2. Proxies for Specific Elements

a. Overview

787. Although we encourage states to use an economic cost methodology to set rates for interconnection, unbundled network elements, and collocation, we will permit states unable to analyze an economic costing study within the statutory time constraints to use default proxies in setting and reviewing rates. We set forth below the default proxies for specific network elements. These proxies are interim only. They will apply only until a state sets rates in arbitrations on the basis of an economic cost study, or until we promulgate new proxies based on economic cost models.[1860] We also set forth below the rate structure rules that apply to each of network elements. These rate structure requirements are applicable regardless of whether a state uses an economic cost study or the proxy approach to set rate levels.

b. Discussion

(1) Loops

(a) Comments

788. A number of commenters assert that unbundled loops, in particular, are dedicated facilities, and therefore should be priced on a flat-rated basis.[1861] Sprint suggests that prices for unbundled loops not depend on minutes of use, but rather distance.[1862] MFS urges the Commission to preempt a Texas statute that, it contends, requires incumbent LECs to price unbundled loops on a usage-sensitive basis.[1863]

[1860] *See infra*, Section VII.C.3., discussing generic cost models.

[1861] *See, e.g.*, CompTel comments at 36; Florida Commission comments at 31; MFS comments at 62; *see also* AT&T comments at 67; GSA/DoD comments at 10.

[1862] Sprint comments at 62.

[1863] MFS comments at 62.

(b) Discussion

789. Most loop costs are associated with a single customer.[1864] Outside plant between a customer's premises and ports on incumbent LEC switches is typically either physically separate for each individual customer, or has costs that can easily be apportioned among users. We therefore conclude that costs associated with unbundled loops should be recovered on a flat-rated basis. Usage-based rates for an unbundled loop would most likely translate into usage-based rates for new entrants' retail local customers. A retail usage-based rate would distort incentives for efficient use. Customers that had to pay a usage charge would have an incentive not to use the network in situations where the benefit of using the network exceeds the true cost of using the network. Usage-based loop prices would put an entrant at an artificial cost disadvantage when competing for high-volume customers.[1865]

790. In general, we believe that states should use a TELRIC methodology to establish geographically deaveraged, flat-rate charges for access to unbundled loops. As discussed above, however, we recognize that, in some cases, it may not be possible for carriers to prepare, or for state commissions to review, economic cost studies within the statutory time frame for arbitration proceedings. Because reviewing and approving such cost studies takes time and because many states have not yet begun, or have only recently begun, to develop and examine such studies, it is critical for the near-term development of local competition to have proxies that provide an approximation of forward-looking economic costs and can be used by states almost immediately. These proxies would be used by a state commission until it is able either to complete a cost study or to evaluate and adopt the results of a study or studies submitted in the record. In an NPRM to be issued shortly, we will investigate more fully various long-run incremental cost models in the record with an eye to developing a model that can be used to generate proxies for the forward looking economic costs of network elements. Until such time as we can develop such a model, we have developed the following default proxy ceilings that state commissions that have not completed forward looking economic cost studies may use in the interim as an approximation to the forward looking cost of the local loop.

791. State commissions may use this proxy to derive a maximum (or ceiling) loop rate for each incumbent LEC operating within their state, and may establish actual unbundled loop rates at any level less than or equal to this maximum rate in specific arbitrations or other proceedings. Of course, we are encouraging states to have economic studies completed wherever

---

[1864] *See MTS and WATS Market Structure*, CC Docket No. 78-72, Phase I, Third Report and Order, 93 FCC 2d 241, 291-297 (1983).

[1865] We note that MFS has filed a separate petition asking the Commission to preempt certain provisions of the Texas statute, which it contends requires incumbent LECs to sell unbundled local loops on a usage-sensitive basis. *See* Public Notice, *Petition for Preemption of Local Entry Barriers Pursuant to Section 253*, 11 FCC Rcd 6578 (Com. Car. Bur. 1996) (*MFS Texas Petition*). We will rule specifically on the Texas statute when we consider the *MFS Texas Petition*.

feasible. Moreover, states will have to replace this proxy ceiling with the results of their own forward looking economic cost study or the results produced by a generic economic cost model that the Commission has approved.[1866]

792. We are adopting a proxy ceiling based on two cost models and rates for unbundled loops allowed by six states that had available to them the results of forward-looking economic cost studies at the time they considered either interim or permanent rates for the unbundled loop element. These states are Colorado, Connecticut, Florida, Illinois, Michigan, and Oregon. Each of these states has used a standard that appears to be reasonably close to the forward-looking economic cost methodology that we require to be used, although possibly not consistent in every detail with our TELRIC methodology.[1867] Generally, these states appear to have included an allocation of forward-looking common costs in their unbundled loop prices. The individual state studies resulted in the following average rates for unbundled local loops: Colorado, $18; Connecticut, $12.95; Florida, $17.28; Illinois, $10.93; Michigan, $10.03; and Oregon, $12.45, computed as set forth below.

[1866] *See infra*, Section VII.C.3., discussing generic cost models.

[1867] *See In re: US West Communications, Inc. Filing of Advice Letter No. 2610 In Compliance with Commission Decision No. C96-521 Adopting Emergency Rules (Tariff)*, Docket No. 96S-233T, Decision No. C96-655 (Colorado Commission, June 21, 1996)["*Colorado Decision*"] at 58-64 (interim unbundled loop prices set after review of TSLRIC cost studies); *Re Southern New England Telephone Company*, Order No. 95-06-17, 1995 WL 803837 (Conn. D.P.U.C., December 20, 1995)["*Connecticut Decision*"] at 9-10, 72 (same); *In re: application of City Signal, Inc., for an order establishing and approving interconnection arrangements with Ameritech Michigan*, Case No. U-10647 (Michigan Commission, February 23, 1995) ["*Michigan Decision*"] at 32, 56-57 (setting interim unbundled loop rates based on estimated TSLRIC costs); *In Re: Resolution of petition(s) to establish nondiscriminatory rates, terms and conditions for resale involving local exchange companies and alternative local exchange companies and alternative local exchanges companies pursuant to Section 364.161, Florida Statutes*, Docket No. 950984-TP, Order No. PSC-96-0444-FOF-TP, (Florida Commission, March 29, 1996)["*Florida Decision I*"] at 16 (interim unbundled loop prices set with reference to BellSouth cost studies); *In Re: Resolution of petition(s) to establish nondiscriminatory rates, terms and conditions for resale involving local exchange companies and alternative local exchange companies and alternative local exchanges companies pursuant to Section 364.161, Florida Statutes*, Docket No. 950981-TP, Order No. PSC-96-0811-FOF-TP (Florida Commission, June 24, 1996)["*Florida Decision II*"] at 25-26 (setting rates after review of GTE and United/Centel cost studies); *In re: Investigation into the Cost of Providing Telecommunications Services*, Order No. 96-188, (Oregon Commission, July 19, 1996)["*Oregon Decision*"] at 78 n.61 (interim unbundled loop prices generally based on LRIC estimates plus applicable group related costs, and an additional contribution for recovery of joint and common costs); *Illinois Bell Telephone Company Proposed introduction of a trial of Ameritech's Customers First Plan in Illinois*, Docket Nos. 94-0096/94-0117/94-0146/94-0301 (Illinois Commission, April 7, 1995)["*Customers First* Order"] at 54, 61 (rates set with reference to Ameritech's LRSIC studies).

793. The Colorado Commission set an interim rate of $18 per month for unbundled loops terminated at the main distribution frame of the LEC switch.[1868] The Connecticut Commission ruled that SNET must provide the following interim unbundled loop prices varying by four zones: metro $10.18; urban $11.33; suburban $15.33; and rural $14.97.[1869] In the absence of further information about customer density or average loop length by zone, we used a simple average equal to $12.95. The Florida Commission set an interim rate for 2-wire loops at $17.00 per month for BellSouth, $15.00 for United/Centel, and $20.00 for GTE.[1870] Using weights equal to the number of loops served by each company in 1994 as reported in the Monitoring Report,[1871] we computed a weighted average price equal to $17.28. Pursuant to its *Customers First* Order, the Illinois Commerce Commission approved tariffs establishing business rates equal to $7.08, $10.92, and $14.45, and residential rates equal to $4.59, $8.67, and $12.14 in three density zones.[1872] Based on data from Table 2.5, page 20 of the Common Carrier Statistics, 1995 Preliminary, we found a 36 percent - 64 percent business residential split. Using Illinois Commission data for number of households in each density zone (996,750 in zone A; 2,788,759 in zone B; 4,594,567 in zone C), we computed an average loop cost of $10.93. The Michigan Commission approved transitional rates of $8.00 per loop for business and $11 per loop for residence.[1873] Based on Common Carrier Statistics, 1995 Preliminary data, we computed a 32 percent - 68 percent business-residential split in Michigan, which leads to an average rate of $10.03. The Oregon Commission set the rate for a "basic 2-wire loop set" at $11.95 plus $0.50 for a network access channel connection, for a total price of $12.45.[1874]

794. In order to set a proxy ceiling for unbundled loop elements we make use of the two cost models for which nationwide data are available and upon which parties have had the opportunity to comment in this proceeding. These models are the Benchmark Cost Model (*BCM*)[1875] and the *Hatfield 2.2*.[1876] Based on our current information, we believe that both these

---

[1868] *Colorado Decision* at 66.

[1869] *Connecticut Decision* at 74.

[1870] *Florida Decision I* at 19; *Florida Decision II* at 25-26.

[1871] Monitoring Report, CC Docket No. 87-339, May 1996 (listing the following number of loops by company: GTE, 1,909,172; United/Centel, 1,627,314; BellSouth, 5,328,280).

[1872] *See* Ameritech Tariff, Ill. C.C. No. 20, Part 19, Section 1, issued October 23, 1995.

[1873] *Michigan Decision* at 94.

[1874] *Oregon Decision* at Appendix C, p.1.

[1875] *Benchmark Cost Model: A Joint Submission by MCI Communications, Inc., NYNEX Corporation, Sprint Corporation, U S West, Inc.* (December 1995), submitted by MCI Communications, Inc., NYNEX Corp., Sprint/United Management Corp., U S West, Inc. on July 24, 1996 (*BCM*). For a more detailed discussion of

models are based on detailed engineering and demographic assumptions that vary among states, and that the outputs of these models represent sufficiently reasonable predictions of relative cost differences among states to be used as set forth below to set a proxy ceiling on unbundled loop prices for each state. We do not believe, however, that these model outputs by themselves necessarily represent accurate estimates of the absolute magnitude of loop costs. As we discuss below, further analysis is necessary in order to evaluate fully the procedures and input assumptions that the models use in order to derive cost estimates. Furthermore, in the case of *BCM*, model outputs include costs in addition to the cost of the local loop. In order to correct for these considerations, we have developed a hybrid cost proxy in the following manner. First, we have applied a scaling factor to the cost estimates of each model. This scaling is based on the actual rates computed for unbundled loop elements in the six states referred to above. Specifically we have multiplied the cost estimate produced by each model in each state by a factor equal to the unweighted average of rates adopted by state commissions in the six states, divided by the unweighted average of the model cost estimates for the same six states. Our hybrid cost proxy is computed as the simple average of the scaled cost estimates for the two models in each of the 48 contiguous states and the District of Columbia. Neither *BCM* nor *Hatfield 2.2* provide cost estimates for Alaska and only the *BCM* provides an estimate for Hawaii. Our default loop cost proxies for Hawaii and Puerto Rico are based on the default loop cost proxies of the states that most closely approximate them in population density per square mile.[1877] We are not setting default loop cost proxies in this Order for Alaska or for any of the remaining non-contiguous areas subject to the 1996 Act requirement that incumbent LECs offer unbundled loop elements. We are not establishing default loop cost proxies for these areas because we are unsure that comparisons of the population densities of the continental states and of Alaska and other non-contiguous areas subject to the 1996 Act fully capture differences in loop costs. Regulatory authorities in those areas may seek assistance from this Commission should default loop cost proxies be needed before they have completed their investigations of the forward-looking costs of providing unbundled loop elements. Since our intention is to establish a ceiling for unbundled loop rates, we believe that it is necessary to take account of the variation in the data that we have used for scaling. While the six states that we considered appear to have based their rates on forward-looking economic cost pricing principles, the actual rates that they approved appear to reflect other factors as well. Furthermore, because only a small number of

---

the *BCM*, *see infra*, Section VII.C.3.

[1876] *Hatfield Model, Version 2.2, Release 1*, (Hatfield Associates, Inc., March 1996), submitted by AT&T and MCI on May 16, 1996 (*Hatfield 2.2*); *see also* AT&T reply at Appendix D (Update of the Hatfield Model Version 2.2, Release 1). *See infra*, Section VII.C.3., for a more detailed discussion of the various versions of the *Hatfield* model.

[1877] There is a strong (negative) correlation between population density and the loop costs reported by all the cost models. The correlation is significant at the 5% level. Population densities are from The Statistical Abstract of the United States 1995, Table Number 23. For Puerto Rico, land area is from Table 361 and population is from Table 1345.

states have conducted such studies, some upward adjustment is warranted as a safety margin to ensure that the ceiling captures the variation in forward-looking economic costing prices on a state-by-state basis. We have therefore chosen to adjust the hybrid cost estimates upward by five percent for each state. A table listing the proxy ceilings on a statewide average basis is contained in Appendix D.

795. A number of parties have opposed the use of either the *Hatfield* model or *BCM*.[1878] Some critics, for example, have argued that the models may lead to inaccurate cost estimates since these estimates assume that a network is built "from scratch."[1879] Others have criticized specific procedures that have been used in the models to estimate both operating expenses and capital costs. As discussed below in Section VII.C.3., we believe that these criticisms may have merit. In a future rulemaking proceeding, we intend to examine in greater detail various forward looking economic cost models. For the purposes of setting an interim proxy, however, we note that the criticisms have been directed largely toward the absolute level of cost estimates produced by the models, rather than the relative cost estimates across states. Since our hybrid proxy ceiling explicitly scales the model cost estimates based on existing state decisions and uses the model results simply to compute relative prices, we believe that these criticisms do not apply in the present context.

796. We also note that a third model, the *BCM 2*,[1880] could have been used in the construction of our interim cost proxy by simply taking the scaled cost estimates from three cost models instead of two. We have chosen not to follow this approach since parties have not had an opportunity to comment on the possible deficiencies of the *BCM 2*. For comparison purposes, however, we have computed the corresponding ceiling cost estimates, and have found that the scaled costs using the three model proxy are very similar to the estimated costs that were derived using the two models.[1881]

797. As discussed above, we believe that cost-based rates should be implemented on a geographically deaveraged basis. We allow states to determine the number of density zones within the state, provided that they designate at least three zones, but require that in all cases the weighted average of unbundled loop prices, with weights equal to the number of loops in each

[1878] For a more detailed discussion of these generic cost models, *see infra,* Section VII.C.3.

[1879] *See, e.g.*, Florida Commission comments at 28-29; USTA comments at 54 n.45; Rural Tel. Coalition reply at 35.

[1880] *Benchmark Cost Model 2* (July 1996), submitted by Sprint Corp. and U S West, Inc., on July 24, 1996 (*BCM 2*). For a more detailed discussion of this generic cost model, *see infra*, Section VII.C.3.

[1881] The coefficient of correlation is 0.991. Since the models are deterministic, this correlation does not reflect any relevant statistical properties of the models.

zone, should be less than the proxy ceiling set for the statewide average loop cost set forth in Appendix D.

798. As noted above, we have not yet had sufficient time to evaluate fully any of the cost models that have been submitted in the record, and our hybrid proxy is therefore intended to be used only on an interim basis. We believe that the methodology is consistent with forward-looking cost studies, but we also recognize that there may be situations in which forward looking loop costs will differ from computed costs, and accordingly, we have increased the state average loop costs by five percent and established the proxy as a ceiling. We emphasize that use of the hybrid proxy model can be superseded at any time by a full forward looking economic cost study that follows the guidelines set forth in this order. In addition, we are currently in the process of evaluating the more detailed cost models that have been submitted in the record,[1882] and will issue a further notice on the use of these models in the near future.

(2) Local Switching

(a) Comments

799. Several IXCs propose that local switching rates be part flat-rated and part usage-sensitive. LDDS argues that the price of the unbundled switching element should reflect as closely as possible the manner in which switching costs are incurred. It believes that line-related costs should be recovered through a flat per-line capacity charge, based on a contracted-for number of lines, with an additional usage-based trunking port charge and a combination of per-line and usage-based charges to recover busy hour related costs.[1883] AT&T similarly argues that switching rates should be based on a capacity charge for line-specific costs plus a usage sensitive charge based on calling volume.[1884] MCI states that switching costs are a function of line connections, trunk connections, and busy hour demand on the switch matrix and processor. Hence, the rate for the switching element should have a sub-element price relating to each sub-element, set to recover the associated TSLRIC.[1885] Sprint, on the other hand, contends that the charge for the local switching element should consist of two flat-rated charges, one based on the number of interconnector lines receiving dedicated access to the first point of concentration in the switch, and the second on the number of links between the termination equipment and the switch that an interconnector has ordered to provide it with switching capacity at its desired grade of

[1882] For a more detailed discussion of the cost models submitted in this docket, *see infra,* Section VII.C.3.

[1883] LDDS comments at 57.

[1884] AT&T comments at 68.

[1885] MCI comments at 30.

service.[1886] CompTel argues that trunk port charges should be usage sensitive because trunk ports are used by multiple parties and that the network element for end-office serving wire center (provided by tandem switching) should be priced on a per minute basis.[1887]

800. Time Warner argues that pricing switched-based network elements on a flat-rated basis could give non-facilities-based competitors artificially created cost advantages over those who choose to invest in the development of competing networks.[1888] It also argues that nothing in the 1996 Act suggests that switches should not be priced based on a per-use basis rather than a per-line or per-partitioned portion of the switch basis.[1889] NEXTLINK supports the use of rate structures that reflect peak and off-peak costs, but notes that the advantage of such structures must be balanced against the disadvantages of complexity and possible disputes that could arise with regard to more complex billing systems.[1890] The Washington Commission notes that the switched access price structure for interexchange access is usage sensitive, but it states that usage-sensitive pricing structures for switched access are inappropriate for local interconnection services in Washington because state law prohibits mandatory measured local service. To the extent that network element costs are driven by peak demand, the Washington Commission states that rates should reflect that tendency. It would prefer to see rate structures that more accurately reflect peak, rather than average demand and has expressed a strong interest in flat-rated port charges. The Washington Commission states that a flat rate based upon cost of providing capacity at peak load is possibly the most economically correct pricing mechanism; off-peak usage then is at virtually zero cost.[1891]

801. LDDS and AT&T argue that there should be no additional charges for vertical features provided by the switch, as the cost of providing those features should already be reflected in the charge for unbundled local switching.[1892] MCI has a similar view, arguing that, because incumbent LECs do not incur the cost of vertical features on a usage basis, custom calling features should be included in the price for unbundled local switching.[1893]

[1886] Sprint comments at 35, 62.

[1887] CompTel comments at 36, 45.

[1888] Time Warner comments at 59.

[1889] Time Warner comments at 59.

[1890] NEXTLINK comments at 30.

[1891] Washington Commission comments at 29-30.

[1892] AT&T comments at 21 n.22; LDDS comments at 56-57.

[1893] MCI comments at 31.

802. Incumbent LECs and Sprint, however, argue that vertical features are retail services offered to end users today, and must be purchased by the competitor under the wholesale rate provision of the 1996 Act.[1894] In making that argument, however, Sprint notes that although it is not technically feasible to unbundle vertical services the costs of such services can be identified and should be excluded from the price of the local switching element.[1895] Bell Atlantic notes that services currently sold at a loss are subsidized by vertical service offerings. It asserts that, if these offerings were treated as unbundled elements that must be provided at cost instead of wholesale retail services, then a serious takings issue would arise.[1896] ALLTEL contends that the Commission should not permit the 1996 Act's resale price standards to be undercut by carriers attempting to mimic LEC networks by assembling unbundled elements obtained at below cost prices.[1897] USTA contends that section 251(c) does not allow carriers to assemble unbundled network elements to reconstruct and provide retail services offered by the incumbent LECs.[1898] The Competition Policy Institute argues in response, that the existence of unbundled network elements should not be presumed to be a substitute for a resold service.[1899] NYNEX argues that a competitor should not be allowed to obtain resold local exchange service and ask for vertical features at cost-based rates. It argues that the two competitive vehicles were intended to meet different strategic needs; they were not intended to provide opportunities for arbitrage.[1900]

803. Several commenters included estimates of the cost for end-office switching. MCI provides an estimate of the cost of end-office switching as calculated by the *Hatfield 2* model.[1901] Using the least cost, most efficient technology available in the market at the time, MCI estimates that the TSLRIC of end-office switching is equal to 0.18 cents ($0.0018) per minute of use.[1902] AT&T provides an updated version of the *Hatfield 2* model, the *Hatfield 2.2*, which treats the

---

[1894] *See, e.g.*, SBC comments at 38; Sprint comments at 36-37.

[1895] Sprint comments at 37 n.15.

[1896] Bell Atlantic reply at Exhibit 2 (Declaration of Richard A. Epstein), p.7.

[1897] ALLTEL reply at 7.

[1898] USTA reply at 8.

[1899] Competition Policy Institute comments at 26.

[1900] NYNEX comments at 30, 36, 39.

[1901] MCI comments at Attachment 1, "The Cost of Basic Network Elements, Theory, Modeling, and Policy Implications," prepared for MCI by Hatfield Assoc., Inc.

[1902] *Id.* at 34; *see also* NCTA comments at Attachment 1 (Declaration of Bruce M. Owen), p. 34-35 (converting the *Hatfield 2* estimate for end-office switching and switch port costs into a per minute rate of 0.26 cents).

incumbent LECs' current wire center locations as "fixed" nodes in a reconstructed network.[1903] Cox reports that the *Hatfield 2.2* model estimates that average TSLRIC of end office switching for most states clusters around 0.2 cents ($0.002) per minute of use.[1904]

804. GTE criticizes the *Hatfield 2.2* model and its assumptions, arguing that the Hatfield model suffers from serious inaccuracies and produces results that are inconsistent with what can actually be observed.[1905] GTE reports that the Cost Proxy Model, which was submitted by Pacific Telesis,[1906] estimates the average cost of routing traffic through end-office switches is equal to 0.35 cents ($0.0035) per minute of use.[1907]

805. In pleadings filed in the *LEC-CMRS Interconnection* proceeding,[1908] Cox asserts that the average incremental cost of inter-office transport and termination of traffic is 0.2 cents ($0.002) per minute of use.[1909] In the same proceeding, U S West argues that Cox's estimate of 0.2 cents per minute of use ignores the large differential between the costs of terminating calls

---

[1903] *Hatfield Model, Version 2.2, Release 1*, (Hatfield Associates, Inc., March 1996), submitted by AT&T and MCI on May 16, 1996 (*Hatfield 2.2*); *see also* AT&T reply at Appendix D (Update of the Hatfield Model Version 2.2, Release 1), p.1-3.

[1904] Letter from J.G. Harrington, Dow, Lohnes & Albertson, on behalf of Cox Communications, to William F. Caton, Acting Secretary, FCC, June 20, 1996, in CC Docket No. 95-185, at Tab 2 (Review of Record on LEC Local transport and Termination Costs Finding from LEC Cost Studies), p.3 (*Cox June 20, 1996 Ex Parte*).

[1905] Letter from Whitney Hatch, Assistant Vice President Regulatory Affairs, GTE, to William F. Caton, Acting Secretary, FCC, July 11, 1996 at Attachment 2 (Economic Evaluation of Version 2.2 of the Hatfield Model).

[1906] *The Cost Proxy Model* (INDETEC International, 1996), submitted by Pacific Telesis Group on June 7, 1996 (*CPM*).

[1907] Letter from Whitney Hatch, Assistant Vice President Regulatory Affairs, GTE, to William F. Caton, Acting Secretary, FCC, July 11, 1996 at Attachment 2 (Economic Evaluation of Version 2.2 of the Hatfield Model), pp.16-17.

[1908] *Interconnection Between Local Exchange Carriers and Commercial Mobile Radio Service Providers*, CC Docket No. 95-185, Notice of Proposed Rulemaking, 11 FCC Rcd 5020, 5038 (1996) (*LEC -CMRS Interconnection NPRM*);

[1909] Letter from J.G. Harrington, Dow, Lohnes & Albertson, on behalf of Cox Communications, to William F. Caton, Acting Secretary, FCC, June 20, 1996, in CC Docket No. 95-185 at Tab 2 (Review of Record on LEC Local Transport and Termination Costs Finding from LEC Cost Studies), pp.1-2; *see also* Letter from Robert F. Roche, CTIA, to William F. Caton, Acting Secretary, FCC, December 8, 1995, in CC Docket No. 94-54, (Incremental Cost of Local Usage, Brock Paper No. 3), p.1.

during peak and off-peak hours.[1910] USTA claims that the average incremental cost of call termination is 1.3 cents ($0.013) per minute of use.[1911]

806. In response to the *LEC-CMRS Interconnection NPRM,* many commenters assert that the majority of CMRS providers interconnect with incumbent LEC networks at incumbent LECs' tandem offices.[1912] U S West asserts that Cox's estimate of 0.2 cents ($0.002) per minute of use underestimates the actual cost of transporting and terminating traffic, and claims that, using the same data and methodology as Cox, the incremental cost of transporting and terminating traffic through the tandem is approximately three times higher than Cox's estimate.[1913] In the same proceeding, AirTouch, relying on 1994 testimony before the Georgia Commission, asserts that the LRIC of transporting and terminating a call through the tandem equals approximately 0.49 cents ($0.0049) for the first minute of a call and 0.12 cents ($0.0012) for each additional minute of use.[1914] This estimate is based on the presumption that it should cost roughly half as much to complete a call interchanged at a tandem switch as it does to both originate and terminate a call entirely on one network.[1915] Pacific Bell, asserts that the average LRIC for termination of calls under "Feature Group B," which appears to include terminations at tandems switches in addition to end-office terminations, equals 0.62 ($0.0062) cents per minute of use.[1916]

807. State commissions, that have set rates for the transport and termination of traffic, generally set rates for terminations where parties interconnect at either the end office or the tandem office.[1917] The Maryland Commission has set reciprocal and symmetrical rates for the transport and termination of traffic based, among other things, on a rate proposal calculated by a

---

[1910] U S West comments in CC Docket No. 95-185 at Attachment A (A Response to Dr. Gerald Brock), p.13.

[1911] USTA comments in CC Docket No. 95-185 at Attachment (Bill and Keep: A Bad Solution to a Non-Problem), pp.9-10.

[1912] *See, e.g.*, U S West comments in CC Docket No. 95-185 at Attachment A (A Response to Dr. Gerald Brock), p.13.

[1913] *Id.*

[1914] AirTouch comments in CC Docket No. 95-185 at 32-33.

[1915] *Id.*

[1916] Pacific Bell comments in CC Docket No. 95-185 at Exhibit B (Statement of Professor Jerry A. Hausman) at p.14.

[1917] *See, e.g.*, Maryland Commission comments at Appendix B (Maryland Commission Order No. 72348, Case No. 8584 Phase II), p.28-32.

staff witness.[1918] In the Maryland proceeding, the actual cost of tandem and end-office switch terminations are considered proprietary and were, therefore, not directly reported, but the staff witness testified that the calculation of direct, shared, and common costs is less than one-half his proposed rate of 0.6 cents ($0.006) per minute of use for terminations routed through the tandem-office switch.[1919] The Maryland Commission ultimately adopted rates of 0.3 cents ($0.003) per minute of use end-office-switch terminations and 0.5 cents ($0.005) per minute of use for terminations at the tandem switch.[1920]

808. The Illinois Commission has adopted a rate equal to 0.5 cents ($0.005) per minute of use for terminations routed directly through end-office switches and 0.75 cents ($0.0075) per minute of use for calls routed through tandem switches.[1921] Illinois's rate includes an element for recovering a "contribution" over and above the long-run service incremental cost of termination.[1922] Illinois arrived at its final rates by identifying the proposed rates that would pass imputation tests.[1923] In Massachusetts, NYNEX testified that the average marginal cost of end-office switching equals 0.129 ($0.00129) cents per minute of use.[1924] Cox reports that the Florida staff, after reviewing local service cost support data filed by GTE and Centel/United, concluded that the sum of the estimated TSLRIC for end-office switching and the LRIC for tandem-office switching and transport equals 0.25 cents ($0.0025) per minute of use.[1925]

809. The peak-period interconnection rates in New York between NYNEX and other facilities-based, full service local exchange providers are set at 0.74 cents ($0.0074) per minute of use (end office) and 0.98 cents ($0.0098) per minute of use (tandem).[1926] Off-peak rates are 0.27

[1918] *Id.*

[1919] *Id.* at 29.

[1920] *Id.* at 32.

[1921] Illinois Commission comments at Attachment C (Illinois Commerce Commission Docket No. 94.0096), pp.83-86, 98.

[1922] *Id.*

[1923] *Id.* at 85.

[1924] *See* Mass. Commission comments at Attachment 3 (Testimony of Paula L. Brown, Managing Director, NYNEX Corporation, in Massachusetts Dept. of Pub. Util. Docket No. 93-125, Workpaper 2), June 14, 1993, p.6.

[1925] *Cox June 20, 1996 Ex Parte* at 4 (*citing* Florida Docket No. 950985-TP).

[1926] *Competition, The State Experience* at 81 (compilation of written responses by state commission staffs to questions by FCC staff, compiled by NARUC) (March 8, 1996).

cents ($0.0027) (end office) and 0.29 cents ($0.0029) (tandem).[1927] The Michigan Commission has established mutual compensation rates of 1.5 cents ($0.015) per minute of use for calls passing directly through an end-office switch or through tandem office switches.[1928]

(b) Discussion

810. We conclude that a combination of a flat-rated charge for line ports, which are dedicated to a single new entrant, and either a flat-rate or per-minute usage charge for the switching matrix and for trunk ports, which constitute shared facilities, best reflects the way costs for unbundled local switching are incurred and is therefore reasonable. We find that there is an insufficient basis in the record to conclude that we should require two flat rates for unbundled local switching charges as proposed by Sprint.

811. Based on the record in this proceeding and in the *LEC-CMRS Interconnection* proceeding, we conclude that a range between 0.2 cents ($0.002) per minute of use and 0.4 cents ($0.004) per minute of use for unbundled local switching is a reasonable default proxy. In setting this default price range, we consider the range of evidence in the record, and believe that the most credible studies fall at the lower end of this range.[1929] However, so as to minimize disruption for any state that has set a rate only marginally outside this range, we will grandfather any state that has set a rate at 0.5 cents ($0.005) per minute of use or less pending completion of an economic study pursuant to the methodology set forth in this Order.

812. The forward-looking cost studies contained in the record estimate that the average cost of end-office switching ranges from 0.18 cents ($0.0018) per minute of use[1930] to 0.35 cents ($0.0035) per minute of use.[1931] Maryland and Florida have adopted rates based on forward-

---

[1927] *Id.*

[1928] Michigan Commission comments at Attachment 1 (State of Michigan, Case No. U-10647, Opinion and Order, February 23, 1995), p.28.

[1929] *See, e.g.*, Maryland Commission comments at Appendix B (Maryland Commission Order No. 72348, Case No. 8548 Phase II), p.28-32; Letter from Robert F. Roche, CTIA, to William F. Caton, Acting Secretary, FCC, December 8, 1995, in CC Docket No. 94-54 (Incremental Cost of Local Usage, Brock Paper No. 3), p.1; *Hatfield Model, Version 2.2, Release 1*, (Hatfield Associates, Inc. March 1996), submitted by AT&T and MCI on May 16, 1996; AT&T reply at Appendix D (Update of the Hatfield Model, Version 2.2, Release 1).

[1930] *See* MCI comments at Attachment 1, "The Cost of Basic Network Elements, Theory, Modeling, and Policy Implications," prepared for MCI by Hatfield Assoc., Inc. p.34.

[1931] Letter from Whitney Hatch, Assistant Vice President Regulatory Affairs, GTE, to William F. Caton, Acting Secretary, FCC, July 11, 1996 at Attachment 2 (Economic Evaluation of Version 2.2 of the Hatfield Model), pp.16-17.

looking economic cost studies that fall within the default price range we are adopting.[1932] NYNEX's estimate of 0.129 cents ($0.00129) per minute of use,
in the Massachusetts proceeding, is estimate an estimate of the marginal cost of end-office switching.[1933] As discussed above, we generally expect studies estimating marginal costs to generate estimates that are less than estimates derived from TELRIC-based studies. We, therefore, conclude that 0.2 cents ($0.002) per minute of use is a reasonable lower end of the price range for end-office switching.

813. USTA's estimate of 1.3 cents ($0.013) appears to be an outlier that is significantly higher than the other estimates.[1934] We find that USTA's estimate does not represent an appropriate cost model for termination of traffic. USTA's estimate is based on the high end of a set of econometric estimates of LEC-reported cost data rather than an independent cost estimate, and USTA gives no explanation of why we should regard this as the best estimate. In addition, USTA's figure is derived, at least in part, from studies that attempt to measure the incremental cost of end-to-end use of the network for local calls, not the cost of local switching. Pacific Bell's study of the average LRIC of a call terminating under "Feature Group B"[1935] apparently includes terminations at tandem switches in addition to end-office terminations.

814. Michigan and Illinois have adopted rates for transport and termination of traffic that are higher than the default price range we adopt for end-office switching.[1936] Michigan, which established mutual compensation rates of 1.5 cents ($0.015) per minute of use, did not review a forward-looking cost study.[1937] Illinois's 0.5 cents ($0.005) per minute rate for termination through the end office is just outside the range we are establishing. First, as previously stated, we are grandfathering rates of 0.5 cents ($0.005) per minute or lower. Further, we do not believe

---

[1932] *See* Maryland Commission comments at Appendix B (Maryland Commission Order No. 72348, Case No. 8584 Phase II), pp.28-32; *Cox June 20, 1996 Ex Parte* at 4.

[1933] *See* Mass. Commission comments at Attachment 3 (Testimony of Paula L. Brown, Managing Director, NYNEX Corporation, in Massachusetts Dept. of Pub. Util. Docket No. 93-125, Workpaper 2), p.6.

[1934] USTA comments in CC Docket No. 95-185 at Attachment (Bill and Keep: A Bad Solution to a Non-Problem), pp.9-10.

[1935] Pacific Bell comments in CC Docket No. 95-185 at Exhibit B (Submission of Jerry A. Hausman), para. 32.

[1936] Michigan Commission comments at Attachment 1 (State of Michigan, Case No. U-10647, Opinion and Order, February 23, 1995), p.28; Illinois Commission comments at Attachment C (Illinois Commerce Commission Docket No. 94.0096), pp.83-86, 98.

[1937] Michigan Commission comments at Attachment 1 (State of Michigan, Case No. U-10647, Opinion and Order, February 23, 1995), p.28.

Illinois's rate overrides the weight of evidence in the record, which supports the range we are establishing.

815. States that do not calculate the rate for the unbundled local switching element pursuant to a forward-looking economic cost study may, in the interim, set the rate so that the sum of the flat-rated charge for line ports and the product of the projected minutes of use per port and the usage-sensitive charges for switching and trunk ports, all divided by the projected minutes of use, does not exceed 0.4 cents ($0.004) per minute of use and is not lower than 0.2 cents ($0.002) per minute of use. A state may impose a rate for unbundled local switching that is outside this range if it finds that a forward-looking economic cost study shows a higher or lower rate is justified. States that use our proxy and impose flat-rated charges for unbundled local switching should set rates so that the price falls within the range of 0.2 cents ($0.002) per minute of use and 0.4 cents ($0.004) per minute of use if converted through use of a geographically disaggregated average usage factor. A default price range of 0.2 cents ($0.002) per minute of use and 0.4 cents ($0.004) per minute of use should allow carriers the opportunity to recover fully their additional cost of terminating a call including, according to Maryland's study, a reasonable allocation of common costs. We observe that the most credible studies in the record before us fall at the lower end of this range and we encourage states to consider such evidence in their analysis.

816. With respect to the argument that vertical features should be priced pursuant to the resale price standards, we concluded earlier that vertical features are part of the unbundled local switching element, because they are provided through the operation of hardware and software comprising the "facility" that is the switch.[1938] Accordingly, the pricing standard in 252(d)(1) applies to vertical features as part of the functionality of the switch. As previously discussed, allowing new entrants to purchase switching and vertical features as part of the local switching network element is an integral part of a separate option Congress has provided for new entrants to compete against incumbent LECs.[1939]

817. The 1996 Act establishes different pricing standards for these two options available to new entrants -- resale of services pursuant to section 251(c)(4) and unbundled elements pursuant to section 251(c)(3). Where the new entrant purchases vertical features as part of its purchase of an unbundled local switching element, the price of that element, including associated vertical features, should be determined according to section 252(d)(1). The availability of vertical services as part of a wholesale service offering is distinct from their availability as part of the

[1938] *See supra*, Section V.J., discussing unbundled local switching.

[1939] "[I]t is unlikely that competitors will have a fully redundant network in place when they initially offer local service, because the investment necessary is so significant. Some facilities and capabilities . . . will likely need to be obtained from the incumbent [LEC] as network elements pursuant to new section 251." Joint Explanatory Statement at 148.

local switching network element. In these circumstances, allowing the new entrant to combine unbundled elements with wholesale services is an option that is not necessary to permit the new entrant to enter the local market.

818. As to Bell Atlantic's takings argument, we concluded above that the pricing of unbundled elements according to the just and reasonable standard in section 251(c)(2) and (c)(3), and applied in section 252(d)(1), is not an unconstitutional taking.[1940] That analysis, which looks at the overall rates established by our regulations, applies with equal force to the pricing of unbundled local switching, inclusive of associated vertical features. A forward-looking economic cost methodology enables incumbent LECs to recover a fair return on their investments and Bell Atlantic has provided no specific evidence to the contrary. We conclude that our pricing methodology for unbundled local switching, inclusive of associated vertical features, provides just compensation to incumbent LECs.

(3) Other Elements

(a) Comments

819. AT&T argues that charges for common transport should be usage sensitive, and that signaling links, signal transfer point, and service control point should be priced using a combination of flat-rated capacity charges and usage-sensitive charges.[1941] The Ohio Consumers' Counsel agrees with AT&T about the principles of rate structure, but argues that the specific prescriptions for rate structure proposed by AT&T are unnecessary if the principles are adopted.[1942] Sprint asserts that common transport rates should be per-minute charges that vary with distance.[1943] MCI argues that trunk connection costs should be recovered through a minute-of-use charge.[1944] AT&T argues that dedicated transport rates should be non-usage sensitive.[1945]

[1940] *See supra,* Section VII.B.2.a.(3)(c).

[1941] AT&T comments at 68.

[1942] Ohio Consumers' Counsel reply at 16.

[1943] Sprint comments at 63.

[1944] MCI comments at 30.

[1945] AT&T comments at 67.

(b) Discussion

820. The primary categories of network elements identified in this Order, other than loops and switching, are transport, signaling, and collocation. Our rule that dedicated facilities shall be priced on a flat-rated basis[1946] applies to dedicated transmission links because these facilities are dedicated to the use of a specific customer.

821. For dedicated transmission links, states must use existing rates for interstate dedicated switched transport as a default proxy ceiling. We believe these rates are currently at or close to economic cost levels. Such rates were set based on interstate special access rates, which we found based on the record in the *Transport* proceeding were relatively close to costs.[1947] These interstate access rates originally were based on incumbent LEC accounting costs, rather than a forward-looking economic cost model. Since 1991, however, incumbent LEC interstate access rates have been subject to price cap regulation, and have therefore been disengaged from embedded costs.[1948]

822. Typically, transmission facilities between tandem switches and end offices are shared facilities. Pursuant to our rate structure guidelines, states may establish usage-sensitive or flat-rate charges to recover those costs. For shared transmission facilities between tandem switches and end offices, states may use as a default proxy ceiling the rate derived from the incumbent LEC's interstate direct trunked transport rates in the same manner that we derive presumptive price caps for tandem switched transport under our interstate price cap rules, using the same weighting and loading factors.[1949] We conclude above that interstate direct-trunked transport rates provide a reasonable default proxy ceiling for unbundled dedicated transport rates. When we

---

[1946] *See supra,* Section VII.B.3.

[1947] *First Transport Order*, 7 FCC Rcd at 7028 (1992); *Transport Rate Structure and Pricing*, CC Docket No. 91-213, Third Memorandum Opinion and Order on Reconsideration and Supplemental Notice of Proposed Rulemaking, 10 FCC Rcd 3030, 3038-39 (1994).

[1948] Interstate access rates for dedicated transport vary by region, type of circuit, mileage, and other factors. For example, BellSouth's entrance facility charge, for transport from an IXC's point of presence to a BellSouth serving wire center, is $134 monthly per DS1 circuit ($5.58 per derived voice grade circuit) and $2,100 monthly per DS3 circuit ($3.13 per derived voice grade circuit). Dedicated transport for 10 miles of interoffice transmission between a serving wire center and an end office is $325 monthly per DS1 circuit ($13.54 per derived voice grade circuit) and $2,950 monthly per DS3 circuit ($4.39 per derived voice grade circuit). Installation, multiplexing, and other transport-related charges may also apply.

[1949] Specifically, when the transport rate restructure was implemented, the initial levels of tandem-switched transmission rates were presumed reasonable if they were based on a weighted per-minute equivalent of direct-trunked transport DS1 and DS3 rates that reflects the relative number of DS1 and DS3 circuits used in the tandem to end office links, calculated using a loading factor of 9000 minutes per month per voice-grade circuit. 47 C.F.R. § 69.111.

restructured the incumbent LECs' interstate transport rates to be more closely aligned with cost, we derived presumptive tandem-switched transmission rate levels from direct-trunked transport rates.[1950] This proxy ceiling for shared transmission facilities between tandem switches and end offices, therefore, should be similarly derived.

823. The United States Court of Appeals for the District of Columbia Circuit recently remanded our interim transport rules.[1951] The court concluded that the Commission had not provided sufficient justification for its method of establishing the rate level of the interstate switched access rate element for tandem switching.[1952] We do not believe, however, that the *CompTel v. FCC* decision is inconsistent with the rules we establish here because the decision did not address or criticize the Commission's determination of the rates for dedicated transport or tandem-switched transport links. Because our proxies do not involve the interstate access rate for tandem switching, they are not inconsistent with the court's analysis.

824. Tandem switching also employs shared facilities. States may, therefore, establish usage-sensitive charges to recover tandem-switching costs. For those states that cannot complete a forward-looking economic cost study within the arbitration period or cannot devote the necessary resources to such a review, we establish a default rate ceiling of 0.15 cents ($0.0015) per minute of use. The additional cost of termination at a tandem in comparison to termination at an end office consists of the cost of tandem switching and the cost of tandem-switched transport transmission. Illinois and Maryland have adopted rates for the transport and termination of traffic from the tandem switch that are, respectively, 0.25 cents ($0.0025) per minute of use and 0.2 cents ($0.002) per minute of use, higher than rates for termination at end office switches.[1953] In both instances, our default rate ceiling for tandem switching constitutes at least 60 percent of the implicit tandem switching and transport to the end office switch. We, therefore, find the default rate ceiling we adopt for tandem switching to be consistent with both Illinois's and Maryland's adopted rates for transport and switching of traffic from the tandem office. States that use our proxy and impose flat-rated charges for tandem switching should set rates so that the price does

[1950] *First Transport Order*, 7 FCC Rcd at 7018-19. Interstate access rates for tandem-switched transport vary by region and mileage. The average charge by RBOCs in Density Zone 1 for transport termination and one mile of switched common transport facility between a tandem switching office and end office equals 0.033 cents ($0.000331) per minute. For a five-mile facility, the average charge is 0.048 cents ($0.000479) per minute; for a ten-mile facility, 0.066 cents ($0.000664) per minute.

[1951] *Competitive Telecommunications Ass'n v. FCC*, No. 95-1168 (D.C. Cir. April 28, 1996).

[1952] The court accepted both AT&T's claim that the Commission had not justified the allocation of 80 percent of the tandem revenue requirement to the TIC and only 20 percent to the tandem element, and CompTel's argument that the Commission had not justified its allocation of overheads to the tandem element.

[1953] Illinois Commission comments at Attachment C (Illinois Commerce Commission Docket No. 94.0096), pp.83-86, 98; Maryland Commission comments at Appendix B (Maryland Commission Order No. 72348, Case No. 8548 Phase II), pp.28-32.

not exceed 0.15 cents ($0.0015) per minute of use if converted through use of a geographically disaggregated usage factor.

825. Rates for signaling and database services should be usage-sensitive, based either on the number of queries or the number of messages, with the exception of the dedicated circuits known as signaling links, which should be charged on a flat-rated basis. Usage charges of this type appear to reflect most accurately the underlying costs of these services.[1954] Interstate access rates for most of these elements have been justified using the price caps new services test, which roughly approximates the results of a forward-looking economic cost study.[1955] In addition, the costs of these services were forward-looking, in that the services were completely new and hence, by definition, used the best-available technology. Thus, we establish as a default proxy ceiling for these elements corresponding interstate access charges for these elements.[1956] For elements that have not been subject to the new services test, states may establish proxy ceilings by identifying the direct costs of providing the element and adding a reasonable allocation of joint and common costs. Because we expect that the joint and common costs associated with the forward-looking cost of network elements are substantially less than those associated with traditional service-based costs,[1957] allowing a reasonable allocation is sufficient to protect against possible anticompetitive pricing. Absent any proxy, this approach will provide the most reasonable approximation of forward-looking economic cost.

826. We have established rate structure rules for collocation elements in connection with our *Expanded Interconnection* proceeding.[1958] Many collocation elements established under section 251(c)(6) are likely to represent the same facilities, and should have the same cost characteristics, as existing interstate expanded interconnection services, and therefore we require states to use the same rate structure rules for those collocation elements that we established in the

---

[1954] *Ameritech Operating Companies Petition for Waiver of Part 69 of the Commission's Rules to Establish Unbundled Rate Elements for SS7 Signalling*, DA 96-446, Order, at para. 31 (Com. Car. Bur., rel. Mar. 27, 1996).

[1955] *Amendments of Part 69 of the Commission's Rules Relating to the Creation of Access Charge supplements for Open Network Architecture*, CC Docket Nos. 89-79 and 87-313, Report and Order, Order on Reconsideration, and Supplemental Notice of Proposed Rulemaking, 6 FCC Rcd 4524, 4531 (1991); *modified on recon.*, 7 FCC Rcd 5235 (1992); *Open Network Architecture Tariffs of Bell Operating Companies*, CC Docket No. 92-91, Order, 9 FCC Rcd 440, 454-456 (1993).

[1956] Interstate database services consist of Line Information Database (LIDB) and 800 Database. Deployment of SS7 (out-of-band signaling) has enabled LECs to offer these services. The average charge for RBOCs for LIDB in Density Zone 1 equals 3.34 cents ($0.034) per database query.

[1957] *See supra*, Section VII.B.2.a.

[1958] *Expanded Interconnection with Local Telephone Company Facilities*, CC Docket No. 91-141, 9 FCC Rcd 5154, 5186 (1994).

Expanded Interconnection proceeding. As a proxy ceiling, states may use the rates the LEC has in effect in its federal expanded interconnection tariff for the equivalent services. Expanded interconnection services are subject to the new services test, which, as discussed above, uses a forward-looking methodology. Although LECs have filed expanded interconnection tariffs, we have not yet completed our investigation into those tariffs. Any price for unbundled collocation elements set based on LEC expanded interconnection tariffs would therefore be subject to any modification of those tariffs that results from our pending investigation, and any state-imposed prices based on those tariffs will need to be adjusted accordingly.

827. We find it unnecessary to specify rate structures for other unbundled elements. The states shall make those determinations by applying our general rate structure principles described above. In the absence of an acceptable forward-looking cost study, states may establish default proxy ceilings for other unbundled elements by identifying the direct costs of providing the element and adding a reasonable allocation of joint and common costs.

3. Forward-Looking Cost Model Proxies

a. Background and Comments

828. In the NPRM, we sought comment on the use of certain generic cost studies. Commenters discussed several such models. These models include: 1) the *Hatfield 2*;[1959] 2) the *Hatfield 2.2*;[1960] 3) the *BCM*;[1961] 4) the *BCM 2*;[1962] and 5) the *CPM*.[1963]

829. *Generic Cost Models*. Several generic forward-looking costing models were introduced into the record. Several commenters, supporting the use of generic cost models to establish the rates that incumbent LECs may charge for interconnection and unbundled elements, claim that such an approach would result in ceilings that are efficient, objective, and based on

---

[1959] *The Cost of Basic Network Elements: Theory, Modeling, and Policy Implications* (Hatfield Associates, Inc., March 1996), submitted by MCI on March 29, 1996 (*Hatfield 2*).

[1960] *Hatfield Model, Version 2.2, Release 1*, (Hatfield Associates, Inc., March 1996), submitted by AT&T and MCI on May 16, 1996 (*Hatfield 2.2*); *see also* AT&T reply at Appendix D (Update of the Hatfield Model Version 2.2, Release 1).

[1961] *Benchmark Cost Model: A Joint Submission by MCI Communications, Inc., NYNEX Corporation, Sprint Corporation, U S West, Inc.* (December 1995), submitted by MCI Communications, Inc., NYNEX Corp., Sprint/United Management Corp., U S West, Inc. on July 24, 1996 (*BCM*).

[1962] *Benchmark Cost Model 2* (July 1996), submitted by Sprint Corp. and U S West, Inc., on July 24, 1996 (*BCM 2*).

[1963] *The Cost Proxy Model* (INDETEC International, 1996), submitted by Pacific Telesis Group on June 7, 1996 (*CPM*).

non-proprietary inputs.[1964] On the other hand, certain commenters argue that generic cost models should not be used as proxies because they fail to reflect the possible differences in costs among states, and among carriers, due to technical, demographic, and geographic factors.[1965] In addition, many parties also discussed the use of proxies as direct substitutes for the prices of interconnection and unbundled network element rates.[1966]

830. *The Hatfield Models.*[1967] Parties also commented on the particular generic cost models placed on the record in this proceeding, and several support the use of a version of the *Hatfield* model.[1968] These parties argue that the *Hatfield* model represents the only comprehensive nationwide analysis of virtually all network elements on a highly disaggregated basis and is the ideal standard for the Commission to adopt because it will provide immediate certainty on pricing.[1969] Other commenters oppose the application of a version of the *Hatfield* model,[1970] asserting that it may not accurately reflect an incumbent LEC's decisionmaking process for determining the economic and technical feasibility of interconnection because it assumes building "from scratch," an assumption potentially leading to inaccuracy.[1971] Critics of the various *Hatfield* models also argue that they results in below-cost rates for services,[1972] do not capture embedded

[1964] *See, e.g.*, Ad Hoc Telecommunications Users Committee comments at 50; PacTel comments at 76; Ohio Consumers' Counsel comments at 28-29.

[1965] *See, e.g.*, Bay Springs, *et al.* comments at 16-17; Cincinnati Bell comments at 28; Florida Commission comments at 30; Telecommunications Resellers Ass'n comments at 41; California Commission reply at 19.

[1966] *See, e.g.*, AT&T comments at 53.

[1967] We note that many parties did not address their comments to a particular version of the *Hatfield* model. In such cases, we will refer generally to the *Hatfield* model.

[1968] *See, e.g.*, ACSI comments at 56; AT&T comments at 53 (commenting on *Hatfield 2.2*); MCI comments at 68-69 (commenting on *Hatfield 2*); NEXTLINK comments at 27-28; Washington Commission comments at 27.

[1969] *See, e.g.*, MCI comments at 69 (commenting on *Hatfield 2*).

[1970] *See, e.g.*, PacTel comments at 74-76, reply at 30 (commenting on *Hatfield 2.2*); Ohio Consumers' Counsel comments at 29 n.10; USTA comments at 54 n.45; Sprint reply at 31-32; Rural Tel. Coalition reply at 35.

[1971] *See, e.g.*, Florida Commission comments at 28-29; Lincoln Tel. reply at 6; Rural Tel. Coalition reply at 35; USTA comments at 47-48, 54 n.45.

[1972] *See, e.g.*, Lincoln Tel. reply at 6; U S West comments 20-22.

costs,[1973] and employ a nationwide
industry average for costs when costs should be based on the particular carrier's costs.[1974]

831. GTE argues that the *Hatfield 2.2* model's assumptions and analytic practices result in an understatement of cost per loop of about $8.00.[1975] GTE criticizes the assumption that all traffic carried by LECs will be served by a brand new entrant that instantly materializes. GTE indicates that such an assumption would not produce results that are representative of incumbent LEC costs when providing services and unbundled elements. GTE argues that the *Hatfield 2.2* model's use of multiplicative factors to calculate installation costs produces inaccuracies, to the extent that the basis of these factors depart from historical relationships. In addition, GTE asserts that the equipment prices used in the *Hatfield 2.2* model are consistently lower than prices paid by LECs. Moreover, GTE asserts that the capital cost and depreciation rates of the *Hatfield 2.2* model do not reflect costs of capital and depreciation rates that will prevail under competitive conditions.[1976] Finally, it asserts that the *Hatfield 2.2* model uses unrealistically high fill factors (the percentage of capacity used), which results in an understatement of investment and, hence, annualized cost.[1977]

832. *The Benchmark Cost Models.*[1978] Although some parties support the use of the *BCM* to set rates for interconnection and unbundled elements,[1979] many other parties oppose its use for this purpose.[1980] Several commenters argue that, because the *BCM* was designed to identify only high cost areas, its assumptions are flawed and will fail to reflect small and rural LECs' network

---

[1973] *See, e.g.*, USTA comments at 54 n.45; Rural Tel. Coalition reply at 35; PacTel reply at 30 (commenting on *Hatfield 2.2*).

[1974] *See, e.g.*, GVNW reply at 12-13; Lincoln Tel. reply at 6; Sprint reply at 28-32.

[1975] Letter from Whitney Hatch, Assistant Vice President Regulatory Affairs, GTE, to William F. Caton, Acting Secretary, FCC, July 11, 1996 at Attachment 2 (Economic Evaluation of Version 2.2 of the Hatfield Model).

[1976] *Id.* at 13-16.

[1977] *Id.* at 9-12.

[1978] We note that many parties did not address their comments to a particular version of the *BCM*. In such cases, we will refer generally to the *BCM*.

[1979] *See, e.g.*, ACSI comments at 56; Sprint comments at 54 n.30; Texas Public Utility Counsel comments at 29.

[1980] *See, e.g.*, Florida Commission comments at 29-30; GVNW comments at 38-39; NYNEX comments at 57; Ohio Consumers' Counsel comments at 29, n.10; PacTel comments at 74-76; SBC comments at 92-93; TDS comments at 22; Rural Tel. Coalition comment at 22, reply at 34-35.

characteristics.[1981] NYNEX argues that the *BCM* is based on a limited set of assumptions about the costs that affect loops.[1982] Commenters further contend that the *BCM* is not technology neutral,[1983] is not designed to estimate the costs of serving business customers,[1984] assumes one type of central office switch,[1985] and uses ARMIS cost loading factors that assume that costs are spread over the existing, larger investment base.[1986]

833. *Cost Proxy Model (CPM).* Pacific Telesis maintains that its *CPM* is a superior alternative to the *Hatfield* models and *BCM* models because it is more flexible, can be based on non-proprietary information, can be independently audited, can estimate the cost of providing local telephone service for one-fourth (1/4) mile grids or large geographic areas, and reflects the actual locale of subscribers within a census block.[1987]

b. Discussion

834. We believe that the generic forward-looking costing models, in principle, appear best to comport with the preferred economic cost approach discussed previously. Several such models were placed in the record, including *Hatfield 2*, *Hatfield 2.2*, *BCM*, *BCM 2*, and the *CPM*. The *BCM* is designed to produce "benchmark" costs for the provision of basic telephone service within specific geographic regions defined by the Bureau of the Census as Census Block Groups. The *Hatfield 2* model combines output from the *BCM* with independently-developed investment data to produce annual cost estimates for eleven basic network functions. The *CPM* is similar in structure to the *BCM* and *Hatfield 2* models, although it uses different algorithms.

835. These models appear to offer a method of estimating the cost of network elements on a forward-looking basis that is practical to implement and that allows state commissions the ability to examine the assumptions and parameters that go into the cost estimates. Although these models were submitted too late in this proceeding for the Commission and parties to evaluate them fully, our initial examination leads us to believe that the remaining practical and empirical

---

[1981] *See, e.g.*, Rural Tel. Coalition comments at 22; TDS comments at 22; *see also* Time Warner comments at 54-55; USTA comments at 54 n.45.

[1982] NYNEX comments at 57; *see also* SBC comments at 92-93.

[1983] *See, e.g.*, WinStar comments at 34; Texas Statewide Tel. Cooperative, Inc. comments at 14.

[1984] *See, e.g.*, NYNEX comments at 57.

[1985] *Id.*

[1986] *Id.*

[1987] PacTel comments at 76.

issues can be resolved in the near future. In light of the advantages of such a generic approach, we will further examine these generic economic cost models by the first quarter of 1997 to determine whether we should use one of them to replace the default proxies we adopt in this proceeding. In that event, states would have the option of setting rates in arbitrations on the basis of an economic cost study or by using a generic forward-looking cost model approved at that time.[1988]

836. Finally, we note that Commission staff developed a model of the telecommunications industry that they designed to simulate industry demand and supply characteristics.[1989] In order to encourage an open-ended discussion of the utility of the staff model, the Common Carrier Bureau sought comment on a working draft of the model that was released. Almost all parties commenting on the staff model urged the Commission not to rely upon the staff model as record evidence in this proceeding.[1990] We are not relying on the staff model to develop the requirements imposed by this Order.

D. Other Issues

1. Future Adjustments to Interconnection and Unbundled Element Rate Levels

a. Background and Comments

837. In the NPRM, we sought comment on whether some cost index or price cap system would be appropriate to ensure that rates reflect expected changes in costs over time.[1991] Only two parties commented on this issue, and neither supported establishment of a price cap system or other index system to adjust rates over time. MCI claims that it is not necessary to recompute TSLRIC costs each year. It argues that large productivity factors are not needed as they are in price cap system, because initial access rates were based on embedded costs, which greatly exceed economic costs. MCI proposes that the Commission should use initial rates as ceilings for a three to five year period. It contends that, if competition develops satisfactorily, there may not be a

---

[1988] We note that we address certain criticisms of the models in the context of their use in the development of the proxy for the unbundled local loop, *supra*, Section VII.C.2.b.(1)(b).

[1989] *See* Public Notice, *Supplemental Comment Period Designated for Local Competition Proceeding*, CC Docket 96-98, DA 96-1007 (rel. June 20, 1996). The comment period was extended subsequently to July 8, 1996. *See* Public Notice, *Supplemental Comment Period Extended for Local Competition Proceeding*, CC Docket 96-98, DA 96-1030 (rel. June 25, 1996). The Commission did not authorize reply comments.

[1990] *See, e.g.*, Ameritech July 8 comments at 14; NCTA July 8 comments at 2; PacTel July 8 comments at 21; *see also* New York Commission July 8 comments at 1-2 (Commission should institute "collaborative process" whereby federal, state, and industry participants can review model and develop alternatives).

[1991] NPRM at para. 133.

need to revisit the costing process. On the other hand, MCI suggests that if it appears that LECs retain substantial market power, a performance review could become necessary.[1992] Ad Hoc Telecommunications Users Committee notes that the success of any price cap plan would depend on the accuracy of the productivity offset. It states that an inappropriately low productivity offset could result in excessive charges.[1993]

b. Discussion

838. As noted earlier, we will continue to review our pricing methodology, and will make revisions as appropriate. Accordingly, there is no present need to establish a Commission price cap or cost index system to adjust interconnection and unbundled element rate levels.

2. Imputation

a. Background

839. We sought comment in the NPRM on whether we should require an "imputation rule" in establishing rates for unbundled network elements.[1994] An imputation rule would require that the sum of prices charged for a basket of unbundled network elements not exceed the retail price for a service offered using the same basket of elements. We further solicited comment on any other rules that could be adopted regarding pricing of unbundled network elements that would help to promote the pro-competitive goals of the 1996 Act.

b. Comments

840. Commenters favoring an imputation rule, including some IXCs and other potential entrants, and one state utility counsel, argue that imputation is necessary to prevent potential anticompetitive practices highlighted in the NPRM, such as price squeezes and predatory pricing by incumbent LECs.[1995] Several commenters also endorsed imputation as a method of testing

[1992] MCI comments at 68.

[1993] Ad Hoc Telecommunications Users Committee comments at 31.

[1994] NPRM at para. 184.

[1995] *See e.g.*, ACSI comments at 56-57; ACTA comments at 26; Frontier comments at 29-30; NEXTLINK comments at 33; Telecommunications Resellers Ass'n comments at 26; Teleport comments at 60-63; Texas Public Utility Counsel comments at 47-48. MCI comments at Attachment 1 (The Cost of Basic Network Elements: Theory, Modeling and Policy Implications), pp.6-7 (arguing that imputation is necessary, but not sufficient, to prevent price squeezes).