to the costs of the incumbent LEC, not the competitive LEC. This interpretation of the Act promotes efficiency and therefore bolsters competition, consistent with the goals of the Act. *See* 1996 Act, Preamble (declaring the purpose of the Act to be "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").

[741] *See supra* section V.B.4.c.

[742] 47 U.S.C. § 251(f)(2).

[743] 47 U.S.C. § 251(f)(2).

[744] *Local Competition First Report and Order*, 11 FCC Rcd at 16118, para. 1263; 47 U.S.C. § 251(f)(2).

[745] *AT&T v. Iowa Utils. Bd.*, 525 U.S. at 385.

[746] *See* 47 C.F.R. § 51.405(b). In the *Local Competition First Report and Order*, the Commission held that, in petitions under section 251(f)(2), "a LEC must offer evidence that application of those requirements would be likely to cause undue economic burdens beyond the economic burdens typically associated with efficient competitive

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283. As an initial matter, we conclude that any suspension or modification granted pursuant to section 251(f)(2) must be for a limited "duration" and cannot be indefinite. This interpretation follows directly from the express language of section 251(f)(2). Specifically, section 251(f)(2) provides that the state should grant a suspension or modification "to the extent that, *and for such duration as*, the State commission determines that such suspension or modification"[747] satisfies the statutory test. Congress thus expected that the conditions warranting suspension or modification of a requirement would not be permanent, and it permitted the states to continue such modifications or suspensions only for a particular "duration," rather than remaining in place indefinitely. In contrast, Congress adopted the opposite approach in section 251(f)(1), where it provided a default exemption for "rural telephone companies" from section 251(c) that continues indefinitely "until" certain statutory criteria are met.[748] Accordingly, we conclude that the LEC requesting the suspension or modification under section 251(f)(2) has the burden of demonstrating the appropriate duration of any suspension or modification. To the extent that a state grants a suspension or modification for a particular duration, the Commission encourages the state to impose a timeline or other requirements on the LEC to ensure that it is taking concrete steps to enable it to comply with the relevant requirements once the suspension or modification ends.[749] If a state finds that a LEC is not taking such steps necessary to ensure compliance on a date certain, we find that such a determination would be sufficient for the state immediately to revoke the suspension or modification as no longer satisfying the "public interest" criteria.

284. We also offer guidance regarding the substantive standards that state commissions must apply when evaluating requests pursuant to section 251(f)(2) for a suspension or modification of section 251(b) or (c). The first prong of section 251(f)(2)(A) directs state commissions to determine whether the LEC establishes that absence of the requested suspension or modification would cause a "*significant* adverse economic impact on users of telecommunications services generally."[750] The term "significant" is ambiguous. According to Webster's Dictionary, "significant" means "having or likely to have influence or effect; of a noticeably or measurably large amount."[751] We find this to be a reasonable definition, and conclude that for an "adverse economic impact" to be "significant" requires that such harm be "measurably large." Moreover, the state commission must evaluate the net impact "on users of telecommunications services *generally*."[752] We conclude that state commissions must consider users of

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entry." 11 FCC Rcd at 16118, para. 1262. The Commission also placed the burden of proof on the carrier seeking the relief under section 251(f)(2). *Id.* at 16118, para. 1263. Although the Supreme Court ultimately upheld the Commission's authority to interpret section 251(f), *see AT&T v. Iowa Utils. Bd.*, 525 U.S. at 385, the Eighth Circuit subsequently vacated the Commission's interpretation of "undue economic burden," finding that the Act requires a state to look at the entire economic burden not just the additional burden of complying with sections 251(b) or 251(c). *See Iowa Utils. II*, 219 F.3d at 759–62. The Eighth Circuit also found that the Commission erred in placing the burden of proof on the rural LEC when a requesting carrier seeks to remove the section 251(f)(1) exemption from section 251(c). The Eighth Circuit therefore vacated sections 51.405(a), (c), and (d) of our rules, *id.* at 762, but did not disturb the allocation of burden of proof under section 251(f)(2) as set forth in 47 C.F.R. § 51.405(b).

[747] 47 U.S.C. § 251(f)(2) (emphasis added).

[748] 47 U.S.C. § 251(f)(1).

[749] Moreover, if, in the future, we have evidence that states are granting arbitrarily long suspensions/modifications to requesting LECs, the Commission will consider imposing a limit on the number of years that a suspension/modification is appropriate.

[750] 47 U.S.C. § 251(f)(2)(A)(i) (emphasis added).

[751] WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY 1096 (1991).

[752] 47 U.S.C. § 251(f)(2)(A)(i) (emphasis added).