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BEFORE THE

## PUBLIC SERVICE COMMISSION OF WISCONSIN

Petition of Wisconsin Bell, Inc., d/b/a SBC Wisconsin, to  
Establish Rates and Costs for Unbundled Network Elements

6720-TI-187

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6720-TI-187

**FINAL DECISION**

This is the final decision with respect to the Petition of Wisconsin Bell, Inc., d/b/a SBC Wisconsin, to Establish Rates and Costs for Unbundled Network Elements (hereinafter Petition). In this proceeding, the Commission investigates and determines 27 unbundled network element (UNE) loop rates of SBC Wisconsin (SBC) by approving the Petition with modifications and conditions as set forth herein. A list of participating parties is attached hereto as Appendix A. Appendix B hereto sets forth new rates and the predecessor rates (as ordered in docket 6720-TI-161) for nine UNE loop types offered in SBC's three rate zones.

**Introduction**

On March 12, 2004, SBC filed its Petition under Wis. Stats. § 196.197<sup>1</sup> to determine rates and costs for unbundled network elements, or UNEs, under federal law, and, as applicable, Wis. Stat. § 196.03(1) and (6). Under Wis. Stat. § 196.197, action on the petition must be completed within 180 or 270 days following a determination of completeness. On March 18, 2004, the Commission issued a Notice of Proceeding, Investigation, and Assessment of Costs (Notice). This Notice instructed telecommunications providers to file a response to the Petition

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<sup>1</sup> 2003 Wis. Act 125, effective February 21, 2004.

and to provide additional information pursuant to Wis. Stat. § 196.197(2)(c) by noon on April 1, 2004. Responses were filed by AT&T Communications of Wisconsin, L.P., and TCG Milwaukee (collectively, AT&T); WorldCom, Inc., d/b/a MCI (MCI); TDS Metrocom, LLC, (TDS Metrocom); KMC Telecom, Inc. (KMC Telecom); McLeodUSA Telecommunications Services, Inc. (McLeodUSA); and DIECA Communications, Inc., d/b/a Covad Communications Company (Covad). AT&T also filed a Request for Summary Denial.<sup>2</sup> These respondents are all competitive local exchange carriers (CLECs) that purchase UNE loops from SBC.

At its open meeting of February 19, 2004, the Commission delegated to the Administrator of the Telecommunications Division the authority to make completeness determinations about UNE pricing petitions under Wis. Stat. § 196.197(2). By mutual agreement, SBC and Commission staff established March 17, 2004, as the Petition filing date for calculating the 30-day completeness deadline under Wis. Stat. § 196.197(2)(b). The Administrator of the Telecommunications Division determined the Petition complete on April 16, 2004.

On April 28, 2004, a prehearing conference was held to identify parties, determine issues and establish a schedule, among other things. SBC had filed direct testimony with its Petition. CLECs filed their direct testimony on June 15, 2004. SBC and staff filed rebuttal testimony on July 9, 2004. Hearings were held on July 26-30, 2004. On August 9, 2004, the parties filed a stipulation on the shared and common cost factor to be used in cost models for this proceeding. The Commission approved the stipulation at its open meeting of August 10, 2004, and issued an

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<sup>2</sup> TDS Metrocom, MCI, McLeodUSA, and KMC Telecom also filed a motion to dismiss on April 12, 2004. The Commission denied both motions at its open meeting of July 22, 2004.

Interlocutory Order. Initial post-hearing briefs on remaining disputed issues were filed on August 27, 2004. Reply briefs were filed September 15, 2004. The Administrative Law Judge reopened the record, by order dated September 22, 2004, to address adding certain materials to the record. A hearing was held for this purpose on September 27, 2004. The Commission deliberated in open meeting on September 30 and October 7, 2004.

### **Findings of Fact**

1. The Petition proposes rate increases for nine different types of unbundled loops with three different geographic rates (zones) for each loop type.
2. TELRIC (Total Element Long Run Incremental Cost) models are useful analytical tools by which to develop TELRIC-compliant rates.
3. Both the LoopCAT (Loop Cost Analysis Tool) and LFAM (Loop Facilities Analysis Model) are TELRIC-compliant with modifications and adjustments to assumptions and inputs.
4. With an appropriate set of assumptions and inputs, both models are capable of producing TELRIC-compliant rates.
5. SBC's LoopCAT is superior to LFAM in terms of its transparency and verifiability, as discussed more fully in the Opinion section.
6. It is reasonable to use LoopCAT, with the modifications and conditions as set forth herein, to determine TELRIC-compliant rates in this proceeding.
7. It is reasonable to assume and use in UNE cost studies the shared and common cost factor that was stipulated to by the parties and approved by the Commission in its Interlocutory Order issued August 10, 2004.

8. It is reasonable to remove non-regulated data from the Annual Cost Factor as stipulated to by the parties and approved by the Commission in its Interlocutory Order issued August 10, 2004.

9. It is reasonable to remove support assets from the Annual Cost Factor as stipulated to by the parties and approved by the Commission in its Interlocutory Order issued August 10, 2004.

10. It is reasonable to assume and use equal proportions (i.e., 50 percent each) of integrated digital loop carrier (IDLC) and universal digital loop carrier (UDLC) when developing the cost of unbundled loops.

11. It is reasonable to configure central office terminations (COTs) using a blend of three- and seven-channel bank assemblies by zone, as proposed by SBC.

12. It is reasonable to use SBC's proposal for modeling two remote terminals served by its central office equipment.

13. It is reasonable to allocate to data services 25 percent of the costs of common cabinets and controlled environmental vaults (CEVs) for remote terminal investment (DLC Chassis) as proposed by the CLECs.

14. When running the LoopCAT model, it is reasonable to use SBC's proposed distribution loop length based on preprocessor data extracted and computed from SBC's Loop Engineering Inventory System (LEIS) database.

15. It is reasonable to assume and use extended range cards for loops over 18,000 feet in length.

16. It is reasonable for xDSL service to model all-copper loops but to remove those loops over 18,000 feet in length.
17. It is reasonable to exclude a portion of remote terminals to reflect directly-fed fiber loops in the amount proposed by AT&T.
18. It is reasonable to use SBC's confidential ratio of distribution to feeder lines at the feeder distribution interface.
19. It is reasonable to use SBC's proposed mix of sizes for business premises terminations based on actual data.
20. A weighted cost of capital assumption of 10.77 percent is TELRIC-compliant, with a capital structure of 25 percent long-term debt, 5 percent short-term debt and 70 percent equity, and with corresponding costs of 6.18 percent, 2.42 percent and 13.00 percent, respectively.
21. Applying an investment factor does not double recover inflationary costs on investment.
22. It is reasonable to assume and apply a Telecommunications Plant Index (TPI) factor to investment, as proposed by SBC.
23. It is reasonable to use the midpoint of the depreciation ranges independently approved by the Commission in separate dockets.
24. It is reasonable to use an inflation factor on maintenance based on the Producer Price Index (PPI), less a 3 percent productivity offset.
25. It is reasonable to use 80 percent active fiber strands to compute a fiber feeder fill factor.

26. It is reasonable to use the following fill factors to determine unbundled loop costs: 50 percent for copper distribution; 65 percent for copper feeder; 70 percent for Digital Loop Carrier (DLC) chassis; 70 percent for DLC plug-in; and 56 percent for fiber feeder.

27. It is reasonable to use SBC's estimated investment and fill factor for premises termination.

28. It is reasonable to remove SBC's utilization adjustment that keeps maintenance expense constant if fill factors are adjusted above actual levels.

29. It is reasonable to use SBC's linear loading factor for installation.

30. It is reasonable to use SBC's DS-1 installation factor.

31. It is reasonable to use SBC's labor and material costs for NID (Network Interface Device) and drop wire installation.

32. It is reasonable not to adjust the maintenance factor in relation to the difference between the life over which SBC operates its plant in practice compared to the economic lives of plant used in the TELRIC models.

33. It is reasonable to conclude that at least some loop conditioning costs are included in SBC Wisconsin's Annual Cost Factor (ACF) model.

34. The inclusion of some loop conditioning costs in SBC Wisconsin's ACF model is reasonable.

35. Permitting SBC Wisconsin to include loop conditioning costs in its ACF model and to recover loop conditioning costs through a separate monthly recurring loop add-on charge could result in at least some double recovery of SBC Wisconsin's loop conditioning costs.

36. Double recovery of any portion of SBC Wisconsin's forward-looking loop conditioning costs is unreasonable.

37. It is reasonable for the Commission to accept SBC Wisconsin's proposal and the CLEC argument that the Commission should no longer attempt in the loop conditioning docket (docket 6720-TI-177) to set loop conditioning rates that would govern the time period after the date the rates determined in this final decision become applicable as between SBC and other telecommunications providers.

38. It is reasonable to accept SBC Wisconsin's proposal to cease collecting loop conditioning charges in Wisconsin upon the date the rates determined in this final decision effectively govern SBC's interconnection with any other telecommunications provider.

39. It is reasonable to assume and use SBC's property (ad valorem) tax factor.

40. It is reasonable to use a 2.9 percent reduction of the land and building expense factor in the Annual Cost Factor model to recognize collocation space leased to non-affiliates.

41. It is reasonable to adopt SBC's proposed LoopCAT model for all undisputed model elements not otherwise addressed specifically herein.

42. It is just, reasonable, convenient, and in the public interest to select and adjust TELRIC-compliant cost study models herein so as to promote and preserve competition and to promote efficiency.

43. The record is insufficient to make any determination about a price squeeze.

### **Conclusions of Law**

1. The Commission has jurisdiction to issue this order under Wis. Stat. §§ 196.02, 196.03, 196.04, 196.197, 196.199, 196.204(3), 196.26, 196.28, 196.37, 196.39, 196.395, 196.50(2)(h), and other provisions of Wis. Stat. chs. 196 and 227, as may be pertinent hereto.

2. Wis. Stat. § 196.197(1) incorporates into state law 47 U.S.C. §§ 251, 252, 253(b), 261(b)(c), other provisions of 47 U.S.C. §§ 151, *et. seq.*, as may be pertinent hereto, and rules and orders of the Federal Communications Commission (FCC), insofar as such federal law relates to the pricing of unbundled network elements of telecommunications providers. The references to federal law provisions herein shall all be construed as applying state law, Wis. Stat. § 196.197, which by its terms incorporates federal law by reference.

3. The petition herein seeks to set less than 100 UNE rates and therefore is subject to the 180-day limitation of Wis. Stat. § 196.197.

4. The TELRIC (Total Element Long-Run Incremental Cost) recurring cost methodology, as defined by the FCC to implement 47 U.S.C. § 252(d) and adjusted herein, is not a prohibited embedded cost model and, as adjusted, is the appropriate methodology to determine unbundled network element loop rates in this proceeding.

5. Collectively, the cost models adopted and amended herein, and the determination of the inputs for such models, establish cost studies required by Wis. Stat. § 196.197, insofar as that statute incorporates by reference 47 C.F.R. §§ 51.505 and 51.511.

6. A telecommunications utility's offering of an unbundled network element is a form of "access service" under Wis. Stat. § 196.01(1b), and constitutes a "service" in its broadest sense, under Wis. Stat. § 196.01(7).

7. Except as required by federal law as defined in Para. 2 above, the just and reasonable rate standard of Wis. Stat. § 196.03(1), as framed for telecommunications utility services by the direction and factors in Wis. Stat. § 196.03(6), may be employed to determine the various components and inputs of the cost models. Such determinations intertwine fact and law.

8. The Commission concludes that there is substantial evidence of record, plus reasonable inferences therefrom, and relevant Commission expertise, that warrant making a determination under Wis. Stat. § 196.197 that the revised UNE loop rates of SBC specified in Appendix B hereto comply with federal TELRIC pricing methodology.

9. As previously recognized by the Commission in docket 6720-TI-161, the Commission under federal law does not “set” rates, but determines the components of a cost methodology used to determine a cost-based price. Therefore, the UNE loop rates that are "determined" herein are essentially an investigative result, i.e., recognition of the proper calculation of the UNE loop rates pursuant to the federally-required TELRIC cost model utilized herein, with changes. Consequently, it also follows that the Commission is not purporting to engage in traditional regulation of SBC's UNE loop prices, that is, to directly "supervise and regulate" per jurisdiction granted by Wis. Stat. §§ 196.02(1) and 196.195(1).

10. In this proceeding, the application of state law under Wis. Stat. § 196.03(1) and (6) is consistent with federal law as incorporated, pursuant to § 251(d)(3) and § 261(c).

11. The Commission is prohibited by 47 U.S.C. § 252 and the holding in *Wisconsin Bell, Inc., v. Bie*, 340 F.3d 441 (7<sup>th</sup> Cir. 2003), from ordering that the UNE loop rates determined herein replace present UNE loop rates in currently effective interconnection agreements.

12. In all other respects, the Commission has the jurisdiction and discretion to determine what is just, reasonable, convenient or in the public interest, and to act or refrain from acting, as set forth herein.

## **Opinion**

### **I. Introduction**

At the April 28, 2004, prehearing conference, the overall issues in this docket were framed as follows:

1. Should the Commission reject, grant, or approve with modifications or conditions, SBC Wisconsin's petition?

a. Do SBC Wisconsin's proposed recurring loop rates, identified in the Petition, comply with applicable federal and state law?

b. If not, what modifications or conditions, if any, should be imposed, including any adjustments to the data and/or cost study models to bring rates identified in the Petition into compliance with applicable federal and state law?

2. What relief, if any, may be granted to SBC Wisconsin? If relief may be granted, what form of relief is appropriate in the circumstances?

This decision addresses these issues below.

## II. Legal and Economic Framework of UNE Pricing

The Telecommunications Act of 1996 (Act or TA96)<sup>3</sup> furnishes the broad context for this docket. In place of the previous regime of state-sanctioned local carrier monopolies, the Act created a unique form of “cooperative federalism”<sup>4</sup> that provided for “parallel jurisdiction”<sup>5</sup> for the FCC and the states to facilitate the development of competition in local exchange markets. To that end, § 251 specifically required incumbent local exchange carriers (ILECs) to provide three forms of network access to new entrants: direct interconnection of a competitor’s facilities with those of the ILEC, leasing of the ILEC’s unbundled network elements, and resale of the ILEC’s services at wholesale rates. *See* § 251(c)((2) – (4) and *AT&T Corp. v. Iowa Utils. Bd.*, 525 U.S. 366, 371 (1999). To secure access, § 252 set up procedures by which a CLEC could obtain an agreement with an ILEC with state commission supervision. Under § 252(e), an agreement may be established voluntarily by a CLEC and an ILEC, or, where issues are disputed, either party may petition the state commission to arbitrate the disputed issues in accordance with § 252(b). All agreements, whether arrived at voluntarily or through arbitration, are ultimately subject to state commission approval under § 252(e). As relevant to this docket, a state commission may determine whether an ILEC’s rates for unbundled network elements are

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<sup>3</sup> Pub. L. 104-104, 110 Stat. 56 (1996), amending the Communications Act of 1934, 47 U.S.C. §§ 151 *et seq.*, and codified at scattered sections of Title 47 of the United States Code. The section symbol “§” followed by a number denotes a section of Title 47 of the United States Code.

<sup>4</sup> *See, e.g., Michigan Bell Tel. Co. v. MCIMetro Access Trans. Co.*, 323 F.3d 348, 351 (6<sup>th</sup> Cir. 2003).

<sup>5</sup> *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996; Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers*, First Report and Order, 11 F.C.C. R. 15499, 15,544, ¶ 85 (1996) (*Local Competition Order*), *aff’d in part and vacated in part sub nom. Competitive Telecommunications Ass’n v. FCC*, 117 F.3d 1068 (8th Cir. 1997) and *Iowa Utils. Bd. v. FCC*, 120 F.3d 753 (8th Cir. 1997), *aff’d in part and remanded, AT&T v. Iowa Utils. Bd.*, 525 U.S. 366 (1999) (*Iowa Utils. Bd.*), *on remand, Iowa Utils. Bd. v. FCC*, 219 F.3d 744 (8th Cir. 2000), *reversed in part sub nom. Verizon Communications Inc. v. FCC*, 535 U.S. 467 (2002) (*Verizon*), Order on Reconsideration, 11 F.C.C.R. 13042 (1996), Second Order on Reconsideration, 11 F.C.C.R. 19738 (1996), Third Order on Reconsideration and Further Notice of Proposed Rulemaking, 12 F.C.C.R. 12460 (1997), further recons. pending.

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provided “on rates, terms, and condition that are just, reasonable, and nondiscriminatory.”

Sec. 251(c)(3).

In the 1996 *Local Competition Order*, ¶¶ 672-703, the FCC established the methodology for pricing a UNE, consisting of the element’s forward-looking Total Element Long Run Incremental Cost (TELRIC) plus a reasonable allocation of forward-looking common costs.<sup>6</sup> TELRIC inherently raises a question as to the network configuration and current technology for which forward-looking costs must be modeled. As a compromise between using a purely hypothetical network model, or the incumbents’ existing network infrastructures, the FCC provided that TELRIC’s forward-looking economic cost methodology should be “based on the most efficient technology deployed in the [ILEC’s] current wire center locations.” *Local Competition Order*, ¶ 685. See also 47 C.F.R. §§ 51.501-511. The FCC further determined that embedded or historical ILEC booked costs may not be the basis for a UNE rate. *Local Competition Order*, ¶ 705. See also § 252(d)(1)(A)(i) and 47 C.F.R. § 51.505(d)(1).

In 1999, the Commission proceeded to investigate all of SBC’s UNE rates in *Investigation into Ameritech Wisconsin’s Unbundled Network Elements*, docket 6720-TI-161, *UNE Final Decision* (March 22, 2002), and *UNE Compliance Order* (July 7, 2003) (collectively, *UNE Decisions*), *vacated and remanded in part, dismissed in part, Wisconsin Bell, Inc. v. Bridge, et al.*, \_\_\_ F. Supp. 2d \_\_\_, 2004 WL 1946317 (W. D. Wis. Aug. 26, 2004).<sup>7</sup> UNE rates for loops were established in that docket by modeling TELRIC loop rates using SBC’s Loop Facility Analysis Model, or LFAM, cost model and inputting data from 1999 and 2000.

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<sup>6</sup> Hereinafter, for convenience, “TELRIC” shall refer to the entire TELRIC model, including the shared and common cost factor.

<sup>7</sup> Order to Reopen and Notice of Prehearing Conference was issued September 8, 2004, in docket 6720-TI-161.

While the court action on the *UNE Decisions* was pending, the Wisconsin legislature enacted Wis. Stat. § 196.197. The statute requires the Commission to promptly act upon a petition to “determine rates and costs of unbundled network elements . . . under federal or state law.” Wis. Stat. § 196.197(1). The statute further requires that when fewer than 100 rates are sought to be determined, the Commission issues its decision in 180 days after a petition is deemed complete. Finally, Wis. Stat. § 196.197(4) provides that the Commission may reject, approve, or approve with modifications, a petition filed under the statute. If approving a petition as filed or with modifications, the Commission’s final decision must determine UNE rates, except if the record is not sufficient with respect to a particular rate. Wis. Stat. § 196.197(4).

### **III. The Instant Proceeding**

As noted above, on March 12, 2004, SBC filed a petition for the establishment of UNE loop rates under federal law, “and to the extent it is relevant and applicable,” state law provisions at Wis. Stat. § 196.03(1) and (6). See Petition, at p. 9. Motions to dismiss the case were denied by the Commission on July 22, 2004. A full hearing record consisting of thousands of pages of testimony and over 250 exhibits was presented to the Commission. On this record, SBC has the burden of proof to establish increased UNE rates. Wis. Stat. § 196.197(1) and *Local Competition Order*, ¶ 680.

#### IV. Why the Commission May Proceed

This proceeding was opened while the Commission's *UNE Decisions* were still not fully final. A federal court action for review of the *UNE Decisions* (noted above) was pending, and a final delegated decision was still due from the Telecommunications Division Administrator on the treatment of three specific cost items. However, the review here of UNE loop rates does not pose a conflict with the matters still potentially in dispute in the now-reopened 6720-TI-161 docket. The Commission may not only reconsider the UNE loop prices set in the earlier docket, "but it may also adopt or entertain a different view of the law in [this] subsequent case[]." *Union State Bank v. Galecki*, 142 Wis. 2d 18, 124, 417 N.W.2d 60 (Ct. App. 1987). Nonetheless, it is only fair that the Commission explain deviations from the *UNE Decisions* on particular issues.<sup>8</sup>

The Commission finds it appropriate to revisit the determination of UNE loop rates made in docket 6720-TI-161 for several reasons. The recent enactment of Wis. Stat. § 196.197 to create a specific procedure for UNE ratemaking, and to require a decision within 180 days (the case herein deals with 27 rates), conveys the legislature's concern that UNE rates must be made without "regulatory lag" to keep rates current with competitive market conditions.

Other federal law changes have occurred since the *UNE Final Decision* that the Commission should reasonably respond to by reviewing and updating rates as needed. In its *Triennial Review Order*, ¶ 680,<sup>9</sup> issued after the *UNE Compliance Order*, the FCC clarified that

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<sup>8</sup> See Wis. Stat. § 227.58(7) (providing for judicial remand if an agency fails to explain to the court's satisfaction deviation from "officially stated agency policy"), and 2 AM JUR 2D. *Administrative Law* ¶ 376 (2004) (agency is obliged to explain why departure from past policy is reasonable, and may overrule past precedents if it "explicitly and rationally justifies such a change of position").

<sup>9</sup> Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, 18 F.C.C.R. 16,978, 18 F.C.C.R. 19,020 (rel. Aug. 21, 2003) (*Triennial Review Order* or *TRO*), vacated in part, *aff'd in part*, *United States Telecom Ass'n v. FCC*, 359 F.3d 554 (D.C. Cir. March 2, 2004) (*USTA II*), *petition for cert. filed*, (U. S. June 30, 2004) (No. 04-12).

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the costs of capital and depreciation lives, major cost factors for UNE loops, must reflect a fully competitive market. In the *Virginia Arbitration Order*<sup>10</sup> the FCC's Wireline Competition Bureau, acting under delegated authority, furnished a clear analytical approach to establishing a TELRIC-compliant UNE rate. The Seventh Circuit Court of Appeals has given this FCC decision deference as an agency interpretation of certain portions of its TELRIC rules. See *Indiana Bell Tel. Co. v. McCarty*, 362 F.3d 378, 387 (7<sup>th</sup> Cir. 2004) (delegated agency decision is entitled to the same deference as if made by the agency itself), citing *MCIMetro Access Transmission Servs., Inc. v. BellSouth Telecomms., Inc.*, 353 F.3d 872, 880 n.8 (4<sup>th</sup> Cir. 2003). The *Virginia Arbitration Order* is a significant federal guide in this case as to how to choose a TELRIC cost model and to analyze the relevant factors to comply with the FCC's TELRIC rules, especially, 47 C.F.R. §§ 51.505 (forward looking economic cost) and 51.511 (per unit cost calculation).

In the instant proceeding, SBC also provides newer, more up-to-date inputs from the year 2002, and seeks to project costs for 2004 through 2007. The Commission also has a more detailed and developed evidentiary record as to the cost of capital and depreciation lives for cable and installation costs than was available in docket 6720-TI-161. Finally, this record includes much more detail about fill factors, which greatly affect UNE loop rates. (For instance, SBC provides fill data broken out according to each of SBC's A, B, and C rate zones.) This detail was not available previously.

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<sup>10</sup> *In re Petition of WorldCom, Inc. Pursuant to Section 252(e)(5) of the Communications Act for Preemption of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes with Verizon Virginia Inc., and Expedited Arbitration*, 17 F.C.C.R. 27,039 (2002) (*Virginia Arbitration Order*).

Contrary to the suggestion of SBC, the *TELRIC NPRM*<sup>11</sup> is not legal guidance for the Commission, merely an indication of concerns on which the FCC wishes to receive comments. True, the *TELRIC NPRM* appears to suggest that state commissions have taken TELRIC hypothetical cost models to “unrealistic” extremes, but the *TELRIC NPRM* does not change any FCC rule on TELRIC costs, or provide any “clarification” in the manner of the *TRO*.

## **V. Establishing UNE Loop Rates**

### **A. Background**

In turning to the core question of the TELRIC cost study model, the Commission’s discussion of TELRIC in the *UNE Final Decision*<sup>12</sup> bears re-statement:

The requirement to use forward-looking costs is reflected in the “incremental cost” aspect of the TELRIC standard. Incremental costs are costs that would be incurred to add equipment today and are not embedded historical costs. This pricing method reflects the need to achieve a level of cost efficiency that a competitive market would demand from a provider to achieve competitive prices today.

Accordingly, in applying TELRIC, it is reasonable to base costs on equipment and systems an efficient provider can reasonably implement using currently available technology. This standard is also consistent with the Wisconsin definition of total service long run incremental cost (TSLRIC), which is a pricing method similar to TELRIC. State law says, “[I]n [Chapter 196], total service long run incremental cost is calculated as the total forward-looking cost, using least-cost technology that is reasonably implementable based on currently available technology. This standard is based on forward-looking, achievable costs based on currently available technology.

To reflect the “Total” aspect of TELRIC, costs are based on the efficiency of building for the entire network demand today. By developing costs based on the amount of equipment needed to serve the total network demand today, the economies of scale in the telecommunications industry are captured in the development of costs.

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<sup>11</sup> Notice of Proposed Rulemaking, *Review of the Commission’s Rules Regarding the Pricing of Unbundled Network Elements and the Pricing of Resale Services by Incumbent Local Exchange Carriers*, 18 F.C.C.R. 18,945, and 18 F.C.C.R. 20,265 (rel. Sept. 15, 2003) (*TELRIC NPRM*).

<sup>12</sup> PSCW Docket 6720-TI-161, at 24-25 (Mar. 22, 2002).

To reflect the “Long-Run” aspect of TELRIC, costs are developed based on the assumption that all equipment that can be filled to an exhaust point will need to be replaced in the long run. Accordingly, “cost” includes all of the equipment that will need to be replaced in the long run. So even when equipment has a life of greater than one year, it is included in the development of incremental costs. As TELRIC includes equipment that has a life of greater than one year, it requires the inclusion of a cost of capital to support this investment. The cost of capital component provides for a reasonable profit otherwise known as the return on investment.

The “Element” aspect of the TELRIC reflects the FCC’s determination that the standard is used to price unbundled network elements (UNEs). It is not the cost of a service, but reflects the cost of elements of a telecommunications network that are put together to provide telecommunications services.

The FCC also determined that a reasonable mark-up for joint and common costs should be included in TELRIC costs. Even though network elements are priced based on incremental costs, joint and common costs, like supervision and general and administrative costs, will also be incurred. The FCC requires that UNEs not bear an unreasonable portion of joint and common costs.

These general pricing standards are supplemented in various sections of this order to reflect their application and particular types of costs. While all parties agree that TELRIC is the pricing standard to apply, the parties have differing interpretations as to the proper implementation of those standards. These differing interpretations are discussed in the separate sections of this order.

Since that decision, the Seventh Circuit Court of Appeals has provided significant guidance as to the application of TELRIC in *AT&T Communs. of Ill., Inc. v. Illinois Bell Tel. Co.*, 349 F.3d 402 (7<sup>th</sup> Cir. 2003) (*AT&T Communs*). The decision highlights the “framework” nature of TELRIC, the opportunity for disagreement about model “details” such as fill factors, and the role of state law in settling model details:

TELRIC is a framework rather than a formula; there is considerable play in the joints. See *AT&T Corp. v. FCC*, 220 F.3d 607, 615-16 (D.C.Cir. 2000); *Sprint Communications Co. v. FCC*, 274 F.3d 549, 556 (D.C.Cir. 2001). Incumbent carriers may be unable to agree with would-be entrants about what the most efficient technology is, how much it would cost to construct, and what the incremental costs of a given network element would be. Moreover, even when the parties can agree on the technology, they may be unable to agree on vital details. One such detail is the “fill factor”. . . . In the Triennial Review Order the FCC explained that many issues have a range of reasonable answers for the parties--or state regulators, acting under state law--to flesh out.

*AT&T Communs.*, 349 F.3d at 405. Moreover all of the TELRIC factors need not be hypothetical so long as the end rate reflects the cost of efficient production.<sup>13</sup>

The decision further concluded that the “propriety [of TELRIC factors] should not [be] evaluated in isolation from the other components of a TELRIC rate.” *Id.*, at 411. Consequently, the Commission may not accept one or two factors from this record and then simply insert them into a cost model, or specifically, plug them into the LFAM model and re-run it because LFAM was the model used in docket 6720-TI-161. All the factors—whether looking to the past, like depreciation, to the present, like fill factors,<sup>14</sup> or to the future—must be evaluated against one another.

## **B. Shared and Common Cost Factor Stipulation**

One part of the UNE rate creation process has been taken care of by stipulation. On August 10, 2004, the Commission issued an Interlocutory Order that approved a confidential shared and common cost percentage figure that would be added to the TELRIC-determined cost to arrive at a final UNE loop rate. Since entering the Interlocutory Order, the Commission has

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<sup>13</sup> *AT&T Communs.*, 349 F.3d at 410-11:

“The district judge also thought that any use of actual fill factors (or asset lives matching the company's financial reports) violates federal law because TELRIC is forward looking, while depreciation looks to the past and fill factors to the present. True enough, TELRIC calls for a projection, but it does not demand that every ingredient be hypothetical. How could one know the long-run costs of the most efficient technology without understanding the costs of today's most efficient producers? If SBC's current fill factors are the efficient ones (or are within the range that a student of the subject might think a reasonable estimate of that figure), then they are exactly the right figures to use. What is more, as we have mentioned, TELRIC requires that the *rate* reflect the costs of efficient production, not that each ingredient of the formula do so independently. The district court's analysis may have been affected by the parties' choice to present for decision a challenge to two factors, standing alone, rather than a challenge to a promulgated rate. Both of these factors look to the present or the past; if they were the *only* factors, then the problem would be clear; but under TELRIC they can't be the only factors, and their propriety should not have been evaluated in isolation from the other components of a TELRIC rate.” (Italics in original; underscore added).

<sup>14</sup> See Footnote 13 quotation wherein the appeals court described fill factor as looking to the “present” and depreciation to the “past.”

fully reviewed the record and briefs and finds no factual or legal bar to making that order's terms final. The Findings of Fact section contains specific findings to reflect this determination.

### **C. TELRIC-Compliant Loop Cost Study Model**

In the ensuing discussion of model factors, the Commission is guided by the principles noted earlier. Moreover, as to each model adjustment, the Commission also is applying Wis. Stat. § 196.03(1) and (6) to hold that the determinations with respect to selection and modification of the designated model factors and inputs, reasonably advance in a balanced manner the preservation and promotion of competition, and the promotion of telecommunications efficiency and productivity. Other factors in Wis. Stat. § 196.03(6) are either not relevant or outweighed by the predicted effects on competition and efficiency. By these conclusions, the Commission would, if called upon, declare that the UNE loop rates comply with Wis. Stat. § 196.03(1) as just and reasonable rates.

#### **1. The Choice of a Cost Study Model—LoopCAT or LFAM**

The Commission must have a TELRIC cost study model in order to establish a UNE loop rate. SBC offers a replacement for LFAM, called the LoopCAT (Loop Cost Analysis Tool) model, a Microsoft Excel® workbook consisting of various input data and investment cost calculations. The model employs data from the company's books of account, current material contracts, and engineering property records, but adjustments are made to the design of the network to make it more "forward-looking." The CLECs generally support retention of LFAM, or, as a fallback, seek substantial modifications of LoopCAT's design and inputs. Associated with both models is the ancillary Annual Cost Factor (ACF) model, which provides inputs to both LFAM and LoopCAT. SBC and the CLECs dispute certain inputs for that model. For

convenience, the discussion herein will consider the ACF model as part of any discussion of either LFAM or LoopCAT.

In the *Virginia Arbitration Order*, the FCC identified several criteria for choosing a model consistent with TELRIC methodology. The methodology, as discussed above, at its core is based on forward-looking economic costs, and assumes network design that uses the least-cost, most efficient technology currently available and current ILEC wire center locations. But in addition, a cost study model must be open to modification, data must be verifiable, network design assumptions must be reasonable, and the outputs “plausible;” the model must be transparent and verifiable, with all the aspects available to opposing parties. *Virginia Arbitration Order*, ¶¶ 37-38. However, embedded costs, that is, the historical costs as recorded on an incumbent’s books of account, may not be used, per 47 C.F.R. § 51.505(d). Notwithstanding that prohibition, “some historic cost information may . . . be probative of forward-looking costs and may be considered for that purpose.” *Virginia Arbitration Order*, ¶ 37 n. 103.

The Commission, for this proceeding, is adopting LoopCAT, but with network design and data input modifications that are necessary to make LoopCAT TELRIC-compliant and the outcomes just and reasonable and in the public interest within the relevant factors of Wis. Stat. § 196.03(6) specified above. The elements not specifically controlled by FCC rule or decision, such as, but not limited to, fill factor percentages, specific depreciation lives, the cost of capital, and various model design elements and data inputs are subject to state law. *AT&T Communs*, 349 F.3d at 405. To be sure, this choice is not a repudiation of LFAM as a model; it remains a valid model. Indeed, the record criticisms of LFAM were relatively limited, and, given that no TELRIC model is “perfect,” and that SBC even used LFAM for certain rate justifications in

another proceeding, docket 6720-TI-175, the Commission is not persuaded that explicit rejection of LFAM as an available model is necessary or justified. LFAM would have needed adjustments too, especially as to common ACF inputs. The Commission's approval of use of LoopCAT here should not be construed as a rejection of LFAM as used in docket 6720-TI-161, or as a repudiation of any other non-loop UNE rates established with LFAM in that docket. The balance of considerations, however, tips to the use in this proceeding of LoopCAT, as adjusted herein, because of its capacity for modifications, auditability, ease of use, transparency, and accessibility to the parties. SBC's modeling of the forward-looking network loop design with more fiber installations and current technology adjustments to embedded network plant, is sufficient to rebut the criticism that LoopCAT is an embedded cost model prohibited by 47 C.F.R. § 51.505(d). The adjustments necessary for LoopCAT's TELRIC compliance either provide greater accuracy in the input data, effect a more consistent or reasonable treatment of a model element or input, or render more forward-looking the model's network loop design or deployed technology.

**2. Required Adjustments to LoopCAT—Loop Investment and Expenses**

**a. Network Design Assumptions**

**(1) IDLC/UDLC**

There are two basic types of digital loop carrier systems, universal digital loop carrier (UDLC) and integrated digital loop carrier (IDLC). The technology that SBC initially installed in its feeder network was UDLC and it still serves the majority of its lines. UDLC equipment initially is less expensive to install than IDLC and has the advantage of terminating and demultiplexing the feeder into individual wires that are then connected by jumper wires to the

switch. This arrangement allows SBC to easily use jumper wires to transfer individual loops to CLEC equipment collocated in its central office as requested by the CLEC.

While IDLC is more expensive to install, it is much more efficient to operate because there is no need to split out individual loops and convert them to analog electrical signals prior to connecting to the switch, which then converts the signals back to digital. Instead, the signals are integrated between the DLC and the switch so that they enter the switch directly. This allows for a much greater concentration of loops and increases the carrying capacity of the fibers while lowering the investment in electronic equipment in the central office terminal. While IDLC is more efficient than UDLC, it is most economical only on feeder routes that have a large volume of traffic. In addition, loops can only be unbundled and sent to CLEC equipment at the DS-1 level, which is equivalent to 24 individual loops at a time, so it is inefficient for the provision of individual UNEs.

In modeling its forward-looking, efficient network with LoopCAT, SBC proposed using a ratio of approximately 5 percent IDLC and 95 percent UDLC because this reflects its current percentage of feeder routes that use IDLC. The actual percent of loops served through IDLC is much greater than 5 percent because IDLC has been installed on the feeder routes that have the largest traffic volume. SBC defended this IDLC/UDLC mix by emphasizing the fact that it is more efficient to provide UNEs to CLECs using UDLC, that CLECs rarely ask for UNE loops in large bundles at a time, that DSL loops cannot use IDLC, and that because there is a significant cost to adapt the switch to handle IDLC, it will never be used in SBC's less dense, more rural exchanges.

The CLECs' position is that IDLC is much more efficient than UDLC, so an efficient, forward-looking network, built new today, would equip all feeder routes with IDLC. If the network were built new, there would be no need for SBC to do expensive retrofits to its existing switches, and there would be accommodations built into the network to handle UNEs, DSL and other nonswitched services.

In the *UNE Decisions*, the Commission decided that the most reasonable assumption for the percentage of IDLC in the network would be to assume a 50/50 split between IDLC and UDLC. In making this decision, the Commission finds that the same facts are on the record in this proceeding, and the positions of the parties have not changed. A network with a significant portion of both types of DLC will allow SBC to use the most efficient and therefore TELRIC-compliant technology on its routes that have the greatest volume, while also accommodating its mandate to provide CLECs with access to individual loops and to provide loops for DSL and other services that do not use the switch.

The Commission finds that its decision to use the 50/50 split between IDLC and UDLC is still sound and is retained.

**(2) Central Office Terminal Channel Bank Capacity**

In the LoopCAT model, the assumption about the mix of three-channel and seven-channel-bank assemblies in the central office terminal (COT) is closely tied to the assumption about the percentage of IDLC in the feeder routes. In choosing channel bank capacity, engineers will use seven-channel-bank assemblies where there is a high volume of traffic because the per-line cost is lower than for smaller, less expensive three-channel-bank assemblies. The three-channel-bank assemblies will be more efficient where there are fewer

lines to terminate. Usually, the most efficient arrangement will have a mix of both sizes.

Because feeder routes that use IDLC can be more highly concentrated, there will be fewer lines that need to be terminated and this could change the ratio of channel-bank assemblies that will be most efficient.

SBC again advocated that the model use the same percentage of three-channel-bank assemblies and seven-channel-bank assemblies as exist in its actual network. Because the CLECs advocated the use of 100 percent IDLC, their position was that the traffic would be concentrated to the extent that SBC would only need three-channel-bank assemblies in its COTs. The CLECs also stated that if the Commission were to choose an IDLC percentage that is higher than SBC's actual IDLC percent, such as the 50/50 split in its *UNE Decisions*, an efficient network would still include primarily three-channel-bank assemblies.

SBC responded to the CLEC position by pointing out that even with more concentrated traffic, many of its routes would be at the level where using some seven-channel-bank assemblies would be more efficient than only using three-channel-bank assemblies. After evaluating the positions of the parties in light of its decision to assume 50 percent IDLC, the Commission is not persuaded by the CLECs' argument that the use of only three-channel-bank assemblies would be more efficient. The Commission also does not find enough evidence on the record to justify altering the mix of channel-bank assemblies used by SBC, and for this reason, the Commission decision is to use the SBC numbers. This issue arises from the use of LoopCAT, and was not present in docket 6720-TI-161 due to that docket's use of the LFAM model.

**(3) Configuration of Remote Terminals Out of Central Office**

SBC designs its network to use two remote terminals out of a central office, and that is the way the network was modeled in LoopCAT. The CLECs asserted that in some cases it is more efficient to use more than two remote terminals per central office, especially if this will result in shorter copper distribution loops. They followed with a proposed modification to LoopCAT that would assume more remote terminals and shorter loops. SBC countered that its central office equipment is only designed to accommodate two remote terminals, so if any additional remotes are used, they would need to run off of another remote terminal in a daisy chain arrangement and this would not be more efficient.

The Commission finds that the use of remote terminals, as modeled by SBC, is reasonable and efficient, consistent with Wis. Stats. § 196.03(6)(f), and declines to make the adjustment recommended by the CLECs. Like the previous issue, this one arises due to use of LoopCAT and was not present in docket 6720-TI-161.

**(4) Remote Terminal Use Allocation**

The LoopCAT model, as created by SBC, only includes investment that was incurred in order to provide the UNE being modeled. The CLECs did not contest that aspect of LoopCAT, but they did point out that some of the facilities located in the remote terminals that LoopCAT assigns to the 2-wire analog loop used for basic voice-grade service will also be used to provide other services. CLECs suggested that it would be reasonable to allocate a portion of the cost of these shared facilities between the services that would use them and specifically mentioned that SBC uses its remote terminals to provide both voice-grade services and broadband services.

In response, SBC pointed out that the assignment of costs should follow cost causation, which means that if the investment was incurred to provide a particular service or UNE, then the cost should be assigned to that service or UNE. SBC provided testimony that the investment in its remote terminals was caused entirely by its need to provide voice-grade service and therefore should be assigned entirely to the cost of the UNE used for voice-grade service. The fact that the equipment may later be adapted to provide other services is irrelevant from a cost causation perspective.

The Commission concludes that historical cost causation in SBC's network does not determine how cost should be assigned in an efficient, forward-looking network built new today. There is considerable evidence on record that on a going-forward basis, broadband, in SBC's case provided over digital subscriber lines, or DSL, will play a much bigger role in telecommunications than it does today. It makes sense that if the network were designed today, the cost drivers would be different than they were in the past when DSL was not a significant concern. The Commission believes that it is reasonable to allocate some of the cost of the Digital Loop Carrier (DLC) chassis, which can accommodate both plug-in cards for voice lines and plug-in cards for DSL, to both services.

CLECs argue that they should not have to pay costs properly allocated to services they cannot use. The CLECs provided testimony that if the existing DLC chassis (deemed to include a cabinets, CEVs, and all similar equipment) were used to capacity to provide both voice lines and DSL, then 25 percent of the chassis would be used for DSL and 75 percent would be used for voice lines and proposed these percentages as a reasonable allocation of costs. SBC suggested that if the Commission were to allocate any costs to DSL, then it should base the

allocation on relative usage of the equipment. SBC provided testimony that only five percent of its lines that are configured out of remote terminals are used for DSL and that this would be the most reasonable allocation of costs to DSL.

The allocation of shared costs is inherently difficult because there are no cost causation principles that can be applied. The use of relative capacity and relative usage are both common methods of allocating costs, but neither is inherently more reasonable than other methods. The Commission does not believe that the five percent allocation proposed by SBC is reasonable because, as with many other instances in LoopCAT, SBC is relying on historical, instead of forward-looking data. With a nationwide push to promote broadband, with voice-over-internet-protocol (VoIP) providing voice-grade service over broadband lines instead of voice-grade lines, and given the evidence that the number of SBC's voice-grade lines is declining, the Commission determines that a 25 percent allocation of DLC chassis to DSL is more reasonable. This allocation is equitable, and thereby preserves and promotes competition, consistent with Wis. Stat. § 196.03(6)(a), and is just and reasonable and in the public interest. This issue was not specifically addressed in the *UNE Decisions* because the Commission determined at that time to unbundle Project Pronto on an end-to-end basis. With the FCC holding in the *TRO* limiting CLEC access to ILEC broadband facilities, the allocation issue arises in this case.

**(5) Distribution Loop Lengths**

In SBC's LoopCAT model, the final product is the cost of an average loop for each zone, which, in turn, uses as an input the average length of a loop in each zone. SBC used an estimate of the average loop length that was derived by multiplying the maximum theoretical length of an SBC distribution loop by a confidential percentage. The confidential percentage was a judgment

by SBC subject matter experts based upon a review of SBC's loop databases. One of the CLECs' proposed adjustments to SBC's estimate of average loop length was a reduction in loop length because the computation included loops in excess of 18,000 feet. In the CLECs' view, an efficient, forward-looking network would not include any loops in excess of 18,000 feet because these loops require the use of load coils and cannot be used for broadband and other advanced services. SBC responded that all customer locations need to be served and in any event, the cost impact of removing loops that exceed 18,000 feet is miniscule.

The Commission determines that any model of a UNE for 2-wire analog loops must include the cost to serve all of SBC's existing customers. Because the FCC rules require a TELRIC model to assume that wire centers and customers are in their existing locations, SBC was correct to include distribution loops that exceed 18,000 feet in its estimate of average loop length. The Commission considers it likely that even in the most forward-looking network, there would be instances where loops exceeding the 18,000-foot parameter would be the most efficient design approach.

The CLECs further challenged the confidential percentage described above that was used to estimate average loop length. The CLECs assert that the percent was different from the percent they have seen used in other SBC states. SBC supported its percentage with corroborating evidence from other databases. The Commission finds it reasonable that Wisconsin might be different from other states, and determines that SBC has reasonably supported its loop lengths.

**(6) Extended Range Line Cards**

This issue is closely linked to the issue above about how to serve customers more than 18,000 feet from SBC's remote terminals. SBC included the cost of extended range line cards in LoopCAT to capture the cost it incurs to provide voice-grade service to customers over loops with more than 18,000 feet of copper distribution plant. The CLECs' position is that because it is not possible to provide DSL and other advanced services over lines that have extended range line cards, a forward-looking network would be constructed in a manner that does not include loops with over 18,000 feet of copper distribution plant and that it is not proper to include the cost of extended range line cards in the cost of UNE loops.

Given the Commission's determination that the FCC rules require the inclusion of loops with more than 18,000 feet of copper distribution plant in the calculation of average loop length, it follows that the cost of extended range line cards that make it possible for remote customers to receive voice-grade service should also be included.

**(7) xDSL Loop Lengths**

The evidence on the record is that xDSL does not work on copper loops that exceed 18,000 feet. SBC proposed the use of the same average loop length for developing the cost for its xDSL loops as for its 2-wire analog loops, insisting that the same obligation to serve all of its customers applies. The CLECs responded that even if the Commission believes that all customers should be included in developing the cost for voice-grade service, it does not make sense to count copper loops that exceed 18,000 feet in developing the average loop length for xDSL loops. The Commission finds that the CLECs will not order any copper xDSL UNE loops

that exceed 18,000 feet and determines that the input for average loop length for xDSL loops should not include any copper loops that exceed that length.<sup>15</sup>

**(8) Directly-Fed Fiber Loops**

One of the modeled design features of a TELRIC network assumed by LoopCAT is that every loop should pass through a feeder distribution interface (FDI). SBC justifies this treatment as a forward looking engineering design practice. The CLECs, in contrast, calculate that a certain percentage of all loops, for example those serving a large office building, may have a feeder directly connected to the customer premises. Thus, the CLECs contend, a specified confidential percent of loops are on a direct feeder cable link to the customer premises, requiring that LoopCAT be adjusted to prevent overstatement of the costs of block terminals and FDIs that simply do not exist.

The Commission accepts the CLECs' proposed adjustment. SBC admitted the error in the model, but offered no proposal for curing the overstatement. The CLECs' witnesses, Pitkin and Turner, however, presented a simple calculation to determine what percentage of SBC's loops do not have distribution segments, on a zone-by-zone basis, and from this inferred how many FDIs should not be assumed to exist. SBC challenged the adequacy of the data used by Pitkin and Turner, but failed to offer a more accurate method to remove the overstatement. The

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<sup>15</sup> The CLECs placed on the record the results of a calculation of the average loop length that did not include loops over 18,000 feet, but retracted this calculation after SBC pointed out that it was based upon an incorrect assumption. Neither party provided a corrected average loop length for xDSL loops that excludes copper loops over 18,000 feet. SBC did provide in the record a repository of data files that includes a long-available file labeled WILEIS50.CSV that can be used to make the correct calculation and this data should be used to develop the cost of xDSL loops. For purposes of this record, the Commission hereby takes official notice of this information in the Commission's files pursuant to Wis. Stat. §§ 227.45(3) and 196.02(9). As in the long-standing practice in calculating rates in traditional rate-setting proceedings, staff and the parties have conferred pursuant to Commission direction to make final rate calculations according to the Commission's open meeting determination of disputed methodology issues. Upon completion of these conferences, staff provided the agreed results for incorporation into this final decision document.

Commission also finds that LoopCAT's assumption of an FDI on every loop is seriously undermined when SBC claims that its current network is the most efficiently designed, yet clearly does not use an FDI on every loop.

To make the LoopCAT cost model properly forward-looking and efficient in its network design, an adjustment to exclude a certain percentage of FDIs is therefore appropriate. The confidential number the Commission chooses from the CLEC calculations is the most reasonable on record, and, under state law, is the most consistent with the objective of efficiency and productivity, Wis. Stat. § 196.03(6)(f), when establishing the components for a reasonable rate methodology for a UNE loop.

**(9) Pair Terminations at FDI**

This particular issue is about the amount of spare capacity in the network, specifically the number of cable terminations per working loop on the distribution and feeder sides of the feeder distribution interface (FDI). Each working loop requires two terminations, one on the distribution side and one on the feeder side. SBC's proposed number, which is confidential, implies spare terminations providing additional capacity. The CLECs propose a significantly lower confidential number to, in effect, decrease the required equipment size of, and consequently the cost associated with, terminations at the FDI. The CLECs argue that this issue is not the same as the fill factor for the FDI itself, but rather, the Commission infers, is about the proper sizing of cables connected on both sides of the FDI.

SBC argues that its number for pair terminations at the FDI is consistent with industry practice, ensuring flexibility in provisioning loops, efficiency in loop tracking, and ease of repair. SBC argues that the CLECs' proposal, which includes placement of both feeder and distribution

terminations on the same panels with the FDI unit, would lead to “chaos and confusion.” The Commission finds this argument persuasive and more consistent with the observation that distribution installations are the most difficult and expensive to augment, thus justifying more capacity (terminations) at initial installation. The CLECs’ proposal would lead to too little flexibility in the network to accommodate growth or change in the pattern of demand that may occur around any particular FDI. The Commission therefore finds that SBC’s confidential engineering ratio of the number of distribution wire pairs per feeder pair at the FDI is the forward-looking TELRIC-compliant ratio.

**(10) Business Premises Termination**

The CLECs challenge LoopCAT’s assumption that every business, including those businesses in large buildings, each has its own Network Interface Device (NID). Most businesses in large buildings are served by a large-block terminal capable of serving multiple businesses at the same address. The CLECs claim that SBC denied them access to SBC’s billing records to determine the proper amount of NID costs that could be removed, and therefore resorted to a proxy solution presented by witnesses Pitkin and Turner. In order to remove the overstatement of NID costs, they proposed a design assumption that half of the lines dedicated to each premises termination equipment size in each rate zone be moved to the next higher equipment size.

SBC points out that neither it nor the CLECs has the data detail necessary to precisely determine how many customer lines are actually located in large buildings. SBC asserts that it conservatively modeled premises termination costs by using its business customer billing records

and assuming a realistic mix of terminal sizes to account for the possibility of multiple customers at one location.

The Commission finds that SBC's proposal for the modeling of a mix of NID and terminal costs is the more reasonable approximation for a federally-required forward-looking treatment for model elements, in this instance, for business premises termination costs. SBC's proposed actual mix of NID and block terminal types for business premises termination contributes more efficiency to the network design assumed in the LoopCAT cost model and therefore is more consistent with Wis. Stat. § 196.03(6)(f).

**b. Data Inputs**

**(1) Cost of Capital**

Recovery of capital costs is recognized as a legitimate cost under the TELRIC pricing methodology. The instant dispute is the cost of capital input, specifically the weighted average cost of capital expressed as a percent.

SBC proposes a weighted cost of capital assumption of 11.91 percent, with a capital structure of 19 percent debt and 81 percent equity, and with corresponding costs of 6.18 percent and 13.25 percent, respectively.

CLECs propose a weighted cost of capital assumption of 7.53 percent, with a capital structure of 5.03 percent short-term debt, 27.81 percent long-term debt and 67.16 percent equity, and with corresponding costs of 2.40 percent, 4.46 percent and 9.19 percent, respectively.

In docket 6720-TI-161, the Commission adopted a weighted cost of capital assumption of 11.25 percent, with a capital structure of 30 percent debt and 70 percent equity, and with corresponding costs of 7.18 percent and 13.00 percent, respectively.

The Commission determines that neither SBC's nor the CLECs' proposed cost of capital inputs are reasonable. The Commission determines that a cost of capital of 10.77 percent is reasonable for the risks faced by a telecommunications company subject to facilities-based competition in the UNE loop line of business. The 10.77 percent reflects a capital structure consisting of 70 percent equity and 25 percent long-term debt and 5 percent short-term debt, with 13 percent return on equity, 6.18 percent cost of long-term debt, and 2.42 percent cost of short-term debt.

In docket 6720-TI-161, the Commission adopted SBC's uncontested cost of equity of 13 percent. In this proceeding, both SBC and the CLECs presented cost of capital witnesses and proposed inputs based on more current financial data. They presented two models for determining the cost of equity, the Capital Asset Pricing Model (CAPM), and the Discounted Cash Flow (DCF) model. Considering the evidence presented in this proceeding as described below, the Commission determines that the 13.0 percent return on equity adopted in docket 6720-TI-161 continues to be reasonable.

The SBC and CLEC witnesses agreed that the conventional application of the constant growth form of the DCF model was less reliable as that model requires stable economic and industry conditions. The FCC, in its *Virginia Arbitration Order*, ¶ 76, found the DCF model unreliable. However, both witnesses developed alternative multi-growth stage versions of the DCF model requiring numerous estimation techniques for growth rates for various time periods and providing a range of investor-required returns on equity of 9.61 percent to 13.6 percent based on the DCF model. While involving greater subjectivity, the results are similar to those of the CAPM described below.

The CAPM forecasts investor-required returns on equity by adding an appropriate risk premium onto the current interest rate for treasury debt, which is generally viewed as the risk-free rate of return. The appropriate risk premium is determined based on the overall return of the market as a whole, generally measured by the return on the Standard & Poor's 500 companies (S&P 500). The risk premium is adjusted upward or downward based on a beta value. A beta value of one indicates the average risk for the market as a whole. SBC's witness used a beta of 1.01 and the CLEC witness used a beta value of one. Accordingly, the determination of the appropriate beta was not a disputed issue. However, a second CLEC witness estimated that the beta for a local exchange operation subject to facilities-based competition would be lower than one, and SBC's witness argued that a proposed beta of one was conservatively low.

Use of the CAPM to estimate an investor's required return on equity will reflect the kind of competitive risk faced by a telecommunications company subject to facilities-based competition in the UNE loop line of business, as required by the FCC's *TRO*. CLEC witness Murray cited the FCC's record showing that AT&T and MCI, which definitely face facilities-based competition, had betas of approximately one during the period of the Virginia arbitration. CLEC witness Selwyn testified that the sensitivity of demand for the industry's products to macroeconomic fluctuations plays a significant role in determining the beta for any particular industry or company subject to competition. Selwyn testified that demand for local telecommunications services is generally less sensitive to such fluctuations than the demand for luxury items, or even the demand for long-distance services.

The estimation of the return for the market as a whole was the primary difference between the CLEC and SBC cost of capital witnesses. The estimates of the market risk premium

varied from around 1 to 1.5 percent to 8.6 percent. When this risk premium is combined with the 5.1 percent risk-free rate yield on 20-year treasury bonds and the selected betas, it gives a range for the return on equity of 6.1 percent to 13.8 percent. The witnesses provided point estimates of 9.19 percent (CLEC witness Murray) and 13.25 percent (SBC witness Avera). The FCC in the *Virginia Arbitration Order* applied a market risk premium of 7.2 percent based on the Ibbotson Associates historical premiums between 1926 and 2003. When the 7.2 percent risk premium is added to the current long-term debt rate of 5.1 percent, it provides an estimate of 12.3 percent for investor-required return on equity.<sup>16</sup>

SBC witness Avera provided other thresholds for evaluating the reasonableness of a TELRIC-based cost of capital. These included the 12.0 percent return this Commission recently authorized for Madison Gas & Electric. Avera also presented an AT&T *ex parte* to the FCC that claimed a required return of 15 percent in relation to possible removal of UNEs from unbundling requirements. He also presented the confidential return TDS used in its business cases, which was far greater than witness Murray's proposed cost of capital. Although CLEC witness Murray believed this TDS rate was a hurdle rate made high enough to compensate for other possible optimistic estimates, it still provides relevant information to the Commission. SBC witness Avera also noted that the FCC affirmed that both competitive and regulatory risks must be considered in establishing the forward-looking cost of capital for UNEs and noted there is currently considerable regulatory uncertainty. Considering all the relevant evidence and the wide range of estimates provided by the various witnesses, the Commission determines that the 13 percent cost of equity from docket 6720-TI-161 continues to be reasonable.

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<sup>16</sup> The FCC averaged the long-horizon method with a short-horizon method.

The Commission further determines that the capital structure of 70 percent equity and 30 percent debt is the best estimate of the target capital structure of a provider faced with facilities-based competition in the UNE loop line of business. It contains less equity than the SBC parent-company market-value capital structure of 81 percent equity and 19 percent debt which formed the basis for SBC's proposal. The equity percentage of SBC's proposed capital structure was computed by multiplying the number of shares of stock outstanding by the share price of the stock as of September 30, 2003, for the SBC parent company. SBC combined this amount of equity with the book value of the long-term debt of SBC's parent company as of the same date.

The CLEC witness pointed out that while using the book value of debt was a simple, practical approach as so little debt is publicly traded, this approach does overstate the equity percent when interest rates have fallen, as has been the recent experience. Another alleged problem with the SBC proposal is that stock prices can change radically in a matter of days or weeks as stock prices fluctuate, whereas a target capital structure should change more slowly. The CLEC witness, in developing the CLECs' proposed 67.16 percent equity, averaged the book value capital structure with the point-in-time market-value capital structure because on the balance, the academic literature suggests that the best prediction of a firm's target capital structure incorporates both book and market information. The CLEC witness also presented data for Sprint and BellSouth's target capital structure obtained through data requests in other proceedings. The mid-point of BellSouth's ranges was 60 percent equity and 40 percent debt. In contrast, SBC witness Avera asserted that the book value of the capital structure cannot even be considered in developing a capital structure. However, this argument is hollow in light of the

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numerous other issues where SBC developed its factors based on book value data while making adjustments to become forward-looking.

Additionally, a capital structure needs to recognize the unique business risks associated with providing UNE services and reflect the financial policies necessary to accommodate these uncertainties. The UNEs at issue here are the ones that allow competitors to offer standard telecommunications services (such as basic voice-grade services), not ones designed to make new services possible over cutting-edge technology. SBC's parent company capital structure accommodates the uncertainties of the activities of the entire SBC family of companies. CLEC witness Selwyn showed that the Regional Bell Operating Companies' (of which SBC is one) non-local-exchange lines of business are responsible for much of their recent increased risk. Considering the various evidence, the Commission determines that the capital structure consisting of 70 percent equity and 30 percent debt from docket 6720-TI-161 continues to be reasonable.

The Commission further determines that it is reasonable to include a portion of short-term debt in the capital structure. CLEC witness Murray explained that 11 percent of SBC's debt is short-term debt. Where short-term debt is significantly less expensive, it is reasonable to roll over short-term debt indefinitely, and accordingly, include this lower cost debt as part of the long-run capitalization. CLEC witness Murray argued that it was reasonable to include 5.03 percent short-term debt in the capital structure.

In docket 6720-TI-161, the Commission adopted SBC's 7.18 percent cost of debt. Considering the more detailed evidence presented in this proceeding as described below, the Commission determines that a 2.42 percent cost of short-term debt and a 6.18 percent cost of

long-term debt is reasonable. Interest rates have declined from the time period of the data supporting the Commission’s prior decision. Since December 31, 1999, interest rates on 10-year treasury bonds have decreased from 6.45 percent to 4.79 percent. The March 22, 2002, interest rate on 10-year treasury bonds was 5.4 percent. SBC proposed the 6.18 percent cost of long-term debt based on current yields on single-A industrial bonds. This is the same method that was used in docket 6720-TI-161 to determine a long-term debt rate only updated to reflect current costs of debt. While CLECs proposed a 4.46 percent long-term debt rate, this was based on debt with shorter maturities. The Commission reflects the benefits of including a portion of lower cost short-term debt in the capital structure through its inclusion of 5 percent short-term debt. SBC’s proposed 6.18 percent cost of debt is a better estimate of the cost of long-term debt.

The 2.42 percent cost of short-term debt was developed by CLEC witness Murray based on SBC’s current spread of short-term debt costs over 3-month treasury notes applied to a 10-year forecast of the cost of 3-month treasury debt costs. The CLECs’ proposed cost rate of 2.42 percent is reasonable.

In conclusion, the Commission determines that the following weighted cost of capital is reasonable for the risks faced by a telecommunications company subject to facilities-based competition in the UNE loop line of business.

Component	Cost	Percent of Capitalization	Weighted Cost
Equity	13.00%	70.00%	9.10%
Long-term Debt	6.18%	25.00%	1.55%
Short-term Debt	2.42%	5.00%	0.12%
Total		100.00%	10.77%

The CLECs raised another issue associated with the cost of capital. SBC uses the Telecommunications Plant Indices (TPI)<sup>17</sup> to make an inflation adjustment to investment costs. In a very short piece of testimony,<sup>18</sup> CLEC witnesses Starkey and Fisher claimed that that an inflation adjustment on investment overstates capital costs because the cost of money already includes the effects of inflation. In other words, applying the cost of money factors to investment, and applying a separate inflation factor, double-counts the impact of inflation on investment. Beyond making the assertion, the CLEC witnesses do not offer any testimony that demonstrates their claim. The record lacks any qualitative or quantitative analyses of alleged double-counting. SBC's counter to the CLEC position is that the cost of money only takes into account the effect of inflation on investors' demand expectations, i.e., that their returns include compensation for the effects of inflation.

Inflation on investment, in contrast, accounts for inflation in the cost of investing in capital equipment. The Commission finds this argument persuasive, and compared with the lack of any concrete CLEC evidence of the alleged double-counting, the Commission determines that SBC has justified its inflation adjustment on investment.

## **(2) Depreciation**

The depreciable life and cost of removal of each type of plant are components of the annual cost factor used in SBC's TELRIC model to compute monthly costs. The combination of the life and cost of removal determines an appropriate depreciation rate. Since the Commission's decision in docket 6720-TI-161, the FCC recently clarified that under its TELRIC

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<sup>17</sup> TPI reflects both inflationary and deflationary factors.

<sup>18</sup> Tr. 1969-1970.

rules, depreciation should reflect the actual decline in value that would be anticipated in the competitive market that TELRIC assumes.<sup>19</sup> The FCC declined to mandate the use of financial lives as proposed by ILECs, as the FCC could not conclude that financial lives always will be more consistent with TELRIC than other methods of determining useful lives. In this proceeding, the Commission determines that it is reasonable to use the mid-point of the Commission-prescribed depreciation ranges per docket 05-DT-105 for depreciation rates in the TELRIC models.

SBC proposed that the Commission adopt its financial lives. The CLECs proposed depreciable lives that were within the FCC prescribed ranges. In docket 6720-TI-161, the Commission adopted the longest lives in the Commission-prescribed ranges from docket 05-DT-104,<sup>20</sup> effective as of January 1, 2001. These Commission-prescribed lives were recently reaffirmed in docket 05-DT-105,<sup>21</sup> effective January 1, 2003. The following table is a summary of these lives for the major plant types at issue.

Plant Type	SBC Proposal	CLEC Proposal	FCC Ranges	Commission's 05-DT-105 Ranges
Metallic cable and wire	15	23	20-26	17-22
Non-metallic cable and wire	20	25	25-30	17-22
Circuit equipment	9	11	7-11	7-10

<sup>19</sup> *Triennial Review Order*, ¶ 689.

<sup>20</sup> *In the Matter of Prescribing Classes of Fixed Capital, a Range of Annual Depreciation Rates, and a Composite Range of Annual Depreciation Rates for All Classes of Fixed Capital*, PSCW Docket 05-DT-104 (Jan. 17, 2001).

<sup>21</sup> *In the Matter of the Biennial Review of Depreciation Rates and Ranges for Classes of Capital of Telecommunications Utilities Required by Wis. Stat. § 196.09(9)(a)*, PSCW Docket 05-DT-105 (Dec. 22, 2003).

The Commission determines that any of the above lives could be considered to be compliant with TELRIC. SBC's financial lives could be viewed as TELRIC-compliant in light of recent evidence of the decline in value of plant due to declining access line utilization, wireless and cable telephony substitution, and new broadband technologies. Nonetheless, the FCC Wireline Bureau in the *Virginia Arbitration Order* proceeding recently re-affirmed that the FCC-prescribed lives can be used in TELRIC models as has been done by numerous other state commissions. The Commission's lives are forward-looking lives which are reviewed by this Commission every two years and will be discussed in greater detail below.

The wide range of reasonable depreciable lives, and the controversy in this case, stems from differing views about how rapidly technology is changing in the telecommunications industry. A witness from SBC provided studies by Technology Futures Inc. (TFI), on wireless and cable telephony substitution, and on deployment of new broadband technologies which would support far shorter lives than SBC is requesting. The studies were based on past experience with substitution of technologies and recent data. The SBC witness demonstrated that substitution has started to occur. The peak utilization of SBC's network occurred in 2000 when about 2.3 million lines were utilized. In 2003, only about 2.1 million lines were utilized. This is a nation-wide trend. Nationally, network utilization peaked in 2000 at 187.3 million access lines but was down to 176.1 million access lines by June 2003. A decline in utilization causes a decline in economic value. However, any substitution study requires an estimate of the rate of substitution and a time at which half of the technology will be substituted. The studies presented are reflections of the SBC witness's estimate of the rate of substitution.

In contrast, the CLEC witness provided evidence that in fact SBC is continuing to use plant beyond its depreciable life. Accordingly, that plant is retaining its economic value. The extended life is demonstrated by the rising levels of SBC's accumulated depreciation reserves. When plant is retired, both the accumulated depreciation reserve and the investment in the plant are removed from the company's financial records. Each year that plant is in service, annual depreciation expense is added to the reserve. The rising reserve balances demonstrate that even based on the FCC's prescribed ranges, SBC is retiring less plant than it is adding each year. This provides implied lives that are longer than the FCC ranges.

The CLEC witness testified that the FCC monitors the reserve levels in determining when to revisit its depreciation ranges. The CLEC witness discussed considerations the FCC uses in developing its ranges, demonstrating that FCC lives are forward-looking as was affirmed in the *Virginia Arbitration Order*. The CLEC witness explained that DSL technology is extending the life of copper plant. The CLECs claim that avalanches of technology substitution will not occur but newer technology would supplement older technology. The CLECs presented evidence that TFI has been overly aggressive in its estimates of the rate of substitution in prior studies it has presented in regulatory proceedings. The CLECs question the relevancy of financial lives to determining a change in economic value. Financial lives are intended to protect investors from understated expenses or overstated investments.

In docket 6720-TI-161, the Commission decided to use the longest lives in the Commission-prescribed ranges. Per Wis. Stat. § 196.09(9), the Commission is required to biennially review its ranges of depreciation for telecommunications utilities. The

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Commission-prescribed lives are forward-looking lives as explained in the order in docket 05-DT-104, which was reaffirmed in docket 05-DT-105, at 3, in December 2002.

In setting the attached ranges, the Commission analyzed telecommunications technology trends and the levels at which new technology is being installed by telecommunications utilities. The Commission has considered the causes of retirements of telecommunications plant, including wear and tear, decay, actions of elements, inadequacy, obsolescence, changes in technology, changes in demand, and requirements of public authorities. The Commission's analysis reflects forward-looking depreciation rates.

The Commission's biennial evaluation considers all the factors necessary to develop forward-looking lives that are reasonable to use in TELRIC cases. The Commission's lives fall between SBC financial lives and the FCC prescribed lives. In this proceeding, in light of the new information about declining access line utilization and changing technology, the Commission determines it is reasonable to shift to shorter lives than were used in docket 6720-TI-161. However, this decision is moderated by the relatively small magnitude of this change at this time and by evidence of longer operating lives in practice. As the Commission regularly reviews its forward-looking depreciation ranges, the Commission determined that it is reasonable to use the mid-point of the Commission ranges in determining depreciation rates to use in TELRIC studies.

The Commission finds under state law that the mid-point of the Commission prescribed ranges is a reasonable determination of the depreciation lives applicable to loop plant. Consequently, the Commission concludes that use of such lives is consistent with the competition promotion and efficiency factors in Wis. Stat. § 196.03(6)(a) and (f), and is consistent with the federal requirements for the use of economic lives in establishing

depreciation costs in a TELRIC cost study model. See 47 C.F.R. § 51.505(b)(3) and *Triennial Review Order*, ¶ 689.

**(3) Fill Factors**

**(a) Use in Cost Models**

Fill factors are used in cost models to assign cost recovery responsibility for the investment in an efficient forward-looking network over the number of lines that will be generating revenues. See 47 C.F.R. § 51.511. The formula for assigning cost responsibility usually involves dividing projected actual usage by total capacity. For the cable and wire investment that goes into a loop, the number of working lines divided by the number of installed lines is the fill factor for those facilities. The fill factors used in the cost model determine the utilization rate (inversely the spare capacity) of the network to be modeled. If there is a low fill factor, the network modeled will have an abundance of excess capacity and will require higher rates to recover the investment in that excess capacity. If fill factors are too high, the network modeled will not have enough capacity to handle expected growth, may be subject to more service outages, installation delays and other problems, and produce revenue from the resulting rates that would be too low to recover the cost of increasing network capacity.

**(b) Legal Standard**

The FCC established a fairly general standard for the level of fills that can be used in a TELRIC study, stating that the incumbent provider could recover its forward-looking costs by using “reasonably accurate ‘fill factors’” based on “a reasonable projection of actual total

usage.”<sup>22</sup> In its § 271 orders, the FCC has accepted a wide range of fill factors as consistent with TELRIC principles.<sup>23</sup> In addition, as noted above, the Seventh Circuit Court of Appeals has concluded that the use of actual fill factors would not violate TELRIC principles if those fill factors are the efficient ones or are within a reasonable range of an efficient fill factor.<sup>24</sup>

**(c) General Analysis**

The boundaries for what could be considered a reasonably accurate fill factor are SBC’s current actual fills on the lower end and, on the upper boundary, some version of usable capacity. A number of terms have been used to describe the upper boundary, including “target fills” and “objective usable capacity” fills.<sup>25</sup> It is an engineering judgment as to the highest usage rate that could be sustained while operating efficiently and allow for enough spare capacity to accommodate maintenance needs, churn, administrative services, and lumpy construction intervals.<sup>26</sup> When usage reaches this upper boundary, it is more efficient for the company to install additional capacity than to continue to increase usage on the existing facilities.

The Commission considers SBC’s current actual network fills to be a lower bound because these fills reflect SBC’s embedded network; they are not the fills that could be expected to be achieved in the efficient, forward-looking network that the FCC rules require. SBC defended its use of actual fills by citing the decision in *AT&T Communs* that the use of actual

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<sup>22</sup> *Local Competition Order*, ¶ 682:

“...[p]er unit costs shall be derived from total costs using reasonably accurate fill factors (estimates of the proportion of a facility that will be filled with network usage); that is, the per - unit costs associated with a particular element must be derived by dividing the total cost associated with the element by a reasonable projection of the actual total usage of the element.

<sup>23</sup> *Virginia Arbitration Order*, ¶ 243. In footnote 639, the FCC noted that its 271 orders had previously found that 48 percent distribution fill did not violate TELRIC, 30 percent did violate TELRIC as too low, and that a 40 percent distribution fill factor may be too low.

<sup>24</sup> *AT&T Communs*, 349 F.3d at 411.

<sup>25</sup> Testimony of William Palmer, Tr. 1067 – 1070, 2560 – 2564.

<sup>26</sup> From Ameritech’s November 1999 ACAR, Tr. 2563.

fills does not violate TELRIC principles if those actual fills are efficient, forward-looking fills. This opinion still leaves SBC with the burden of convincing the Commission that it would construct a new, efficient, forward-looking network that essentially duplicates its existing network. The Commission is not so convinced.

SBC has conceded that a forward-looking network would have more fiber and less copper in its feeder routes than it currently employs and adjusted its model to include this additional fiber, along with the accompanying DLC equipment. SBC has not modeled any changes to its distribution segment of its network, insisting that even a new network would be built over time with regular augmentation, not constructed all at once to meet current demand.

The CLECs counter that over the many years SBC has operated, its network has accumulated a considerable amount of excess and redundant plant, and that SBC's distribution routes would be sized more efficiently if the network were built new today. The CLECs emphasized that excess plant naturally results from forecasting mistakes, changes in usage as neighborhoods change, technological changes, and the introduction of competition, which has led to a gradual reduction in SBC's total lines in service.

SBC conceded that some routes may have lost demand over time, but pointed out that other routes have seen more growth than anticipated and stated that on average its fill rates would not change. This position by SBC ignores the asynchronous nature of network construction. Once cable and wires are installed, they stay in place even if the forecasted demand does not materialize. On the other hand, routes where growth exceeds forecasted demand will be augmented to keep fill levels on each route within usable capacity limits. While neither party introduced data to document the impact that correcting these network inefficiencies

would have on SBC's fill factors, it is reasonable to assume that SBC's fill factors would be higher if the network were sized to meet current demand and a reasonable estimate of future growth.

The CLEC position is that the fill factors approved in the *UNE Decisions* should be retained because SBC was unable to document any change in facts,<sup>27</sup> and there has been no change in law. In its *UNE Decisions*, the Commission used SBC's target fills for loop investment, which were the upper boundary for what could be considered a reasonable range.<sup>28</sup> The primary reason the Commission chose the upper boundary was that SBC used the same target fills in its filing with the FCC supporting its rates for payphone loops and asserted that the resulting cost exceeded its long run incremental cost. In reaching this conclusion, the Commission acknowledged that there is a difference between the cost standard for total service long run incremental cost studies (TSLRIC) that set price floors and for the TELRIC studies used to set wholesale rates, but concluded that the distinctions were not sufficient to justify the unreasonable increase in costs that would result from using SBC's actual fills.<sup>29</sup>

SBC focused on four areas to support a change in fill factors. First, it asserted that the FCC's clarification of its rules for fills amounts to a change in law. Second, it produced evidence that the *UNE Decisions'* loop rates do not allow it to recover a reasonable percentage of its embedded costs and thus do not meet the TELRIC standards. Third, it argued that no

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<sup>27</sup> While SBC maintains that its fill factors have been stable, it changed the way it measured actual fills for its copper distribution plant by removing uncommitted pairs from its inventory. The resulting actual fills for distribution are significantly higher than its actual fills on the record in the 6720-TI-161 docket. See direct testimony of William Fletcher, Tr. 588.

<sup>28</sup> *UNE Final Decision*

<sup>29</sup> *Id.*, at 141,142. The rate impact of choosing fills at the upper or lower fill factor boundaries for the *UNE Final Decision* was even more extreme than the rate impact of fills set at the upper and lower boundaries in this record.

provider would operate its network at the target fill levels because there is no spare capacity to accommodate growth. Finally, SBC again emphasized the distinction between TSLRIC and TELRIC cost studies and that the fact that those studies are used for different purposes means that the fill factors should not be the same.

The Commission agrees with the CLECs that there has not been a significant change in law or facts since its *UNE Final Decision*. The FCC's rule clarifications and the court decisions since 2002 do not conflict with the legal standards the Commission used. While the FCC may be considering a change in its rules, those rules are still in effect and continue to serve as the legal guide to follow. The Commission is not persuaded by SBC's testimony regarding its embedded costs as reported in its ARMIS accounts because those costs are not the correct standard to use to evaluate TELRIC rates. The Commission also does not find anything in SBC's discussion of the difference between TELRIC and TSLRIC cost standards that the Commission did not consider in its *UNE Decisions*. The Commission recognizes the need for spare capacity to accommodate growth.

The primary reason the Commission is considering new fill factors is that the parties provided a record that allows the Commission to make a more reasonable estimate of appropriate fills for an efficient, forward-looking network. In the *UNE Final Decision*, the majority of the Commission found that the record in docket 6720-TI-161 supported a choice of either using the CLEC fills at one upper boundary of reasonableness, or the fills advocated by SBC, which were at the lower boundary of reasonableness.<sup>30</sup> While logic would suggest that if the fill factors at upper and lower boundaries are TELRIC-compliant, then a fill factor that is somewhere between

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<sup>30</sup> The primary evidence on record that looked at fill factors between the two extremes consisted of a series of sensitivity studies using different fill factors that staff asked SBC to run in its LFAM model.

those boundaries would also be TELRIC-compliant; the Commission was not willing in the *UNE Final Decision* to choose a fill factor on a “split the difference” basis. Once it reached the conclusion that the rates produced by using SBC’s actual fills would be completely unreasonable, the Commission decided to use the fill factors recommended by the CLECs.

In this docket, however, the record includes an updated Ameritech Cost Analysis Resource (ACAR)<sup>31</sup> that has lower usable capacity fills than the ACAR that was the basis for the fills in docket 6720-TI-161. SBC also included more details about how ACAR fills are developed and used. The record includes descriptions of how other commissions, including the FCC, were able to make a judgment about reasonable fills that were not at the upper or lower boundaries. There was data about the stability of fills over time, about how SBC’s network was engineered, built and augmented over time, and the importance of allowing for spare facilities to accommodate growth. The CLECs also provided alternative methods for calculating fills and accounting for redundant capacity in SBC’s network that allowed the Commission to make a better choice about where to assign fills that lie within the upper and lower boundaries of what is reasonable.

The record before the Commission includes persuasive testimony from SBC that its target fills do not provide enough spare capacity to accommodate a reasonable projection of future growth without making expensive upgrades to its network. Even though there was testimony that SBC has been losing lines rather than growing lines over the past four years, this does not mean that SBC should not engineer its network to accommodate growth. There have always been specific areas and routes that are growing and others that have been losing lines, and this

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<sup>31</sup> ACAR is SBC’s engineering assessment of the capacity usage that SBC itself would accept before making a determination of whether to augment the network.

can be expected to continue. It is reasonable for SBC to plan for growth in the most efficient manner, which, for distribution plant in particular, means that a reasonable amount of spare capacity should be installed when the initial cables and wires are placed. In determining total cost, the trade-offs between the cost of adding spare capacity initially versus the cost to augment the network on an as needed basis, serve as a critical guide to the Commission's choice of fill factors.

**(d) Analysis of Specific Fill Factors**

**(i) Distribution**

The distribution portion of the local loop, if built new today, would consist primarily of relatively small bundles of copper wires buried in the ground. The Commission is persuaded by the testimony of SBC's engineering witness that the bulk of the cost for these cables is incurred in the installation process. Because the incremental cost of adding extra capacity when the trench is open is small compared to the cost of adding additional capacity later, it is reasonable to assume a fill factor of 50 percent, which is much lower than the distribution fill in the *UNE Final Decision* and in SBC's latest ACAR.

The Commission finds that it is not reasonable to use SBC's actual fill factor (which is less than 50 percent) because a forward-looking, efficient network would not include all of the excess and redundant capacity that has built up in SBC's network over the past century. In addition, SBC testified that it sized the distribution network to meet "ultimate demand." This standard may make sense in a regulated environment, but may not be appropriate in a competitive market where customers have other options for service. The Commission also believes that the demand for SBC's lines will not grow at the same rate as SBC expected when

its distribution plant was initially installed. Taking these factors into consideration, the Commission believes that a fill factor that is closer to SBC's actual fills than its target fills, but accounts for inefficiencies in SBC's existing network, is reasonable. The Commission finds a 50 percent fill factor for distribution should be used.

**(ii) Copper Feeder**

The feeder portion of SBC's network, if built new today, would have fiber in most of its routes. In fact, fiber might be placed in all feeder routes. This would be problematic for costing out a UNE network in light of the FCC's decision<sup>32</sup> to limit the ability of CLECs to access SBC's fiber network. Given that CLECs need access to all-copper UNEs, there must be some allowance for copper feeder, even in a forward-looking network built new today.

The trade off between installing larger copper cables initially, and adding more capacity later, is similar for copper feeder as for copper distribution plant, but not as compelling. Much of the feeder network travels through conduit instead of being buried directly in the ground, so it is possible to run more cables through the conduit without digging up streets and sidewalks. In addition, pair gain devices make it possible to add more capacity to existing cables. For these reasons, the spread between SBC's ACAR and its actual fills is not as great as for copper distribution plant. A reasonable fill factor for copper feeder plant is 65 percent. This fill lies between SBC's actual fill for copper feeder and its ACAR fill, but is closer to SBC's actual.

**(iii) DLC Chassis and DLC Plug-In**

The digital loop carrier (DLC) investment provides the electronics for converting electronic signals into light, transmitting the signals between the central office and remote

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<sup>32</sup> *Triennial Review Order*, ¶ 197-202.

terminals, and converting the signals back from light into electronics for switching and for distribution to retail customers. DLC also multiplexes, compresses and de-multiplexes the signals so that hundreds, and even thousands, of individual lines can be simultaneously transmitted over a single fiber optic cable. This means that the carrying capacity of the fiber is essentially limited only by the type of DLC in the network. The parties agree that the best way to model usage on the fiber for cost recovery purposes is to apply or translate the fill factor from DLC investment to the fiber investment.

There are two parts to DLC investment, the DLC chassis and the DLC plug-in cards. The chassis is the framework or cabinets that house the rest of the loop electronics. Plug-in cards, which fit into the chassis, contain the actual electronic equipment that carry out the DLC functions. It is relatively easy to add additional capacity to the fiber feeder network by plugging additional cards into the DLC chassis as needed. Because the DLC chassis is housed in buildings owned by SBC, the incremental cost of adding additional frames and cabinets is also relatively small. Because there is little cost advantage from installing excess capacity at the time of original construction, the future period is equivalent to current demand.

The parties' positions on fill factors for DLC chassis and DLC plug-ins are the same as for other parts of SBC's loop investment: SBC proposed using its current fill factors, while the CLECs advocated for the fill factors from the *UNE Final Decision*, with SBC's latest 1999 ACAR fills as a back-up. SBC's fills on its DLC, especially its DLC chassis, are much lower than its ACAR fills, in some areas approaching its distribution fill. SBC was not able to provide a good explanation for why this should be the case in an efficient, forward-looking network.

SBC's engineering witnesses even testified that feeder fills should be much higher than distribution fills because of ability to augment the feeder on an as needed basis.

The CLEC witnesses suggested that SBC's feeder fills were so low because SBC has increased its feeder capacity at a much faster rate than its distribution capacity. They further suggested that this has been occurring because SBC has been replacing its copper feeder with fiber feeder, without retiring the copper. This results in excess, redundant capacity that would not be created if the network were built new today. SBC denies that it has excess capacity in its feeder network.

The Commission agrees with the CLECs that the fill for DLC chassis and plug-ins should be much higher than SBC's actual fills, and should be close to its ACAR fills because it is relatively easy to augment feeder capacity as needed. The Commission determines that the fill factor for both DLC chassis and DLC plug-ins should be 70 percent.

Commissioner Garvin dissents on this issue, preferring to use SBC's 1999 ACAR fills.

**(iv) Fiber Feeder and Percent Fiber Utilization**

In SBC's LoopCAT model, the fill factor for fiber feeder investment is the product of two inputs, the DLC chassis fill and the percent of the fiber strands in its feeder cables that are active (the fiber utilization). The DLC chassis fill is used because the actual capacity of the feeder fiber is determined by the DLC investment on each end of the fiber. The percent of active fiber strands is a more complex input.

SBC installs more fiber strands in its feeder route than it will actually use for providing basic telephone service for two reasons. First, fiber cable comes in discreet sizes that do not necessarily match the number of fibers that SBC needs; and, second, it is relatively inexpensive

to install extra fibers when the cable is being placed. These excess fibers are then available to accommodate future needs and to sell as “dark fiber” to other carriers.

SBC again advocated the use of the percentage of active fiber strands that it has in its network today, while the CLECs’ position is that the model should assume 100 percent active fiber strands. The CLECs point out that they will not benefit from any of SBC’s excess fiber capacity for their UNE loops, while SBC will be able to sell the extra fiber strands as dark fiber in addition to using them for other purposes such as its special access and broadband businesses. The Commission acknowledges the position advocated by the CLECs; however, the Commission finds that the reasonable percent active fiber strands is 80 percent. This percentage will allow SBC to recover some of the costs it incurs because fiber cables typically have more fiber strands than SBC needs when it installs fiber in its feeder network. This decision on fiber utilization, combined with the DLC chassis fill determined above, results in a fiber feeder fill factor of 56 percent.

**(v) Premises Termination**

In docket 6720-TI-161, the investment in premises termination was included with the distribution portion of the loop. In contrast, this docket has provided the Commission with its initial look at the cost of this sub-element.

Premises termination consists of network interface devices (NIDs) and drop wires (Drops). NIDs are boxes attached to the outside of buildings that are used to connect the inside wire owned by the customer to the telephone company’s network. Drops are the pairs of copper wires that “drop” from the telephone pole down to the individual premises; although in a forward-looking network, most of these drop wires would actually be buried.

SBC decided to calculate the cost of NIDs and Drops separately from distribution because the cost of installing this equipment is quite different from the cost of installing cables with multiple wires. This cost difference comes from the fact that premises termination equipment is dedicated to individual customers and for the most part must be installed on an individual customer basis. In the rest of the network, each project will cover a larger area and the cost can be spread over many customers. In addition, in the rest of the network, there is no dedicated spare capacity because each spare wire can be assigned to different premises. Using LoopCAT, SBC estimated that the cost for premises termination is a significant share of the cost of the loop, with a corresponding decline in the percent of the cost of the loop assigned to distribution.

SBC also decided to estimate the cost of NIDs and Drops using a “bottoms-up” method instead of loading installation costs onto the cost of materials, like LoopCAT does for feeder and distribution. Because the Commission has less experience doing bottoms-up cost estimation for the Drops (the installation cost of NIDs is not significant), it is difficult to evaluate the reasonableness of SBC’s travel and set-up times as well as its estimated installation costs. There was little independent evidence in the form of separate accounting data or a Job Administration Management System (JAMs) estimation tool for NIDs and Drops, and there were no prior studies that could be used as a reasonableness test. As a result, the Commission is left with the choice of either accepting SBC’s cost estimates or adopting one of the alternatives provided by the CLECs.

The CLECs introduced their own estimate for the cost of installing NIDs and Drops that featured lower labor costs, multiple installations per trip, less set-up time, smaller NIDs, fewer

lines per premise and other adjustments that produced significantly lower costs. They also objected to SBC's use of a "bottoms-up" method for premises termination after it used loading factors to estimate the installation cost for the rest of the loop. They proposed, in the alternative, that costs be estimated by applying a recalculated distribution loading factor to the NID and Drop material costs. This recalculated loading factor also produced significantly lower cost estimates.

After evaluating the record, the Commission concludes that the assumptions used by SBC to estimate premises termination costs are more reasonable than the assumptions used by the CLECs. The Commission is also persuaded that the cost characteristics for installing NIDs and drops are sufficiently different from the cost of installing the rest of the network that it is more reasonable to separate the cost calculation instead of combining premises termination with distribution into a single loading factor.

Because SBC used a fill factor for premises termination in its LoopCAT model, the Commission needs to choose a fill factor. SBC used a NID with the capacity to terminate six lines, so it developed a fill factor by dividing the average number of lines per premises, which is slightly higher than one, by the capacity of the NID. The resulting fill factor is close to the confidential level identified by SBC. The CLECs proposed using the same fill factor of 70 percent for premises termination that was used for the distribution network in docket 6720-TI-161. The Commission also considered alternatives of using the distribution fill factor in this docket and of adopting the CLEC proposal to use a NID with the capacity of three terminations and dividing the average number of lines by three.

Based on the record developed herein, the Commission concludes that the premises termination fill proposed by SBC is the most reasonable to use with LoopCAT. Because of the way LoopCAT is designed, any of the proposed fills that are higher than the one used by SBC produces results that are not reasonable. The CLECs simply failed to support their proposed adjustment.

The Commission finds that the fill factors set forth above satisfy Wis. Stats. § 196.03(6)(a) and (f) by setting rate-affecting fill factors consistent with the preservation and promotion of competition and the promotion of efficiency and productivity. The resultant LoopCAT modeled costs are consistent with TELRIC as set forth in 47 C.F.R. § 51.505 and other relevant federal rules and orders.

A consequence tied to fill factors must be addressed as well. In relation to network utilization and the fill factor, SBC proposed an adjustment to maintenance expenses if the Commission adopts any fill factor other than SBC's actual fill factor. SBC initially supported this adjustment with the claim that lower amounts of spare capacity can increase the time spent on maintenance functions. The CLECs testified that SBC's proposal has the effect of reducing the impact of any adjustment the Commission might make from SBC's proposed actual levels of fill. As noted by the CLECs, SBC provided no evidence that there is a linear relationship between maintenance expenses and levels of utilization. Indeed, ACAR utilization levels are described as the point of maximum utilization at which the network can be operated before needing augmentation of capacity. If the Commission were to adopt a fill level higher than ACAR levels, then it might be reasonable to consider the possible effect on maintenance costs, but the Commission is not adopting such high levels.

SBC altered its justification for the adjustment to claim that the purpose of its adjustment is to keep the level of maintenance expenses constant. The Commission determines that the use of factors in SBC's models is premised on demonstrated empirical relationships between various types of costs. The Commission finds no reasonable basis with respect to maintenance expenses to deviate from the use of demonstrated linear relationships simply because the Commission reduced the investment in plant (to which the maintenance expense relates) to a level lower than SBC proposed.

**(4) Installation Factors**

SBC includes plant installation costs in the TELRIC model through the use of installation factors that are based on the relationship between materials costs and installation costs (e.g., labor, trenching, etc.). In computing its installation factors, SBC used a three-year average from its general ledger of capitalized non-materials costs by plant type and then divided by materials costs by plant type. This developed a separate factor for each plant type such as buried, aerial, underground, fiber, copper, and circuit equipment. This type of factor is generally referred to as a "linear loading" factor.

In contrast, the CLECs proposed to develop installation costs based on the time and materials necessary to perform the installation tasks. The CLECs used data from SBC's Job Administration Management system (JAMs) for cable and wire investment, and a 1999 business case presented to investors for a major network upgrade referred to as Project Pronto, for DLC and DS-1 circuit equipment. The CLECs' method is generally referred to as a "bottoms-up" factor. In this proceeding, the Commission determines that it is reasonable to continue to use

linear loading factors, which were also used in docket 6720-TI-161, for determining installation costs.

The basis for the CLECs' proposal to change the method of determining installation costs was that on a project-by-project basis there is not a linear relationship between materials costs and installation costs. For instance, it does not cost more to install a 200-pair cable than a 100-pair cable. Further, it does not cost more to install a DLC with a capacity of 2016 lines than to install a DLC with a capacity of 672 lines. The CLECs believe SBC's method unfairly burdens high-capacity equipment with an unreasonable proportion of installation costs. The CLECs also believe that their method would better reflect the efficiencies of constructing large jobs instead of piece-meal augmentations. The CLECs further asserted that the FCC does not allow the use of embedded costs, and that general ledger data are embedded costs.

SBC's concern about the bottoms-up method was that it cannot be relied upon to capture all costs; in particular, for difficult installations like directional boring and trenching through rock, or unforeseen circumstances such as traffic, weather or breakdowns. SBC supported its linear loading method as a reasonable means of capturing total long-run average installation costs over a variety of situations. General ledger accounting data is verifiable and is used for reporting to the FCC and the Securities and Exchange Commission. The general ledger data provides sufficient detail by plant type to develop separate factors by plant type to use to develop the forward-looking costs of a network based on current technology. The general ledger data used covered the three most recent years of activities and was not the embedded cost of SBC's network.

The Commission determines that it is reasonable to continue to use linear loading factors. Linear loading factors have been applied on an unchallenged basis in prior UNE proceedings. Linear loading factors have been used for decades in a variety of cost studies. Construction costs on a per unit basis may actually increase in high density urban areas due to construction issues such as structure obstacles, congested traffic, and more municipal regulations. Although such factors may not reflect an exact relationship between the materials and installation costs for any one particular project, on average, linear loading factors are a reasonable tool for estimating forward-looking installation costs. During a time period of decreasing materials costs and increasing labor rates, the use of three prior years' data in the linear loading factors provides a conservatively low estimate of installation costs.

There are advantages and disadvantages to any particular method of determining installation costs. The CLECs did not convince the Commission that there was anything sufficiently problematic with the linear loading method to move the Commission to change from this long-established method.

SBC also demonstrated, for the factors developed using the JAMs data, that the difference between the CLECs' proposed labor rate and SBC's proposed labor rate explained the difference in the resulting UNE rates. The CLECs' labor rate proposal was primarily based on the assumption that an efficient new provider would not have a unionized labor force. The Commission determines that nothing in TELRIC requires the Commission to assume a non-unionized labor force.

For DLC and DS-1 circuit equipment installation costs, the CLECs testified that SBC's proposed factors were a change from the method that was used to develop linear loading factors

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in docket 6720-TI-161. The March 22, 2002, *UNE Final Decision* explained that the CLECs believed that DLC electronics should have no installation costs as those costs would be included in the vendor prices on Litespan DLC. In that earlier docket the Commission accepted SBC's factor on the basis that SBC did not apply its higher hardware factor for installation costs and only applied a much smaller factor to account for the engineering and installation costs it actually incurs with Litespan DLC.<sup>33</sup> In this docket, the CLECs proposed to use the Project Pronto business case to develop installation factors that would be appropriate to apply to Litespan DLC.

SBC witness Fletcher testified that the Project Pronto business case is over five years old and was developed before SBC had experience with the actual costs of installing Litespan DLC. Witness Fletcher testified that numerous costs were missing from the Project Pronto business case. However, on cross examination, Fletcher acknowledged that he did not know how DLC installation costs were included in the TELRIC model. SBC witness Smallwood countered that it would be unreasonable for the Commission to rely on a business case that was developed over five years ago and ignore all of the actual data that SBC has that are reflective of real placement costs in recent years. Although the general ledger data is not granular enough to readily allow identification of installation costs for each specific type of digital circuit equipment, those costs can accurately be developed on average for all circuit equipment. The CLECs also presented what they believed to be corroborating evidence from Texas and California proceedings and *ex parte* calculations provided to the FCC, but SBC showed the data was not directly comparable.

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<sup>33</sup> *UNE Final Decision*, at 146-147.

While the Commission agrees with the CLECs that Litespan DLC does include an amount of pre-assembly, the situation here is different than in docket 6720-TI-161 because SBC has actual experience with installing this type of equipment. The Commission agrees with SBC that the CLECs' corroborating evidence is not directly comparable. The Commission determines that it is reasonable to change from the method used in docket 6720-TI-161 and use SBC's installation factors for DLC and DS-1 circuit equipment based on the three most recent years experience including installing LiteSpan DLC. The Commission is not convinced that any further adjustment is necessary.

The CLECs further proposed that if the Commission did not adopt its bottoms-up approach that the Commission should adjust the general ledger-based factors to reflect large construction jobs. The CLEC witnesses Pitkin and Turner testified that SBC general ledger data (a) included projects with no material costs or with negative costs for more than half the projects included, and (b) included piecemeal rearrangements, augmentations, and small and less efficient jobs than those associated with a scorched node, forward-looking cost study as required by the FCC. However, SBC witnesses testified that zero or negative costs can be caused by (a) materials not purchased in the year of construction, as undertakings stay open for more than one year, (b) credits from manufacturers, and (c) costs that are classified to general wire center or statewide undertakings that are later reclassified, causing negative costs. SBC testified that using a three-year average smoothes out these anomalies. SBC witnesses testified that if all jobs over \$20,000 are included without any limit on the materials used, then the factors are not adversely affected. SBC witnesses also testified that it is reasonable for factors to be based on construction

that takes place over a period of time, and that large jobs are made up of a number of smaller projects.

The Commission does not adopt the CLECs' proposed adjustments to the general ledger-based factors as it is not convinced that the accounting anomalies and size of jobs identified by CLECs cause the factors to be inappropriate for developing forward-looking costs.

The CLECs also testified that SBC was inconsistent and used linear loading factors for all installation costs except NIDs and Drops where it used a bottoms-up method. This issue is discussed in conjunction with the fill factor as SBC proposed both a separate fill factor for NIDs and Drops and a new method of determining costs. The Commission recognizes that these are changes from the methods adopted in docket 6720-TI-161. The basis for the Commission's acceptance of these changes is discussed in the fill factor section of this order.

The Commission concludes that SBC's proposed linear loading factor for installation costs is TELRIC compliant, and as such, preserves and promotes competition and efficiency in the rate development process, consistent with Wis. Stats. §196.03(6)(a) and (f).

#### **(5) Annual Cost Factor Adjustments**

After the cost of investment in forward-looking plant is determined, those costs are converted to annual, and then monthly, costs through the use of annual cost factors (ACFs). The ACFs also capture the cost of capital, depreciation, taxes, maintenance and other operating expenses associated with that investment. The determinations for the cost of capital, depreciation and taxes are discussed elsewhere in this order. Additional operating expense factors are added to the capital cost factors in the ACFs in order to capture the maintenance and other operating expenses associated with the investment in plant.

Expense-to-investment relationships for the study planning period of 2004 to 2007 were used to develop these maintenance factors and other expense factors. In determining the expense-to-investment relationships for the maintenance factor and other expense factors, SBC initially used general ledger accounting data which were then adjusted to forward-looking costs. The general ledger data matches particular categories of expenses to the same categories of investments, i.e., fiber and copper cable costs rather than total cable costs. The booked investments for each category of investment were then brought forward to current replacement cost levels based on current cost to book cost (CC/BC) ratios. The current expenses are divided by the restated investment amounts to compute the expense factors.

**(6) Maintenance Expense for Older Plant**

Commission staff presented the option of whether or not the Commission would continue to make an adjustment to the maintenance factor that it made in docket 6720-TI-161. In docket 6720-TI-161, the Commission adopted a CLEC-proposed adjustment which removed a portion of maintenance expenses from the calculation of the maintenance factor due to the age of the plant in SBC's operating environment. The purpose of the adjustment was to create a reasonable input for the TELRIC models in light of the shorter lives in the TELRIC model compared to the longer lives SBC experiences in its operating practice. The CLECs did not propose the same adjustment in this proceeding, but did propose an adjustment to maintenance expenses to reflect productivity based on trends of decreases in expenses per access line that was similar to, albeit larger than, the Commission's productivity adjustment in docket 6720-TI-161.

Staff, in response to the CLECs' testimony, presented the Commission's former adjustment and provided a more detailed analysis and computation if the Commission chose to

continue to apply the same type of adjustment as 6720-TI-161. Staff pointed out that it was unclear whether the CLECs' productivity adjustment should be viewed as an alternative to, or an addition to, the Commission's adjustment for older plant. The CLECs did not provide any response to this question, or in general to staff's maintenance adjustment proposal, although they had an opportunity to do so in live surrebuttal testimony.

In addition, the record contained some conflicting information regarding the theoretical basis for the older plant adjustment. Upon cross examination, SBC witness Aron did agree that it is conceptually incorrect to put maintenance expenses for a fully depreciated plant into a TELRIC model, supporting the staff-proposed adjustment. The staff adjustment was based on the premise that maintenance expenses increase with the age of the plant. Staff supported a five percent rate of increase in expenses by explaining that rate would be the equivalent to doubling maintenance expenses every 15 years. However, SBC witness Fletcher, upon cross examination, did not believe that age alone was the sole factor increasing the likelihood of corrosion and defects.

SBC's model includes maintenance expense associated with fully depreciated plant. In the hearing, CLECs failed to challenge such treatment. The parties did not argue the issue on their briefs. Staff's proposal as to an annual rate of increase in expenses based on docket 6720-TI-161 has no operational or empirical support. The balance of the evidence on this point is close, but the Commission determines that SBC has made a case for no adjustment of the maintenance expense. Although this is a change from the treatment in the *UNE Final Decision*, the weight of the evidence turns on the fact that the total of SBC's incurred maintenance expense was not challenged as to its legitimacy. This lack of challenge tends to support the implication,

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from SBC witness Fletcher's credible testimony noted above, that a direct relationship between plant age and maintenance expense cannot be definitively established. Therefore, upon further review of the issue, and recognizing the necessary balancing of model elements where no model is ever "perfect," the Commission finds that SBC's proposed lack of adjustment to maintenance expense is an instance where actual maintenance expenditures are likely more probative of forward-looking maintenance costs for which a TELRIC-compliant UNE loop rate must provide recovery.

Commissioner Garvin dissents on this issue, preferring retention of the maintenance adjustment in docket 6720-TI-161 as a more forward-looking approach.<sup>34</sup>

#### **(7) Inflation and Productivity Adjustments**

Two adjustments to convert current costs to forward-looking costs are inflation and productivity as they relate to operating expenses.<sup>35</sup> Adjustments related to inflation on investments, or related to spare capacity are discussed in the cost of capital and fill factor sections of the order respectively. Further adjustments related to the age of plant in SBC's operating environment, property (ad valorem), taxes and space leased to non-affiliates are discussed separately.

SBC proposed an inflation adjustment based on the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). SBC made no explicit offset for productivity as it believed productivity was captured in the forward-looking redesign of its network in the

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<sup>34</sup> Commissioner Garvin notes that, with the adjustments sought by his dissents, SBC's two-wire analog loop rates would be: Zone A, \$10.72; Zone B, \$12.19; Zone C, \$14.71; and a statewide average of \$11.36.

<sup>35</sup> A removal of non-regulated costs is effected by the adoption of the Interlocutory Order's underlying party stipulation.

TELRIC models. The CLECs proposed a productivity offset, or at a minimum, removal of SBC's inflation adjustment on the assumption that productivity will be at least equal to inflation. The CLECs also proposed that if the Commission does include an inflation adjustment, the adjustment should be based on the Producer Price Index (PPI), not on SBC's proposed CPI-W. In docket 6720-TI-161, the Commission adopted a 3.0 percent annual productivity offset to inflation. In this proceeding, the Commission determines that it will include inflation based on the PPI and a 3.0 percent annual productivity offset.

SBC believes that it has already factored in productivity through the redesign of the network in the TELRIC models. Productivity factors measure productivity improvements over time, changes from the embedded base of equipment and processes to newer, more efficient, technologies and processes. This course of change is reflected in the TELRIC models through the use of a greater amount of fiber than copper, and the lower maintenance costs of fiber compared to copper. The CLECs agree that the TELRIC studies include the productivity gains that occur as one moves from the embedded to forward-looking technology and refer to that as anticipated productivity. However, the CLECs identify numerous other sources of productivity that are not captured in the network redesign.

CLEC witnesses Starkey and Fischer presented documentation of SBC's November 2003 conference with Wall Street analysts that discussed financial and operational performance for the first three quarters of 2003 compared to previous years, and provided projections of performance through 2004. The witnesses included exhibits of the handouts from this investor briefing. These documented \$1.3 billion in annual capital and expense savings for SBC by 2006. Additionally, on May 25, 2004, SBC announced that it had reached a new labor agreement with

the Communications Workers of America (CWA) that will result in a savings to SBC approaching \$2 billion over the five years of the agreement. The exhibits and testimony document numerous cost savings initiatives that will not be captured in the network redesign. These include the consolidation of call and network centers, consolidation of technical support, automation of outside plant records, more efficient geographical positioning system (GPS) technician routing, and continuous improvement by using best-in-class metrics.

SBC claimed that the initiatives included both expense and capital improvements so that the relationships in its factors would remain reasonable. However, CLEC witnesses Starkey and Fischer noted the pages in the investor briefing that explained SBC's continued reductions in expenses, while SBC's projected 2004 capital investment was expected to be close to the 2003 actual capital investment of \$5.2 billion. This demonstrates that the relationship between investments and expenses would actually be expected to change as a result of these productivity improvements.

The CLECs presented various estimates of productivity based on financial historical reductions in expenses per access line from 1991-2003 and forecast that trend through the study period to the midpoint year 2005, which translated into a total of 12.08 percent productivity gain expected over this time period. They provided an exhibit of the Trends in Telephone Service prepared by the FCC that noted productivity increased an average of 6.0 percent per year from 1951 to 2000.

While the Commission agrees with the CLECs that there is a substantial amount of productivity that would not be captured by the TELRIC network redesign, the Commission also notes that the CLECs did not make any adjustment to their estimates of total productivity to

reflect the productivity already captured in the TELRIC models. Comparing the historical 12.08 percent over the study period, or the historical 6.0 percent annual figure from the FCC, the information about significant new cost savings initiatives, as well as the fact that some degree of productivity is already captured in the TELRIC models, the Commission determines that the 3.0 percent annual productivity offset used in docket 6720-TI-161 continues to be reasonable. Developing cost study inputs routinely involves estimates and judgments. On this issue, the CLECs have convinced the Commission that there are productivity improvements that are very likely to occur that have not been captured in SBC's TELRIC models and that need to be included to estimating forward-looking costs. While the Commission does not accept the CLECs' entire proposed adjustment, the Commission believes the 3.0 percent annual productivity offset is a reasonable figure based on the evidence available.

The Commission also addresses the issue of which measure of inflation should be used. SBC testified that the CPI-W should be used because SBC believes its operating expenses are driven by labor costs and inflation on labor costs. The CLECs testify that the CPI-W measures inflation as experienced by consumers in day-to-day living based on prices of food, clothing, shelter, and other goods and services that people buy in day-to-day living. The Producer Price Index measures inflation at earlier stages of the production and marketing process. The Commission determines it is reasonable to use PPI to forecast inflation to develop the prices of wholesale inputs furnished by SBC to other carriers.

The Commission determines that its adjustments for productivity and inflation are necessary for TELRIC-compliant cost modeling and are consistent with state law objectives to

preserve and promote competition and to promote efficiency per Wis. Stat § 196.03(6)(a) and (f), respectively.

**(8) Loop Conditioning Stipulation Regarding Service Order Activity**

AT&T and MCI contend that SBC's ACF proposal in both this proceeding and in docket 6720-TI-161 already recovers all of SBC's loop conditioning costs via the Other Expense Factor component, and thus, SBC should not be allowed to assess any additional loop conditioning rates and that no additional charge should be imposed in docket 6720-TI-177.

SBC conceded that "some small portion of its proposed recurring loop rates" (estimated by SBC at two cents or less per loop) "may recover some loop conditioning costs." (SBC Initial Br. at 136). SBC further stated that, upon the Commission's entry of an order adopting SBC's ACF cost model without further delay and reopening, SBC would not oppose the CLECs' proposal to close docket 6720-TI-177, without prejudice. Further, subject to a reservation of rights, SBC stated that it would cease to collect loop conditioning charges in Wisconsin, on a prospective basis, as of the effective date of the new recurring loop rates to be set in this proceeding. However, SBC maintained that the Commission should reject the CLECs' suggestion that the Commission "reject any . . . future proposal to recover loop conditioning costs in a separate recurring rate add-on" because it would be inappropriate for the Commission to pre-judge any and all future proceedings involving loop conditioning without even considering whatever evidence might be presented in such proceedings. To that end, SBC stated that it "reserve[d] its right to seek properly established, forward-looking loop conditioning rates in the future," if the quantity of loop conditioning demanded in the future grows beyond the demand underlying the loop conditioning costs included in SBC proposed rates in this proceeding, or

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SBC is not otherwise recovering all of its loop conditioning costs from the rates that are established in this proceeding. SBC Initial Br., *supra*.

The Commission determines that it is generally appropriate to adopt SBC proposal to accept the CLECs' argument on loop conditioning. In particular, the Commission finds it reasonable to allow loop conditioning costs to be included in the ACF model in this case, and therefore refrains from setting stand-alone loop conditioning rates for the period after the rates determined in this case become effective in any SBC-CLEC interconnection relationship. SBC is ordered to cease charging for loop conditioning at such time.

To the extent that there are disputes that cannot be resolved relating to the propriety of loop conditioning charges assessed for work prior to the application of the rates determined by this case, such disputes will not be considered in this docket, but may continue to be considered for decision in docket 6720-TI-177. In light of the above findings, it is unnecessary for the Commission to decide in this docket other contested issues relating to loop conditioning, such as whether some, all, or more than all, of SBC's forward-looking loop conditioning costs are included in SBC's ACF proposal, or how the Commission should rule on any future efforts by SBC to seek stand-alone loop conditioning charges. Therefore, the Commission makes no ruling on those issues at this time.

**(9) Property (Ad Valorem) Taxes**

The Commission understands the parties' arguments regarding the "ad valorem" tax factor to be, more properly, about property taxes as assessed pursuant to Wis. Stat. §§ 76.80 to 76.84.

SBC proposes that annual cost of property taxes should be modeled as currently paid because the tax is based upon actual book cost. The CLECs assert a current cost-to-booked cost adjustment should be made for purposes of model consistency. The CLECs proposed applying a composite current cost-to-booked cost (CC/BC) ratio to total plant investment using SBC's CC/BC ratios by account for 2002 data. The property tax factor would decrease by 28.6 percent.

The Commission concludes, in this instance, to accept SBC's proposal of a ratio of actual booked property tax expense to average book investment from the prior year. This is an instance where the actual expense, based upon actual booked plant, is the more efficient factor under the rationale in *AT&T Communs*. Moreover, the CLECs' argument for consistency for its own sake is at odds with the concept of a forward-looking TELRIC approach to a network sized to meet current demand. If a CLEC built such a forward-looking network now, it would pay taxes—recovered in its rates—on actual booked costs for its brand new equipment. Why should SBC, with the same tax obligation, recover tax expenses according to a CLEC model that assumes it would be paying less in tax by revaluing the plant equipment to current market values? The tax takes no regard for the market value, and, properly, the property tax factor should not either.

In this instance, the Commission finds that due to the nature of the property tax assessment, the property tax annual cost factor is more forward-looking when modeled on actual booked property tax expense and plant because that is the actual cost liability which the UNE loop rate must cover. The inclusion of property taxes is not discussed in FCC regulations or decisions, and the parties have cited no federal authority as to the treatment of property taxes in a TELRIC cost study. The Commission concludes under state law that using actual booked property tax expenses, as proposed by SBC, tends to preserve a level competitive playing field

and creates a more efficient UNE loop price, consistent with factors identified in Wis. Stat. § 196.03(6)(a) and (f).

**(10) Space Leased to Non-Affiliates**

This issue pertains to recovery of costs for collocation space in SBC central offices that is leased to non-affiliates under a separate rate. Including these costs in UNE loop rates, argue the CLECs, will double recover these costs. SBC counters that collocation space lease revenues are unpredictable, and therefore these costs should properly be included in loop rates rather than assuming that cost recovery will be accomplished in the future through separate collocation lease rates.

The CLECs make a strong case that SBC has received significant annual collocation revenues over the last five years, strongly suggesting that the revenue stream is predictable enough that SBC should not obtain double recovery for this space. The CLECs accordingly propose that the collocation rents received justify removing an amount from the building and land investment expense factor. CLECs proposed a reduction of 2.9 percent. SBC offers no persuasive counter to the CLECs' factual demonstration that the collocation arrangements exist, result in double recovery, and are not likely to disappear in the near future. The Commission finds the foregoing facts to favor the CLECs' position.

The Commission concludes, under state law, that the CLECs' proposed adjustment to the land and building investment factor in the Annual Cost Factors model promotes competition with wholesale rates that do not include a double recovery of costs, and promotes efficient pricing, consistent with Wis. Stat. § 196.03(6)(a) and (f), respectively. The Annual Cost Factors model shall be adjusted accordingly.

## VI. Other Legal Issues—Price Squeeze

As a separate legal concern, TDS Metrocom argued vigorously that SBC's proposed rate increase for UNE loop wholesale rates, when set beside SBC's residential loop rate, creates an unjust, unreasonable, and unlawful "price squeeze" in violation of Wis. Stat. § 196.204(3), (5), and (6). SBC, naturally, argues just as vigorously that there is no price squeeze demonstrated. Certainly, nothing in federal law prohibits application of state imputation tests. *See Local Competition Order*, ¶¶ 848-50. The Commission is concerned about any unlawful price squeeze, but the issue appears to be beyond the scope of this proceeding and the available record is insufficient to show the nature of any alleged price squeeze.

First, within the scope of the issue list, the only conceivable "price squeeze" statutory provisions that might be applicable are Wis. Stat. § 196.204(5) and (6). Subs. (6) creates an imputation test that sets a price floor on SBC's retail offerings when a CLEC must use an SBC unbundled network element that is also used in SBC's competing offering. TDS Metrocom argues, in effect, that because of the current retail SBC loop rates, the SBC wholesale loop rate must be kept unchanged or lowered to avoid a price squeeze on TDS Metrocom's retail offerings. However, a close reading of the statute suggests that any potential remedial action must be addressed, not to SBC's wholesale offering, but to the SBC retail loop rate, a matter beyond the scope of this proceeding.<sup>36</sup>

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<sup>36</sup> The structure of Wis. Stat. § 196.204(6) suggests it is not applicable to the instant wholesale rate. The statute creates an imputation test in subs. (a) applicable to the telecommunications utility generally, but in the wording of subs. (a)1. and 3. and subs. (b) appears to limit the test's actual application to a particular telecommunications utility retail service offering. This statutory language suggests that the imputation test is intended to put a price floor under the ILEC's retail offering vis-à-vis the competing CLEC retail offering, not under the price of the ILEC's wholesale element used in the CLEC's competing retail offering.

Second, TDS Metrocom asserts that the retail loop facility rate (\$8.01) of SBC is the total offering of SBC that would have to be tested under Wis. Stat. § 196.204(6), assuming *arguendo* that the statute is applicable. SBC's retail offering, however, includes usage charges which affect the actual price any consumer would pay for SBC's offering.<sup>37</sup> SBC also contends with some justification that TDS Metrocom's argument fails to account for all the additional features it can sell to generate revenue from a leased retail SBC loop, thereby challenging whether TDS Metrocom's prices are "squeezed." Without at least some data on the foregoing points, the Commission is unable to make any determination of the issue on this record.

## **VII. Other Legal Issues—Implementation Order Points**

As directed by Wis. Stat. § 196.197, the Commission is simply determining, or more precisely, calculating UNE loop rates (Appendix B) that flow from a cost methodology established by federal law. When allowed, Wis. Stat. § 196.03(1) and (6) guide the Commission's selection of factors and adjustments. Upon the effective date of this decision, the rates are available for implementation on a going-forward basis in new interconnection agreements and in existing interconnection agreements according to the terms of such agreements. Where permitted by Commission order, tariffs for UNE loop offerings may be amended as to their rates only, according to the terms of the relevant Commission order. SBC seeks immediate incorporation of the rates into existing interconnection agreements. But under *Wisconsin Bell, Inc., v Bie*, 340 F.3d at 444-45, such action would amount to a bypass of the

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<sup>37</sup> The Commission hereby takes official notice of SBC's current tariff for residential service on file with the Commission.

change-of-law provisions of interconnection agreements, and would be just as violative of § 252 of the Act as the Commission's ordering of tariffing of certain UNE services in *Bie*.

The parties have also apparently reached an understanding on the actual SBC accounting practices for the costs of loop conditioning, the pricing of which is currently the subject of Commission docket 6720-TI-177. Loop conditioning costs are captured in the other expense factor in UNE loop rates, thereby obviating the need for SBC to charge separately for the recovery of such loop conditioning costs. Consequently, it is appropriate for the Commission to order that SBC shall not recover the loop conditioning costs for any length loop upon the UNE loop rates in Appendix B becoming applicable as between SBC and any CLEC pursuant to an applicable tariff or a new, or amended, interconnection agreement between SBC and the CLEC.

#### **Order**

1. This order is effective upon mailing.
2. The Petition is granted with the modifications described in this order.
3. The final rates, as set forth in Appendix B, determined through application of the methodology established in this order, shall become available for inclusion in new or successor interconnection agreements the day after the order's mailing date.
4. The final rates, as set forth in Appendix B, may be incorporated into existing interconnection agreements according to the terms and conditions of those agreements. The Commission will address disputes over whether or not these rates should be included in existing interconnection agreements through complaints filed under Wis. Stats. § 196.199.

5. SBC may, at its option, the day after this order's issuance, make these rates available through tariff to a requesting carrier during pending negotiations or arbitration proceedings with that carrier.

6. The Commission's August 10, 2004 Interlocutory Order on the shared and common factor is hereby made final and incorporated herein by reference.

7. When any rate determined by this order becomes effective in an interconnection relationship (by tariff or contract) between SBC and another telecommunications provider, SBC shall immediately cease charging separately for conditioning of loops, regardless of loop length.

8. In light of the resolution of the recovery of loop conditioning costs as described in the Opinion, the Administrative Law Judge assigned to docket 6720-TI-177 shall conduct further prehearing or status conferences in that docket as he deems appropriate, modify the issues list consistent with this Final Decision's loop conditioning cost provisions, and, with or without hearing as consistent with due process, conclude the supplementary evidentiary proceedings ordered in docket 6720-TI-177.

9. Within 10 days of the mailing date of this decision, SBC shall file the cost study information supporting the calculation of the revised UNE loop rates set forth in Appendix B.

Docket 6720-TI-187

10. Jurisdiction is retained.

Dated at Madison, Wisconsin, \_\_\_\_\_

By the Commission:

\_\_\_\_\_  
Lynda L. Dorr  
Secretary to the Commission  
LLD:NAL:cdg:g:\order\pending\6720-TI-187 Final.doc

See attached Notice of Appeal Rights

Notice of Appeal Rights

Notice is hereby given that a person aggrieved by the foregoing decision has the right to file a petition for judicial review as provided in Wis. Stat. § 227.53. The petition must be filed within 30 days after the date of mailing of this decision. That date is shown on the first page. If there is no date on the first page, the date of mailing is shown immediately above the signature line. The Public Service Commission of Wisconsin must be named as respondent in the petition for judicial review.

Notice is further given that, if the foregoing decision is an order following a proceeding which is a contested case as defined in Wis. Stat. § 227.01(3), a person aggrieved by the order has the further right to file one petition for rehearing as provided in Wis. Stat. § 227.49. The petition must be filed within 20 days of the date of mailing of this decision.

If this decision is an order after rehearing, a person aggrieved who wishes to appeal must seek judicial review rather than rehearing. A second petition for rehearing is not an option.

This general notice is for the purpose of ensuring compliance with Wis. Stat. § 227.48(2), and does not constitute a conclusion or admission that any particular party or person is necessarily aggrieved or that any particular decision or order is final or judicially reviewable.

Revised 9/28/98

APPENDIX A  
(CONTESTED)

This proceeding is a contested case under Wis. Stat. ch. 227. Therefore, in order to comply with Wis. Stat. § 227.47, the following persons who appeared before the agency are considered parties as defined by both Wis. Stat. § 227.01(8) and Wis. Admin. Code § PSC 2.02(6), (10), and (12), for purposes of any review under Wis. Stat. § 227.53.

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## Appendix B

<b>UNBUNDLED NETWORK ELEMENTS TYPE</b>	<b>Recurring Rates Determined Herein</b>	<b>Previous Recurring Rates<sup>1</sup></b>
<b>UNBUNDLED LOOPS - END TO END</b>		
2-Wire Analog - Access Area A	\$11.53	\$9.51
2-Wire Analog - Access Area B	\$13.17	\$10.87
2-Wire Analog - Access Area C	\$15.86	\$15.25
4-Wire Analog - Access Area A	\$27.21	\$24.56
4-Wire Analog - Access Area B	\$32.36	\$27.70
4-Wire Analog - Access Area C	\$38.45	\$37.07
2-Wire Digital 160 Kbps [ISDN-BRI] - Access Area A	\$15.39	\$14.36
2-Wire Digital 160 Kbps [ISDN-BRI] - Access Area B	\$18.23	\$17.00
2-Wire Digital 160 Kbps [ISDN-BRI] - Access Area C	\$21.83	\$23.39
Ground Start - Access Area A	\$12.10	\$11.80
Ground Start - Access Area B	\$14.28	\$13.35
Ground Start - Access Area C	\$17.18	\$18.02
Coin - Access Area A	\$12.39	\$9.96
Coin - Access Area B	\$14.64	\$11.47
Coin - Access Area C	\$17.57	\$16.08
EKL <sup>2</sup> - Access Area A	\$14.92	\$15.37
EKL - Access Area B	\$17.83	\$16.95
EKL - Access Area C	\$21.01	\$21.71
2 Wire xDSL - Access Area A	\$11.69	\$9.26
2 Wire xDSL - Access Area B	\$12.17	\$10.06
2 Wire xDSL - Access Area C	\$13.17	\$13.61
4 Wire xDSL - Access Area A	\$21.09	\$18.32
4 Wire xDSL - Access Area B	\$22.26	\$19.94
4 Wire xDSL - Access Area C	\$24.37	\$27.09
DS-1 - Access Area A	\$44.95	\$59.91
DS-1 - Access Area B	\$54.25	\$68.05
DS-1 - Access Area C	\$52.66	\$98.83

<sup>1</sup> These rates were in effect when SBC filed its Petition on March 12, 2004. Subsequently, these rates were changed to reflect the Commission's Category 3 Decision in docket 6720-TI-161. Therefore, the tariff rates currently on file, which became effective on July 23, 2004, are higher than the rates shown above. On August 26, 2004, Federal District Court Judge Barbara Crabb, in *Wisconsin Bell, Inc. v. Bridge, et al.*, \_\_\_ F. Supp. 2d. \_\_\_, 2004 WL 1946317, (W. D. Wis. Aug. 26, 2004), vacated in part, remanded in part and dismissed party claims regarding the UND Decisions. The rate effects of this federal district court order, if any, are undetermined at this time.

<sup>2</sup> Electronic Key Line