BEFORE THE ILLINOIS COMMERCE COMMISSION

Docket No. 02-0864

Rebuttal Testimony of James R. Smallwood
On Behalf of SBC Illinois

SBC Illinois Schedule 4.1

PUBLIC VERSION

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I. INTRODUCTION

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is James R. Smallwood. My business address is 38-X-8, One SBC Center, St. Louis, Missouri 63101.

Q2. ARE YOU THE SAME JAMES R. SMALLWOOD WHO SUBMITTED DIRECT TESTIMONY IN THIS PROCEEDING?

A2. Yes, I am.

Q3. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A3. The purpose of my testimony is to respond to direct testimony related to recurring unbundled network element ("UNE") loop costs filed in this proceeding on behalf of the Illinois Commerce Commission Staff ("ICC Staff" or "Staff"), the Illinois Attorney General, the Citizens Utility Board ("CUB"), and various competitive local exchange carriers ("CLECs"). With respect to the ICC Staff, I will respond to portions of the testimonies of Robert F. Koch, Peter Lazare, Genio Staranczak, Jeffery H. Hoagg, Bud Green, and Dr. James Zolnierek. I will respond to the testimony of William Dunkel filed on behalf the Illinois Attorney General and to the testimony of. Susan Baldwin filed on behalf of the Citizens Utility Board ("CUB"). I will also respond to the testimonies of Michael Starkey and Warren Fischer, Brian F. Pitkin and Steven E. Turner, and Michael Starkey and John Balke filed on behalf of various CLECs. I will also discuss certain revisions to the Company's UNE loop recurring cost studies that are being made in response to comments and proposals made by the Staff and intervener witnesses. I will present the results of those revised UNE loop recurring cost studies.

Q4. ARE YOU SPONSORING ANY SCHEDULES?

A4. Yes. I am sponsoring the following schedules:

- Schedule JRS – R1: Loops_R_WhslUNE_IL_02-05_JAN04_rev.xls (Confidential)
- Schedule JRS – R2: DS3 Loop_R_WhslUNE_IL_02-05_JAN04_rev.xls (Confidential)
- Schedule JRS – R3: Loop Investment Trends from ARMIS Data

Q5. PLEASE DESCRIBE WHAT YOU BELIEVE TO BE THE MOST IMPORTANT ISSUE IN THIS PROCEEDING WITH RESPECT TO LOOP COSTS.

A5. Various witnesses for the parties opposed to SBC in this proceeding would have the Commission believe that either the current UNE loop rates in Illinois are appropriate or that the UNE loop rates in Illinois should be significantly lower (AT&T is proposing UNE loop rates that would reduce existing UNE loop rates anywhere from 50% to 85%, depending on the UNE loop type and UNE zone). The fact is that Illinois already has UNE loop rates that are among the lowest in the country. This proposal should be rejected because it is unreasonable on its face value and the evidence overwhelmingly supports SBCI's proposal.

The estimation of forward-looking, TELRIC-based UNE loop costs essentially boils down to calculating (i) the capital investment required to build a loop in the forward-looking network and (ii) the operating expenses that will be incurred to operate and maintain that network. The CLECs try to cloud this issue by pointing out what they claim to be modeling flaws in LoopCAT. While the details of the modeling process are important, the overall reasonableness of the results must also be considered. SBCI witness Mr. John Sneed discusses the reasonableness of SBCI's proposed costs from its revised cost studies relative to other benchmarks that can serve as a guide to determining

what a just and reasonable rate might be for UNE loops. SBCI's LoopCAT model produces an investment per loop and operating expenses per loop that are in line with the recent investments and expenses incurred by SBCI and are representative of the costs SBCI would incur in a forward-looking network. The CLECs, on the other hand, are proposing loop costs that are a fraction of what SBC has experienced in the last year. The CLECs never explain how SBCI could actually build and maintain loops for less than half of SBCI's TELRIC investment.

Despite the hundreds of pages the CLECs spend attacking LoopCAT, the most significant issues that impact loop prices are straightforward: fill factors, cost of money, and depreciation. The CLECs criticize LoopCAT as inflating the UNE rate, but if LoopCAT is run using the fills, cost of money, and depreciation adopted by the Commission in 1998, it actually produces *lower* costs than those approved in 1998 on the basis of cost studies developed using the AFAM model. This is due, in part, to the fact that SBCI's current cost studies incorporate the latest contract prices for materials that reflect any cost declines for telecommunications equipment. Thus, the CLECs' complaints about LoopCAT and pining for the old AFAM model are all beside the point – controlling for the three major cost inputs, SBCI's LoopCAT model produces cost results on par with AFAM. On the big three issues (costs of capital, depreciation, and fill), SBCI has presented detailed testimony from respected experts in the field and proven the validity of its proposals, all of which are fully consistent with TELRIC. Whatever approaches the Commission may have taken on those issues in the past, when TELRIC and the 1996 Act were in their infancy, evidence and common sense require a fresh look at these issues.

II. REVISIONS TO UNE LOOP COST STUDIES

Q6. PLEASE SUMMARIZE THE PURPOSE OF THE REVISIONS MADE TO THE RECURRING UNE LOOP COST STUDY.

A6. In this proceeding, the ICC Staff has participated extensively in the review and critique of SBCI's cost models. The Staff's review has brought to light some areas where SBCI has seen an opportunity to modify its costing methodology so as to improve the accuracy of the modeling. In addition, many inputs that SBCI believed were appropriate for UNE loop modeling and were consistent with previous UNE loop cost studies have been challenged by analysis and testimony from the UNE loop cost witnesses for the CLECs and the Illinois Attorney General's Office. As I will discuss in this testimony, most of the criticisms directed at the Company's costs studies by these witnesses are unjustified and should be rejected. Based on SBCI's review of this analysis and testimony, as well as discussions with SBCI network personnel, however, SBCI has decided to incorporate certain revisions that are responsive to and should resolve a number of the concerns raised those parties.

Q7. WHAT IS THE OVERALL IMPACT OF THESE UNE LOOP MODELING CHANGES?

A7. The overall impact is to lower SBCI's proposed UNE loop costs.

Q8. PLEASE PRESENT A COMPARISON OF SBC'S ORIGINAL UNE LOOP COSTS AND SBCI'S REVISED UNE LOOP COSTS.

A8. Table 1 below provides that comparison.

***** BEGIN CONFIDENTIAL*****

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*****END CONFIDENTIAL*****

Q9. COULD YOU PLEASE IDENTIFY THE CHANGES THAT SBCI HAS INCORPORATED INTO ITS REVISED COST STUDIES AS A RESULT OF THE UNE LOOP MODELING REVIEW DESCRIBED ABOVE?

A9. Yes. SBCI modified its cost modeling in several areas. I will identify each of the items below and then will discuss them individually.

1. SBCI incorporated multiple dwelling units ("MDUs") into the development of its premises termination costs.
2. SBCI removed the investment dollars associated with premises termination from its cable accounts and recalculated its cable installation factors accordingly.
3. SBCI removed the explicit line item investment in distribution terminals.
4. SBCI recalculated its DLC installation factors .
5. SBCI included controlled environmental vaults ("CEVs") in its forward-looking modeling of DLC systems.
6. SBCI included 448 pair Litespan systems in its forward-looking DLC modeling.
7. SBCI reassessed the residential and business mix for certain types of loops.

Q10. PLEASE DISCUSS THE MDU MODIFICATIONS MADE IN LOOPCAT.

A10. This adjustment addresses the issues related to MDUs raised by Staff witness James Zolnierek and AT&T witnesses Messrs. Steven Turner and Brian Pitkin. Previously in LoopCAT, all residential premises were modeled to reflect the investment required to provide premises termination at a single family dwelling. However, the update to LoopCAT reflects the incorporation of larger terminal sizes to reflect the type of

premises termination equipment that can be deployed at MDUs (*e.g.*, an apartment complex).

Q11. PLEASE DISCUSS THE MODIFICATION THAT REMOVED PREMISES TERMINATION DOLLARS FROM THE CABLE ACCOUNTS AND THE RECALCULATION OF CABLE INSTALLATION FACTORS.

A11. This adjustment addresses the issues raised by Illinois Attorney General witness William Dunkel. In review of the development of the cable installation factors, it was determined that the investment dollars associated with premises termination equipment were being aggregated into associated cable accounts. For example, the investment dollars associated with aerial premises termination were being aggregated with the dollars for aerial copper cable. Likewise, buried premises termination investment dollars were being aggregated with buried cable. Therefore, in order to ensure that premises termination investment is not counted twice, SBCI removed the premises termination investment dollars from the cable accounts. Once these dollars were removed from those accounts, the cable installation factors were recalculated. This ensures that premises termination costs are not recovered through the cable installation factors.

Q12. PLEASE EXPLAIN THE LOOPCAT MODIFICATION TO REMOVE THE DISTRIBUTION TERMINAL LINE ITEM.

A12. This issue, which was also raised by Mr. Dunkel, is similar to the issue described above relating to the premises termination investment. SBCI determined that the distribution terminal investment is booked to an associated cable account as an exempt material. However, unlike the premises termination investment, SBCI could not separately identify the investment dollars associated with distribution terminals. Therefore, those dollars could not be removed from the cable accounts that provide input to the cable installation

factors. In order to ensure that no double recovery of that investment will occur, SBCI removed the distribution terminal as a separate line item in the cost study.

Q13. PLEASE DISCUSS THE RECALCULATION OF DLC INSTALLATION FACTORS.

A13. As I will discuss more fully in the in the section of my testimony below dealing with installation factors, to resolve certain concerns expressed by Staff witness Lazare and AT&T witnesses Pitkin and Turner, SBCI has revised its DLC installation factors to base those factors on general ledger data rather than the PICS/DCPR data used to develop those factors in the original study.

Q14. PLEASE DISCUSS THE TWO ADDITIONAL LOOPCAT MODIFICATIONS RELATED TO DLC COST DEVELOPMENT.

A14. The final two modifications made to the UNE loop cost study in LoopCAT both involve the types of DLC systems included in the cost study and are being made in response to the testimonies of Messrs. Pitkin and Turner and of Staff witness Koch. The first is the inclusion of controlled environmental vaults ("CEVs"). CEVs are underground structures that serve as equipment "rooms" for DLC systems. These systems are only used in dense areas given the large number of lines served out of a CEV. The other DLC-related modification was the inclusion of a 448-line DLC-RT. This is a smaller cabinet-style RT that was not included in the original cost study.

Q15. PLEASE DISCUSS THE REASSESSMENT OF RESIDENTIAL AND BUSINESS MIX FOR CERTAIN LOOP TYPES.

A15. To resolve certain concerns expressed by AT&T witnesses Pitkin and Turner, SBCI has reassessed the residential and business mix for certain loop types that are predominantly or exclusively used by business customers.

III. RESPONSE TO GENERAL CRITICISMS OF SBC ILLINOIS' COSTING METHODOLOGY AND LOOPCAT

A. INTRODUCTION

Q16. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A16. This section of my rebuttal testimony will respond to general criticisms of SBCI's costing methodology and general criticisms of SBCI's LoopCAT model.

Q17. SEVERAL WITNESSES ATTACK SBCI'S UNE LOOP COST STUDY AS NOT BEING COMPLIANT WITH THE TELRIC STANDARD. DO YOU AGREE?

A17. No. This issue is addressed by several witnesses. For Staff, Messrs. Hoagg (pp. 11-15) and Lazare (pp. 6-7, 14-15) contend that SBCI's cost studies are not compliant with TELRIC. In addition, CLEC witnesses Messrs. Turner and Pitkin (pp. 23-26) and Messrs. Starkey and Balke make similar arguments. (pp. 30-35 & 65-66)

Q18. PLEASE DISCUSS YOUR UNDERSTANDING OF THE TELRIC COSTING STANDARD.

A18. The TELRIC costing standard was created by the FCC in its First Report and Order, which was the original FCC order implementing the local competition provisions of the Telecommunications Act of 1996.[1] The TELRIC of an element is the sum of three components -- operating expenses, depreciation expense, and cost of capital. Operating expenses are the annual costs associated with operating a particular element. Depreciation is the mechanism by which the network investment in an asset is recovered over the life of the asset. Finally, the cost of capital, i.e., the cost of obtaining debt and

[1] Federal Communications Commission, FCC 96-325, *First Report and Order,* In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 (CC Docket No. 96-98); Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers (CC Docket No. 96-185) (rel. Aug. 8, 1996) ("First Report and Order" or "Local Competition Order").

equity financing, reflects the amount investors would demand in order to be compensated for the risks of investing in the enterprise.

Q19. DO THE UNE COST STUDIES FILED BY SBCI IN THIS PROCEEDING COMPLY WITH THE FCC'S TELRIC METHODOLOGY?

A19. Yes. SBCI's UNE cost studies comply with the TELRIC methodology as required by the FCC. These UNE cost studies incorporate forward-looking network designs, forward-looking technologies, and forward-looking material costs, which is consistent with the TELRIC standard. For example, SBCI's UNE loop cost study for 2-wire analog loops is based on the forward-looking assumption that loops longer than a certain point (the copper-fiber crossover point) will be provisioned over fiber feeder with a DLC system, even though SBCI's current network includes loops longer than the assumed copper-fiber crossover point that are not provisioned over fiber feeder.

The result of this assumption is that SBCI's UNE loop cost study includes extensive placement of fiber loop plant well beyond what exists in the current loop network. This is appropriate in a TELRIC study because a higher incidence of fiber facilities versus copper facilities characterizes the design of SBCI's forward-looking loop network. The UNE loop cost study, in turn, applies maintenance factors for fiber cable, which are much lower than corresponding maintenance factors for copper cable. Therefore, the UNE loop cost study captures productivity gains and maintenance efficiencies associated with pervasive placement of fiber cable in the forward-looking loop network. Further, the cost development for the 2-wire analog UNE loops assumes the use of forward-looking Litespan DLC technology, even though SBCI does not currently have 100% Litespan DLC systems in its existing network.

Q20. THE FCC RECENTLY RELEASED ITS TELRIC NOTICE OF PROPOSED RULEMAKING ("NPRM"). COULD YOU PLEASE PROVIDE FURTHER EXPLANATION OF THE TELRIC NPRM?

A20. Yes. The FCC recently released a Notice of Proposed Rulemaking[2] in which it announced its intent to clarify and/or revise the TELRIC pricing standard. Most importantly, three FCC commissioners stated that TELRIC should focus on real-world characteristics, rather than on the hypothetical characteristics of some imaginary "most efficient" carrier. In the FCC's words, "We tentatively conclude that our TELRIC rules should more closely account for the real-world attributes of the routing and topography of an incumbent's network in the development of forward-looking costs."[3] In particular, the FCC observed:

> Part of the difficulty that states and interested parties have encountered springs from the excessively hypothetical nature of the TELRIC inquiry. . . In the absence of more specific guidance, this can . . . make it difficult to understand how actual UNE rates are derived. The lack of predictability in UNE rates is difficult to reconcile with our desire that UNE prices send correct economic signals.[4]

The FCC appears to intend, however, to retain its "commitment to forward-looking costing principles."[5]

The FCC also recognized that one of the "central internal tensions in the application of the TELRIC methodology is that it purports to replicate the conditions of a competitive market by assuming that the latest technology is deployed throughout the hypothetical network, while at the same time assuming that this hypothetical network benefits from

[2] Federal Communications Commission, FCC 03-224, *Notice of Proposed Rulemaking*, In the Matter of Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers (WC Docket No. 03-173). Released: September 15, 2003.
[3] TELRIC NPRM at ¶ 52.
[4] TELRIC NPRM at ¶ 7.
[5] TELRIC NPRM at ¶ 29.

the economies of scale associated with serving all of the lines in a study area."[6] In the real world, on the other hand, "firms do not instantaneously replace all of their facilities with every improvement in technology," and "even the most efficient carrier's network will reflect a mix of new and older technology at any given time."[7]

The FCC specifically noted its concern that the application of its pricing rules by state commissions has resulted in "estimates of forward-looking costs below the costs that would actually be found even in an extremely competitive market."[8] Underestimating the TELRIC cost would "undermine the incentive for either competitive LECs or incumbent LECs to build new facilities, even when it is efficient for them to do so."[9]

Three of the FCC Commissioners wrote separately to recognize the harmful incentives caused when TELRIC prices do not reflect real-world costs, and to express their hope that more realistic prices would create the right investment incentives.[10] In his statement, FCC Chairman Michael K. Powell wrote, "I believe that an approach grounded in the real-world attributes of the incumbent's network would address claims that our TELRIC rules currently distort a competitor's decision whether to invest in new facilities or to

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[6] TELRIC NPRM at ¶ 50.

[7] *Id. See also* Dennis L. Weisman, *The (in)efficiency of the "efficient firm" cost standard*, Antitrust Bulletin (Spring 2000) ("If regulators had sufficient information to implement the efficient-firm cost standard, competition would be wholly unnecessary. In this respect, the efficient-firm cost standard is fatally flawed because it confuses mandating the competitive outcome with fostering the competitive process."); Alfred E. Kahn, Timothy J. Tardiff, and Dennis L. Weisman, *The Telecommunications Act at three years: An economic evaluation of its implementation by the Federal Communications Commission*, 11 Info. and Econ. Policy 319, 326 (1999) ("In a world of continuous technological progress, it would be irrational for firms constantly to update their facilities in order completely to incorporate today's lowest-cost technology.") (emphasis in original); *id.* at 322 ("Competitive prices will not tend, in a technologically dynamic industry, to be equated to the lowest cost of duplicating a service with the most recent technology.").

[8] TELRIC NPRM at ¶ 51.

[9] *Id.* *See also, e.g.*, Thomas M. Jorde, J. Gregory Sidak, and David J. Teece, *Innovation, Investment and Unbundling*, 17 Yale J. Reg. 1 (Winter 2000) ("Mandatory unbundling confers a second-mover advantage and substantially decreases a CLEC's incentives to make a sunk investment.").

lease an incumbent's existing facilities." In addition, Commissioner Kathleen Q. Abernathy stated, "[T]he excessively hypothetical nature of the Commission's existing standard sends inappropriate investment signals and produces irrational pricing in some instances." Finally, Commissioner Kevin J. Martin wrote, "Today's item, in conjunction with our decision in the recent Triennial Review Order, begins the process to provide the necessary adjustments to the TELRIC formula that will more accurately reflect incumbent costs and help spur deployment in new facilities and services."

Q21. HOW DO THESE COMMENTS BY THE FCC IMPACT THIS PROCEEDING?

A21. I understand that the FCC has not yet modified the TELRIC methodology. At the point it does, UNE costs may need to be revisited. Nonetheless, the FCC's comments, particularly with respect to the dangers inherent in setting UNE rates below cost, are instructive. In no event, though, are SBCI's cost studies dependent on the TELRIC NPRM for validity. Indeed, SBCI's cost studies comply with existing TELRIC methodology. The important point is that the FCC has recognized the serious negative consequences of below-cost UNE prices, and this Commission should be equally mindful of those consequences as it sets new UNE rates in this proceeding.

B. <u>RESPONSE TO STAFF</u>

Q22. MR. HOAGG CLAIMS THAT SBCI'S COST STUDIES ARE NOT CONSISTENT WITH THE TELRIC STANDARD. (PP. 11-14) DO YOU AGREE?

A22. No. Mr. Hoagg's basis for his claim that SBCI's cost studies are not consistent with TELRIC is that SBCI's cost studies develop the forward-looking costs that SBCI expects

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[10] Each of the five FCC Commissioners issued statements that were appended to the TELRIC NPRM. The
Footnote continued on next page …

to incur, but to satisfy TELRIC, according to Mr. Hoagg, SBCI's cost studies should develop the costs that an "efficient provider" expects to incur. Mr. Hoagg even goes on to say that "SBC Illinois' projections of its own actual costs, or its own costs adjusted in various ways, could be acceptable if SBC Illinois demonstrates that such costs are equivalent to (or entirely consistent with) those of an efficient provider…". The problem with Mr. Hoagg's argument is twofold. First, Mr. Hoagg quotes out of context certain passages from the FCC's First Report and Order regarding TELRIC. Second, Mr. Hoagg provides no supporting evidence for his assumption that SBCI has not proven that its costs are consistent with those of a forward-looking, efficient network provider.

Q23. PLEASE EXPLAIN HOW MR. HOAGG QUOTES OUT OF CONTEXT CERTAIN FCC STATEMENTS.

A23. Mr. Hoagg provides several citations to the FCC's First Report and Order's discussion of the TELRIC standard. However, Mr. Hoagg has not accurately presented some of that language. For example, Mr. Hoagg states at page 5 of his Direct Testimony that the FCC determined that:

> [T]he forward-looking economic cost for interconnection and unbundled elements would be based on the most efficient network architecture, sizing, technology, and operating decisions that are operationally feasible and currently available to the industry. Prices based on the least cost, most efficient network design and technology replicate conditions in a highly competitive marketplace by not basing prices on existing network design and investments unless they represent the least cost systems available for purchase.[11]

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discussion below references and quotes from these statements.

[11] First Report and Order, ¶683, In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996; Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers, CC Docket Nos. 96-98 and 95-185, FCC 96-325, 11 FCC Rcd 15499; 1996 FCC LEXIS 4312; 4 Comm. Reg. (P & F) (August 8, 1996 Released; Adopted August 1, 1996) (hereafter, "First Report and Order").

The problem with Mr. Hoagg's citation is that this passage out of paragraph 683 was a possible TELRIC standard that the FCC rejected. In actuality, the FCC finally defined its TELRIC standard in paragraph 685. Mr. Hoagg omitted the last sentence from paragraph 683, which states as follows: "This approach, however, may discourage facilities-based competition by new entrants because new entrants can use the incumbent LEC's existing network based on the cost of a hypothetical least-cost, most efficient network."[12] Mr. Hoagg again cites to that same paragraph to justify his claim that SBCI's forward-looking TELRIC costs must be that of an "efficient provider." However, Mr. Hoagg ignores the language in paragraph 685 that states that "This benchmark of forward-looking cost and existing network design most closely represents the incremental cost that incumbents *actually* expect to incur in making network elements available to new entrants." (emphasis added) Based on this language, along with the language from the FCC's NPRM discussed above, leads me to conclude that it is Mr. Hoagg's conception of TELRIC, and not SBCI's cost studies, that are inconsistent with FCC determinations.

Q24. PLEASE DISCUSS MR. HOAGG'S LACK OF EVIDENCE REGARDING HIS CLAIM THAT SBCI HAS NOT PROVEN THAT IT IS AN "EFFICIENT" PROVIDER.

A24. Mr. Hoagg simply claims that SBCI has not proven that it is an efficient provider and that its forwarding looking costs are, therefore, consistent with TELRIC. Mr. Hoagg ignores the fact that SBCI submitted extensive documentation for its cost studies and responded to thousands of data requests in this proceeding. Instead of pointing out specifically what

[12] *Id.*

SBCI has not proven, Mr. Hoagg simply states that SBCI has the burden of proof with respect to supporting its forward-looking costs. I contend that SBCI has met its burden of proof with the aforementioned documentation.

Q25. STAFF WITNESS MR. LAZARE ALSO ASSERTS THAT THE COST STUDIES FILED BY SBCI DO NOT ADHERE TO THE TELRIC STANDARD. (PP. 12-16) DO YOU AGREE?

A25. No**.** As I have stated above, SBCI's cost studies are consistent with the FCC's TELRIC standard.

Q26. MR. LAZARE CLAIMS THAT "THE LOOPCAT STUDY RELIES SIGNIFICANTLY ON EMBEDDED, HISTORICAL COSTS TO DEVELOP OVERALL COSTS FOR THE LOCAL LOOP."[13] IS THIS ACCURATE?

A26. No. Embedded costs are the costs for placing infrastructure that are on the companies books, and LoopCAT absolutely does not rely on such costs. What LoopCAT does is rely on actual technical characteristics of SBCI's existing network and the relationship between material costs and installation costs to develop forward-looking costs.

Q27. DOES MR. LAZARE DISCUSS THIS USE OF TECHNICAL DATA FROM THE COMPANY'S EXISTING NETWORK?

A27. Yes. At pages 13-16 of his testimony, Mr. Lazare discusses the use of cable data from Company records to develop forward-looking costs. It appears that Mr. Lazare equates the use of existing network data with the use of embedded costs. That is simply not the case.

[13] ICC Staff Ex. 3.0 (Direct Testimony of Peter Lazare) at p. 13.

Q28. HOW DOES USING EXISTING NETWORK DATA DIFFER FROM USING EMBEDDED COSTS?

A28. Using existing network characteristics simply reflects the fact that SBCI believes that its engineers have efficiently placed cable, that the existing rights of way (which determine cable lengths) would be the same rights of way that would exist in the forward-looking network, and that speculating about hypothetical changes in cable placements and cable routing are unwarranted. This existing network data is then combined with forward-looking equipment costs and forward-looking equipment designs to develop costs. SBCI does not rely on embedded costs of historical equipment placements. Further, as I will discuss below, SBCI's installation factors are based on recent relationships between equipment costs and installation costs. Grounding a forward-looking cost study on known network characteristics and known equipment price/installation cost relationships is a perfectly acceptable method of estimating forward-looking costs. To ignore what we know and engage is sheer speculation about forward-looking costs is not only wrong, it is irresponsible.

Q29. HAS THE FCC RECOGNIZED THE NEED TO GROUND TELRIC IN REAL WORLD NETWORK CHARACTERISTICS?

A29. Yes. In its TELRIC NPRM, the FCC stated that "We tentatively conclude that our TELRIC rules should more closely account for the real-world attributes of the routing and topography of an incumbent's network in the development of forward-looking costs."[14] The FCC went on to say that "the UNE pricing methodology, while forward-looking, must be representative of the real world and should not be based on the totally

[14] TELRIC NPRM, ¶ 52.

hypothetical cost of a most-efficient provider building a network from scratch."[15] However, I point again that in its First Report and Order that created the TELRIC standard, the FCC contemplated that TELRIC would "most closely represent the incremental costs that incumbents actually expect to incur in making network elements available to new entrants."[16]

Q30. MR. LAZARE (PP. 13-15) ASSERTS THAT SBCI "REJECTS THE CONCEPT OF A FORWARD-LOOKING EFFICIENTLY DESIGNED NETWORK IN FAVOR OF EXISTING RELATIONSHIPS FOR CENTRAL OFFICES, CUSTOMER LOCATIONS AND CABLE PLACEMENTS." DO YOU HAVE ANY COMMENTS IN RESPONSE TO THIS ASSERTION?

A30. Yes. The use of existing cable lengths is consistent with the TELRIC standard in that under TELRIC, existing wirecenter and customer locations are fixed. It is reasonable to use existing cable lengths to estimate this fixed relationship between SBCI's wirecenters and its customer locations. There is no basis for Mr. Lazare to simply speculate that cable routes could be more efficient. Under the TELRIC standard, even in the most hypothetical interpretation, it is not contemplated that all buildings, streets, rivers, and other obstacles would be gone. Therefore, it is reasonable to assume that SBCI's existing rights of way are efficient for forward-looking cable routing. Again neither Mr. Lazare, nor any other witness, offers any evidence to prove those routes inefficient. Furthermore, there is also no evidence to suggest that SBCI's existing cable sizes are inefficient. Mr. Lazare claims that SBCI's distribution fill factors are evidence that its cable sizes are inefficient. However, SBCI's fill factors are consistent with the fill factors achieved by other facilities-based carriers. I do not find it reasonable to assume that every facilities-

[15] TELRIC NPRM, ¶ 53.
[16] First Report and Order, ¶ 685.

based carrier is inefficient. The fact is that efficient engineering practices result in relatively low distribution cable utilization rates. This is discussed in the direct testimony of SBCI's network witness Mr. Randall White.

Q31. ICC STAFF WITNESS MR. KOCH ALSO QUESTIONS THE TELRIC COMPLIANCE OF SBCI'S UNE LOOP COST STUDY. CAN YOU ADDRESS THESE CONCERNS?

A31. Yes. Mr. Koch raises four issues with respect to SBCI's UNE loop cost study. First, Mr. Koch discusses FCC requirements that network designs not impede advanced services. Second, Mr. Koch discusses the appropriate copper fiber crossover point to be used in a forward-looking cost study. Third, Mr. Koch discusses the cabinet sizes included in the UNE loop cost study. Fourth, Mr. Koch discusses allocating the investment in remote terminals between voice services and xDSL services. Mr. Koch frames his entire discussion of LoopCAT as being related to TELRIC compliance, so I will address Mr. Koch's arguments in this section of my testimony.

Q32. IN DISCUSSING THE FCC'S REQUIREMENT THAT FORWARD-LOOKING UNE LOOP DESIGN NOT IMPEDE ADVANCED SERVICES (PP. 7-8), MR. KOCH INCLUDES A DEFINTION OF ADVANCED SERVICES. DO YOU HAVE ANY COMMENTS ON HIS DEFINITION?

A32. Yes. Mr. Koch starts out defining advanced services in general, but as his discussion of this issue proceeds, he limits his definition of advanced services to xDSL services. He states that "the advanced services most commonly provided to residential and small business customers at this time are xDSL services."[17] Mr. Koch then discusses the appropriate forward-looking network design for a UNE loop from the perspective of what is required to support xDSL services. This is inappropriate, as the forward-looking

design should be capable of supporting all advanced services. Advanced services must be defined to include all advanced services that are provisioned on copper or mixed fiber-copper facilities. In this context, SBC engineers have determined that 12,000 feet is the appropriate crossover point. For example, DS1 services are best provisioned on less than 12,000 feet of copper cable. In addition, certain types of xDSL services, such as HDSL (which is equivalent to a DS1), only achieve their maximum performance at 12,000 feet or less. Indeed, to offer higher speed ADSL services, it is necessary to have a limit of 12,000 feet of copper. Mr. Koch's narrow focus on xDSL serves as the basis for supporting the recommendation that the fiber copper crossover point be set at 18kft is inappropriate.

Q33. SIMILARLY MS. SUSAN BALDWIN ON BEHALF OF CUB CRITICIZES THE METHODOLOGY USED BY SBCI TO DETERMINE ITS COPPER-FIBER CROSSOVER POINT. (PP. 25 – 28) CAN YOU COMMENT ON MS. BALDWIN'S DISCUSSION OF THIS ISSUE?

A33. Ms. Baldwin states that instead of using a pre-specified fiber-copper crossover point, a loop cost model should determine whether to deploy fiber or copper depending on the least-cost feasible technology using a dynamic optimization analysis. This is not appropriate. As I have discussed above, the crossover point is not simply a function of the lowest cost. The crossover point also concerns the ability to provision advanced services.

[17] Direct Testimony of Robert F. Koch ("Staff Ex. 4.0"), p. 8.

Q34. MR. KOCH SUGGESTS THAT SBCI'S REMOTE TERMINALS IN ITS UNE LOOP COST STUDY ARE INAPPROPRIATELY CONFIGURED BECAUSE THE REMOTE TERMINALS ARE NOT CONFIGURED TO PROVIDE ADVANCED SERVICES.[18] DO YOU AGREE?

A34. No. I do not agree. SBCI's cost study incorporates a remote terminal ("RT") design that is configured to support voice services. As Mr. Koch states, "cost causation principles dictate that the TELRIC of a loop should include only those costs necessary for provisioning of the UNE loop."[19] Given that SBCI's 2-wire analog loop must support voice services, SBCI's RT configuration is correct. The RT's equipment included in the design does not impede the provision of advance services, as those RTs are capable of supporting advanced services if necessary. However, the RT configuration used in SBCI's UNE loop model also does not include costs for advanced services components because those components are not caused, or required, by the need to provision a 2-wire analog UNE loop.

Q35. DOES MR. KOCH ACKNOWLEDGE THAT THE NETWORK DESIGN USED BY SBCI DOES NOT IMPEDE ADVANCED SERVICES?

A35. Yes. Mr. Koch specifically states that "[t]he network design incorporated by SBCI in its LoopCAT model does not impede the provisioning of advance services."[20]

Q36. MR. KOCH CLAIMS SBCI'S UNE LOOP COST STUDY INAPPROPRIATELY INFLATES THE NUMBER OF REMOTE TERMINALS INCLUDED IN THE COST STUDY BECAUSE OF THE 12KFT CROSSOVER POINT (P. 13) DO YOU AGREE?

A36. No. As I stated above, Mr. Koch comes to the conclusion that 18kft is the proper breakpoint by solely focusing on xDSL advanced services. I would also point out that he

[18] *Id.* at pp. 11-12.
[19] *Id.* p. 7. (Original footnote omitted)

is also focusing on the minimum technical specifications to make xDSL loops work. SBC's engineers have determined that the most appropriate forward-looking design standard is to place DLC systems in the feeder portion of loops longer than 12kft. This is discussed in the testimony of Mr. Randall White. However, consistent with TELRIC, SBCI has modeled the forward-looking network that is efficient and operable for all services.

Q37. DO YOU AGREE WITH MR. KOCH'S ASSERTION THAT THE USE OF A 12KFT BREAKPOINT INFLATES THE NUMBER OF NGDLC SYSTEMS IN THE LOOPCAT MODEL, THEREBY INFLATING THE INVESTMENT AND COST PER LOOP? (P. 13)

A37. No. I do not agree with Mr. Koch. SBCI engineers have determined that a 12kft crossover point is the proper forward-looking assumption. Therefore, the number of circuits provisioned on NGDLC is not inappropriately high.

Q38. HOW DO YOU RESPOND TO MR. KOCH'S ASSERTION THAT THE FCC REJECTED THE USE OF A 12KFT CROSSOVER POINT? (P. 13)

A38. First, I would point out that Mr. Koch is relying on a universal service order finding from the FCC and not a UNE finding from the FCC. While I am not as familiar with the FCC's position in Universal Service proceedings, I am aware that the FCC staff that served as arbitrators in the recent Verizon Virginia proceeding specifically adopted a 12 kft crossover point. This is a recent UNE related finding by the FCC. In that Virginia decision, the FCC staff wrote "CSA guidelines expressly call for a copper/fiber break point at 12,000 feet, not 18,000 feet. The CSA guidelines, although flexible enough to permit some exceptions, are nonetheless the most recent guidelines for building outside

[20] *Id.*, p. 10

plant and, therefore, represent the most appropriate design guidelines to be used in a TELRIC model."[21] Furthermore, that order specifically discussed the fact that the FCC had used an 18,000 foot break point for Universal Service purposes and drew a distinction between that and a UNE proceeding, stating "the universe of UNE loops included in the loop cost model is broader than the loops in the network modeled only for universal service purposes. When including this broader universe of loops, we conclude that the loop cost model should design outside plant that adheres to CSA guidelines."[22]

Q39. WHAT WOULD BE THE COST IMPACT OF CHANGING THE COPPER-FIBER CROSSOVER POINT FROM 12KFT TO 18KFT?

A39. The impact would be small. As Mr. Mr. Koch states, that "the impact is not very significant, especially in Access Area A where the 12kft scenario is only 1.14% higher than the 18kft option.

Q40. GIVEN THAT MR. KOCH ACKNOWLEDGES THAT THE IMPACT IS "NOT VERY SIGNIFICANT" WHAT IS YOUR RECOMMENDATION ON THIS ISSUE?

A40. I recommend that the Commission carefully consider the fact that, as Mr. White testifies, there are advanced services other than xDSL that benefit from the 12kft crossover point. Therefore, the Commission should defer on this issue to the engineering guidelines of SBCI and maintain a 12kft copper-fiber crossover point.

[21] CITE Virginia Memorandum Opinion and Order, ¶241
[22] *id*., ¶ 242.

C. RESPONSE TO JOINT CLEC WITNESSES STARKEY AND BALKE

Q41. TO WHAT ISSUES COVERED BY MESSRS. STARKEY AND BALKE WILL YOU RESPOND?

A41. Messrs. Starkey and Balke claim that SBCI has inappropriately produced UNE loop costs using the new LoopCAT model and this model should be rejected in favor of the AFAM model which was used by Ameritech prior to its merger with SBC.

Q42. MESSRS. STARKEY AND BALKE CONTEND THAT THE LOOPCAT MODEL IMPROPERLY RELIES ON "EMBEDDED" OR "HISTORICAL" DATA. (STARKEY/BALKE P.31) IS THIS CONTENTION CORRECT?

A42. No. Embedded costs are the costs contained in SBCI's balance sheet plant accounts and reflect the historical investment that SBCI has made in its network. When one speaks of embedded or historical plant investments, one is referring to the cumulative, historical investment in cable, loop electronics, and other facilities placed over many years. Embedded costs are those costs associated with that cumulative, historical investment. SBCI's UNE cost studies, by contrast, incorporate forward-looking network designs, forward-looking technologies, and forward-looking material costs. The studies do make use of current operational, maintenance, and labor costs, but that is a natural way to estimate forward-looking costs, and is perfectly consistent with TELRIC. Simply put, a forward-looking network must look forward from somewhere, and the logical starting point is the incumbent's current costs and practices. The only alternative to basing forward-looking cost estimates on actual data would be to engage in sheer speculation about the extent of the costs. In short, an approach that reflects actual network characteristics, recent installation costs, and current material prices, is the best way to estimate forward-looking costs reliably, accurately, and without the need for particularized data that is simply unavailable or impractical to use in many instances.

SBCI's reliance on its current data to derive its forward-looking UNE cost estimates is entirely appropriate. SBCI's UNE cost studies comply with TELRIC methodology.

Q43. MESSRS. STARKEY AND BALKE (PP. 8-13) CLAIM THAT SBC ILLINOIS HAS NOT PROVEN THAT ITS CURRENT LOOP RATES ARE TOO LOW. HAS SBCI SHOWN A NEED TO REEXAMINE LOOP RATES?

A43. Yes. The very nature of the regulatory process is that pricing decisions are revisited from time to time. SBCI has shown an urgent need to reexamine loop prices in three different ways. First, SBCI's UNE loop cost study demonstrates the existence of significantly higher forward-looking costs than are reflected in the currently effective UNE loop rates. Second, SBC witness Dr. Debra Aron's testimony demonstrates that SBCI is actually incurring significantly higher costs than it is recovering from the current UNE loop rates. Third, the United States Court of Appeals for the 7th Circuit addressed the issue of outdated loop rates stating that, "A rate that is long out of date…frustrates the goals of TELRIC every bit as much as does a rate generated under the flawed state legislation. SBC and its rivals are entitled to an updated rate that comports with federal law." [23]

Q44. STARKEY/BALKE (PP. 25-31) ALSO CRITICIZE LOOPCAT BY CLAIMING THAT THE OLD AMERITECH COST MODEL, AFAM, WAS SUPERIOR. SHOULD THIS TESTIMONY CARRY ANY WEIGHT?

A44. No. I do not think that the testimony is accurate as far as the criticisms of LoopCAT are concerned, nor do I believe that the testimony is even relevant in this proceeding. Mr. Palmer discusses some of the limitations of the old AFAM model.

[23] United States Court of Appeals for the 7th Circuit, *AT&T Communications of Illinois Inc., et.al. vs. Illinois Bell Telephone Co. and Ameritech Corp.* Nos. 03-2735 and 03-2766; November 10, 2003 at page 15.

Q45. PLEASE DESCRIBE WHY SBC CHOSE TO USE LOOPCAT AS ITS LOOP COST MODEL THROUGHOUT ITS 13-STATE OPERATING TERRITORY.

A45. After the merger with Ameritech, the Cost Analysis division at SBC had to decide which loop cost model to use going forward, both for internal efficiency and external consistency. Ameritech and SBC had both independently developed different cost models. Ameritech's model at that time was LFAM, (which was a successor to AFAM) and SBC was using the SBC Loop Cost System, which was later renamed LoopCAT**.** Clearly, for efficiency purposes, the Company had to select one model as the standard. Ultimately, SBC decided to reject the old Ameritech models such as AFAM and LFAM, and select LoopCAT as its loop cost model for several reasons. Primary among these was the realization that LFAM contained a significant amount of programming that was not easily accessible to CLECs and Commission staffs. LoopCAT, on the other hand, is spreadsheet based, which makes LoopCAT significantly easier to audit, update, and operate than LFAM. The ongoing usefulness and accuracy of LoopCAT, in terms of ease of updating source data and of operating the model, was superior to LFAM.

Q46. PLEASE DESCRIBE HOW LOOPCAT WAS DEVELOPED AND DESCRIBE THE PARALLELS BETWEEN THAT PROCESS AND THE DEVELOPMENT OF AFAM.

A46. The current LoopCAT model is essentially the same model as its predecessor model, the SBC Loop Cost System ("SLCS"). Of course, the model has been updated to accommodate modeling and input changes. The SLCS model was a spreadsheet-based version of SBC's previous loop model Loopvst, which was the nomenclature standing for loop investment. Loopvst was a mainframe-based model, as was AFAM. SBC's SLCS was developed to create a spreadsheet version of Loopvst. This was done in response to

requests from commission staffs and CLECs because Loopvst, as a mainframe-based system, was difficult to provide to other parties and difficult to audit due to the programming. In a parallel fashion, Ameritech had developed a mainframe-based AFAM system that evolved into the more PC-based format under the name LFAM.

Q47. HAS THE METHODOLOGY UNDERLYING LOOPCAT BEEN APPROVED BY OTHER STATE COMMISSIONS?

A47. Yes. In the recent Indiana UNE Docket (Cause No. 42393), the IURC approved new UNE loop rates which were developed using SBCI's LoopCAT cost model. Furthermore, Loopvst, which has the same underlying conceptual methodology as LoopCAT, was the UNE loop model used to develop the UNE loop costs approved by state commissions throughout the Southwestern Bell Telephone Company region.

Q48. DID SBCI CHOOSE TO USE THE LOOPCAT MODEL OVER AFAM BECAUSE LOOPCAT PRODUCES HIGHER UNE LOOP RATES?

A48. Absolutely not. LoopCAT was chosen as SBC's loop costing model for all of the reasons discussed above.

Q49. MESSRS. STARKEY AND BALKE (P. 31) CLAIM THAT LOOPCAT IS A MERE CALCULATOR AND LACKS FLEXIBILITY. IS THAT TRUE?

A49. No. LoopCAT is an extremely flexible, Excel-based cost development tool that should be adopted by this Commission. LoopCAT provides a template of input requirements in an easy-to-use format. Many inputs are direct entry (e.g., material costs, utilization factors), and thus do not need an external modeling process. Such a structure also allows modeling leeway for the development of input data.

SBCI has provided CLECs with the source information used in LoopCAT. Thus, CLECs have been free to use SBCI's input data and adjust them as they have deemed appropriate. Moreover, the fact that CLEC witnesses have been able to manipulate LoopCAT in this proceeding, as well in pending California and Texas cost proceedings, undermines their argument that LoopCAT is too complex or difficult to use.

Q50. ICC STAFF WITNESS QIN LIU ON PAGE 4 OF HER DIRECT TESTIMONY COMMENTED ON THE FLEXIBILITY OF THE LOOPCAT MODEL. DO YOU AGREE?

A50. Yes. Specifically she stated:

> "Unlike previous loop cost models (such as AFAM), which are mainframe-based, LoopCAT is a spreadsheet-based cost model. This makes the LoopCAT cost model relatively easy to understand, modify and use."

Dr. Liu made modifications to the LoopCAT model and was able to run the model to present alternative results from varied inputs in her direct testimony.[24]

Q51. MESSRS. STARKEY AND BALKE (PP. 41-42) ASSERT THAT LOOPCAT IS NOT CAPABLE OF DEVELOPING COSTS AT THE WIRE CENTER LEVEL. IS THIS TRUE?

A51. No. LoopCAT can develop loop costs at the wire center level. LoopCAT was used in California to do just that. However, the ICC previously determined the geographic zones that are appropriate for rate development purposes, and SBCI follows that convention in this case. Further, AFAM, upon which Messrs. Starkey and Balke would rely, like LoopCAT, made technical assumptions about the appropriate network deployment

[24] Illinois Commerce Commission Docket No. 02-0864 ICC Staff Exhibit 5.0 – Direct Testimony of Qin Liu at page 4.

depending on the UNE zone being studied. Interestingly, Messrs. Starkey and Balke make this claim about LoopCAT's supposed inabilities, but CLEC witnesses Messrs. Pitkin and Turner have used LoopCAT to purportedly develop loop costs at the wire center level. This argument is simply without merit.

Q52. MESSRS. BALKE AND STARKEY, AT PAGES 35 THROUGH 39 OF THEIR DIRECT TESTIMONY, ASSERT THAT "LOOPCAT'S LACK OF INFORMATION OF LOOP ARCHITECTURE BUILDING BLOCKS CAUSES COST DISTORTIONS." DO YOU AGREE WITH THIS STATEMENT?

A52. No. Messrs. Balke and Starkey claim that LoopCAT cannot build a loop network using actual engineering architectures because LoopCAT relies on embedded data is completely false. The inputs used in the LoopCAT model are based on actual data and information obtained from Network Subject Matter Experts ("SMEs") who make engineering architecture decisions. Much of the actual data, such as remote terminal quantities, was updated for these studies so the data would be forward-looking yet compatible with the actual SBCI network.

Q53. PLEASE RESPOND TO THE CLAIM THAT "THE QUANTITY OF LOOPS IN LOOPCAT PROVIDES A FALSE SENSE OF ACCURACY." (STARKEY/BALKE AT 39).

A53. Messrs. Starkey and Balke contend that even though SBCI used a huge sample of loops to derive the costs in LoopCAT, the costs are still somehow misleading. One should recognize that developing the loop length characteristics on the information provided by approximately 5 million loops, representing a sample size of around 70% of the access line count, is more than sufficient to be statistically valid, as long as the excluded data is not biased, and it is not. The data that was left out is comprised of three data types – data in which a specific telephone number was not assigned, data being updated at the time of

the data extraction, and data in which the join field between two databases did not match.[25] It is interesting to note that the AFAM distribution costs that Messrs. Starkey and Balke support were based on a sample size of only about 1,600 loops[26], or significantly less than 1% of the sample size used in LoopCAT.

Q54. AT PAGES 42-44 OF THEIR TESTIMONY, MESSRS. STARKEY AND BALKE CLAIM THAT DATA USED IN LOOPCAT COME FROM SEVERAL SOURCES THAT WERE BEING USED AS INPUTS IN WAYS THEY WERE NOT INTENDED TO BE USED. DO YOU AGREE?

A54. No. LoopCAT appropriately relies upon data from several different sources in order to develop UNE loop costs. These various data sources align with the way that SBCI inventories its plant and equipment. The specific criticism made by Messrs. Starkey and Balke relates to the way that SBCI allocated its cable inventory between feeder and distribution. Because cable is inventoried in SBCI's databases without regard for whether that cable is used for feeder plant or distribution plant, the Cost Analysis group sought a way to divide that inventory between feeder and distribution for the purposes of developing the weighted average cable costs for feeder and distribution. In consultation with SBCI's Network organization, it was determined that the most effective way to divide the inventory was based on cable size. The assumption was that the smallest cables (i.e., < 200 pairs) are generally placed in the distribution section of the loop, the largest cables (i.e., > 1500 pairs) are generally placed in the feeder section, and cables in

[25] For ARES loop length data acquisition, data from the customer list must be mated with a database with loop length information. The specific join field is the address. At times, the abbreviations used to denote the address may not match (e.g., a street address such as Lake Shore Drive in one database may be abbreviated Lk Shore Dr in the other, and the join is not made), and the corresponding data was left out of the samples used in this proceeding.

[26] "The version of AFAM advocated by Ameritech, and ultimately adopted by the Commission in Docket No. 96-0486/0569 relied on a sample of approximately 1,600 distribution facilities." Direct Testimony of Michael Starkey and John Balke, page 29.

between these two boundaries are representative of both feeder and distribution and should be divided between the two plant types. This methodology for dividing the cable inventory is completely reasonable for modeling purposes.

Q55. DOES THE USE OF ACTUAL NETWORK DATA MEAN THAT LOOPCAT IGNORES ECONOMIES OF SCALE, AS MESSRS. STARKEY AND BALKE CLAIM (PP. 46-48)?

A55. No. The network data used by SBCI reflect the plant deployments that serve demand in the state of Illinois. Messrs. Starkey and Balke give an example which points to a theoretical placement of two cables in the past that could now be replaced by one larger cable.[27] However, incremental placement of cables is a forward-looking reality in engineering a telecommunications network for SBCI and any other telecommunications carrier. Therefore, the use of such is appropriate and consistent with TELRIC. TELRIC was designed to estimate the network costs that an efficient carrier could achieve. It was not designed to calculate costs that no real-world carrier could achieve. Such an interpretation of TELRIC does not make sense, given that such a costing standard would ensure that artificially low regulatory prices would be set and that network investment by all carriers would be discouraged. Again, it is important for the ICC to ask if the results produced by LoopCAT are reasonable in light of the actual costs being incurred by SBCI, and they are.

[27] Starkey/Balke at p. 61.

Q56. MESSRS. STARKEY AND BALKE (PP. 51-53) CLAIM THAT THE LOOPCAT PREPROCESSOR IS FAULTY BECAUSE THE SAME FEEDER LENGTH IS REPEATED IN TWO COLUMNS. IS THIS ACCURATE?

A56. No. Despite the fact that Messrs. Starkey and Balke correctly identify that the "Feeder" and "Fiber Feeder" columns are identical in the pre-process data, this does not indicate that the preprocessor is faulty. The reason that both columns are populated with the same data is to allow the PreProcessor program to extract data from either the corresponding "(Copper) Feeder" or "Fiber Feeder" columns, based on the copper-fiber crossover point for each loop. Therefore, what Messrs. Starkey and Balke assess as an error was actually a method to facilitate preprocessing of the data.

Q57. IS IT IMPORTANT THAT EVERY LOOP FOR WHICH LOOPCAT DEVELOPS COSTS MEET THE FORWARD-LOOKING DESIGN GUIDELINE OF LESS THAN 12,000 FEET OF COPPER CABLING IN A LOOP (STARKEY/BALKE AT 50)?

A57. No. It is important to understand that the forward-looking design guideline of having less than 12,000 feet of copper in a loop is only a guideline. Messrs. Starkey and Balke point out that a very small percentage (approximately 3% or less) of the loops in LoopCAT will have greater than 12,000 feet of copper. Even in the forward-looking environment, some loops will not meet the transmission parameters set out by CSA guidelines. Such a small percentage of loops is simply not relevant for determining whether SBCI's proposed loop costs are valid. This topic is discussed further in Section VI.

D. <u>RESPONSE TO JOINT CLEC WITNESSES PITKIN AND TURNER</u>

Q58. WHAT IS THE OVERALL THEME OF THE TESTIMONY FILED BY MESSRS. PITKIN AND TURNER ON BEHALF OF AT&T?

A58. The testimony of Messrs. Pitkin and Turner attempts to show that SBCI's proposed UNE loop costs are too high, that SBCI's proposal represents "outrageously large" and

"astronomical increases," and that SBCI's proposal "simply does not pass a 'red face test.'" Nothing could be further from the truth. The fact is that SBCI's proposed UNE loop costs (as revised in this rebuttal filing) are in line with TELRIC standards, are grounded in current, solid data, and represent a reasonable estimation of forward-looking costs**.** Further, Messrs. Pitkin and Turner claim that SBCI's proposed loop costs are not based on "any reasonable support" is clearly false. SBCI's proposed loop prices, as revised in this rebuttal filing, are supported by the evidence and the substantial amount of supporting data and workpapers submitted with its initial filing, as well as its responses to more than 2,300 requests, including subparts.

Moreover, Messrs. Pitkin and Turner's resulting rate proposal cannot pass their so-called "red face test." Messrs. Pitkin and Turner's proposal rests on the assumption that SBCI is so inefficient that it could cut its investment per loop by 73% simply by deploying currently available technology (which SBCI already does anyway) and applying modern engineering methods (which SBCI also does).[28] Given SBCI's constant effort to upgrade and modernize its network and operations, it is simply unreasonable to presume such large efficiency gains. TELRIC is a forward-looking costing methodology, not a fantasy world.

Q59. CAN YOU DEMONSTRATE THE UNREASONABLENESS OF THE AT&T'S PROPOSAL?

A59. Yes. If AT&T truly believed that loops could be engineered and constructed for less than $4.00 per month and operated and maintained for about $1.15 per month, then it would

be building those loops today. But AT&T certainly isn't, and there is no evidence that other CLECs have been able to build and operate loops at those costs. As a communications giant with "industry leading scale,"[29] one would not expect AT&T to lease loops from SBCI for over $9.00 per month if it really could build its own loops for slightly less than $4.00 per month. But it does not do so, because no carrier could. Simply put, the CLECs' proposal for a $4.00 loop is built on fantastical assumptions that no real-world carrier, including AT&T, could ever achieve.

Q60. HOW DO YOU RESPOND TO MESSRS. PITKIN AND TURNER'S ARGUMENT (PP. 8-19) THAT SBC ILLINOIS'S LOOP COST SHOULD BE GOING DOWN BECAUSE COSTS IN THE TELECOMMUNICATIONS INDUSTRY ALLEGEDLY ARE DECLINING?

A60. Messrs. Pitkin and Turner claim that costs are decreasing due to (1) declines in equipment costs, (2) merger savings, (3) technological advancements, and (4) growth and overall demand. To the extent they exist, however, these savings are already accounted for in SBCI's cost studies.

Q61. PLEASE EXPLAIN HOW DECLINES IN EQUIPMENT COSTS ARE ALREADY INCORPORATED INTO SBCI'S COST STUDIES.

A61. Messrs. Pitkin and Turner have not offered a shred of evidence to support their assertion that all equipment costs in the industry are declining. It is true that SBCI has negotiated discounted prices for certain types of equipment in recent years, but those prices are already used in the cost study, so any declines in equipment prices have already been

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28 The CLEC's proposed a statewide average investment per loop of approximately *** **Begin Proprietary** ********End Proprietary** ***. This compares with SBC Illinois's ARMIS investment per loop in 2002 of $772 per loop.

[29] AT&T Announces Second Quarter 2003 Earnings.

accounted for. Furthermore, SBC's cost studies adjust the capital costs for the planning period of the cost study through the use of TPI factors. These factors account for cost declines or increases that are projected for specific categories of equipment.

Q62. PLEASE EXPLAIN HOW MERGER SAVINGS HAVE BEEN INCORPORATED INTO SBC'S COST STUDIES.

A62. Merger savings are typically realized in reductions in the overhead costs of a firm, increased operating efficiencies, and better purchasing power with vendors. As described above, SBCI has already incorporated prices from its latest vendor contracts into its cost studies. With respect to operating efficiencies, SBC cost studies incorporate any operating efficiencies that have been achieved as a result of the merger through the application of expense factors in the cost study. The expense factors used in the cost study are based on the most recent year's data available and will reflect all operating efficiencies achieved. Finally, with respect to overhead costs, SBCI's proposed shared and common factor reflects the overhead costs of SBC-based on the most recent year's data. Merger savings achieved are reflected in this factor. The issue of merger saving is also addressed in the rebuttal testimony of SBCI witness David J. Barch.

Q63. PLEASE DESCRIBE HOW TECHNOLOGICAL ADVANCEMENTS ARE INCORPORATED INTO SBCI'S COST STUDIES.

A63. The issue of cost savings associated with technological advancements discussed by Messrs. Pitkin and Turner refers to reductions in maintenance and provisioning costs. These types of costs are reflected in SBCI's cost studies through the application of expense factors. These expense factors capture the recent relationship between expenses and investment for specific categories of equipment. Messrs. Pitkin and Turner try to construct their argument by referring to savings projections made by SBC on a thirteen-

state basis in 1999. SBCI has been implementing cost savings strategies, and any gains in efficiencies made from those strategies are reflected in SBCI's expense factors. So again, cost savings realized in these areas are reflected in the cost study through the application of expense factors based on recent accounting data**.**

Q64. AT PAGES 14-16 OF THEIR TESTIMONY, MESSRS. PITKIN AND TURNER ASSERT THAT SBCI HAS EXPERIENCED A SIGNIFICANT GROWTH IN DEMAND ON ITS NETWORK, RESULTING IN A DECLINE IN AVERAGE COSTS. DO YOU AGREE WITH THAT ASSERTION?

A64. No. Once again, Messrs. Pitkin and Turner make blanket allegations without providing evidence to support them. They do not cite to any data for the line demand growth that they allege has contributed to cost declines. However, in other proceedings, CLECs have cited to FCC ARMIS line count data to support similar claims. But SBCI has not experienced massive growth in demand on its network that they claim these line counts purport to show. The fact is that SBC changed its method for reporting high-capacity lines in recent years. For example, a DS3 used to be reported as one line. Now that same DS3 is reported in DS0 equivalents, making the line count for that same circuit 672. Messrs. Pitkin and Turner are aware from testimony in other proceedings that the method for reporting access line counts for high-capacity circuits has changed, causing this false jump in access line counts, but they inexplicably ignore that fact. The truth is that SBCI has actually seen a decrease in demand for switched access lines (*i.e.*, traditional POTS lines) as a result of competition.[30] Many consumers are substituting wireless telephony, cable telephony, and cable modems for phone company access lines. Finally, I would note that Messrs. Pitkin and Turner offer absolutely no support for their claim that

alleged growth in demand on the network results in declining per-unit costs. They simply assume that SBCI is operating at a point in which an incremental increase in output will result in declining per-unit costs, but that is not always the case.

Q65. HAVE YOU PERFORMED AN ANALYSIS OF THE ARMIS DATA WHICH ACCOUNTS FOR THE CHANGE IN METHOD USED TO REPORT DS1 AND DS3 FACILITIES ?

A65. Yes. These data show that the increase in Total Access Line Counts is attributable to the increase in Special Access Lines (Non-Switched): Digital. These non-switched digital special access line increased from 1.02 million lines in 1996 to 4.24 million in 2002, an increase of 3.22 million lines. Again, the cause of this "increase" is not an actual increase in demand but simply a change in the method for counting this particular type of line. The fact is that Switched access lines, which are traditional phone lines, decreased from 6.32 million to 5.97 million over the 1996 to 2002 time frame.

Q66. HAVE YOU PERFORMED AN ANALYSIS OF THE CHANGE IN OVERALL LOOP COSTS SINCE THE EXISTING UNE LOOP RATES WERE DEVELOPED?

A66. Yes. As shown in my direct testimony, the loop costs in Illinois have actually increased. I have performed an analysis, using Illinois ARMIS data, that shows an increase in loop costs. This analysis is attached as Schedule JRS – R3.

Q67. WHY WOULD LOOP COSTS BE INCREASING?

A67. The majority of the loop cost is related to labor costs, including engineering and contractor costs. The proportion of labor in SBCI's loop costs is approximately 52%,

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[30] The FCC's ARMIS 43-08 report shows that SBCI's switched access line count decreased from 6.32 million lines

Footnote continued on next page …

based on an analysis of the revised cost studies. Labor costs have increased over time, and will continue to increase.

Q68. WHAT DOES THE ARMIS ANALYSIS SHOW IN TERMS OF LOOP COSTS?

A68. The ARMIS information shows that cable and wire investment costs and circuit investment per loop in Illinois have increased from 1992 to 2002. As Schedule JRS – R3 to my testimony shows, total loop investment in Illinois has increased by 63.4% between the years 1992 and 2002 (This is Illinois ARMIS data**).** This schedule also shows that total loop investment in Illinois has increased by 30.6% since 1998 when UNE loop rates were approved in Illinois**.** Furthermore, this schedule shows that Illinois is not alone. I also include the data for other states that have a population density similar to that of Illinois. In order to develop these data, I used the ARMIS 43-04 Report that contains investments for loop plant. Specifically, I divided the total loop investment, inclusive of cable and wire and circuit equipment, by the number of working loops from the ARMIS 43-04 Report. This analysis shows that the investment per loop has increased over the last decade. This fact clearly dispels the CLEC's claim that loop investment is decreasing.

Q69. HAS ANOTHER PROMINENT CLEC ADMITTED IN OTHER PROCEEDINGS THAT LOOP COSTS HAVE ACTUALLY INCREASED?

A69. Yes. WorldCom's brief to the Supreme Court in the *Verizon* case stated that "[a]lthough the computer-based elements of the network (such as switches) may be characterized by

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in 1996 to 5.97 million lines in 2002.

declining costs, *other elements (such as the loop) are not declining; for many elements costs are rising*."[31]

Q70. DO INDEPENDENT SOURCES CONTAIN LOOP COST DATA THAT SUPPORTS SBC ILLINOIS'S POSITION?

A70. Yes, in a recent article in Telecom magazine, it was reported that an investment of "about $1,200 per home to install new twisted-pair telephone cables" is required.[32] This investment information supports SBC's calculated loop investment. SBC's proposed investment per loop, on a statewide average basis, is actually lower than this reported amount.

IV. RESPONSE TO TESTIMONY REGARDING FILL FACTORS

Q71. STAFF AND THE CLECS GENERALLY CONTEND THAT USE OF FILL FACTORS BASED ON THE ACTUAL FILL LEVELS EXPERIENCED IN SBC ILLINOIS' NETWORK IS INAPPROPRIATE UNDER THE TELRIC METHODOLOGY. PLEASE COMMENT.

A71. Their positions reflect a fundamental, philosophical difference in views as to what the TELRIC methodology requires. Although Staff and the CLECs claim that SBC Illinois has not proven to their satisfaction that its actual fills are representative of an "efficient" provider, it is obvious from their testimony that they are not much interested in whether SBC Illinois *existing* network has been prudently and efficiently engineered over the years. Rather, they are contending that, for cost study purposes, SBC Illinois must assume an entirely *fictional* network that has been redesigned and reconstructed to precisely match the level and location of customer demand as it exists today. This

[31]Reply Brief for the Petitioners WorldCom, Inc., The Association for Local Telecommunications Services, and Competitive Telecommunications Association, In the Supreme Court of the United States, Docket No. 00-555

Footnote continued on next page …

conceptual model has nothing to do with "efficiency" as that concept is commonly understood. No real world network, no matter how efficiently designed, would ever meet that standard. Nothing in the TELRIC methodology requires use of such a hypothetical network and, in fact, many state commissions have used actual fill levels (or something close to them) as the basis for TELRIC studies. The FCC has never required use of such an approach and is now considering whether to *require* states to use more realistic assumptions.

SBC Illinois' response to these witnesses' testimony on fill factors will be presented by myself, Randall White, William Palmer and Dr. Debra Aron.

Q72. THE LEGISLATORS OF THE STATE OF ILLINOIS PASSED A LAW THAT SPECIFICALLY CALLED FOR THE USE OF ACTUAL FILL FACTORS IN THE CALCULATION OF TELRIC UNE RATES IN THIS COST PROCEEDING. THE LAW WAS OVERTURNED, BUT SHOULD THEIR EFFORTS BE RECOGNIZED NONETHELESS?

A72. Yes. While the legislation was eventually overturned by the U.S. Court of Appeals for the Seventh Circuit, it is undeniable that the Illinois legislature recognized the problems inherent with UNE rates that are so low as to substantially stifle capital investment in Illinois' telecommunications infrastructure. The legislation focused on two particular elements that have a profound effect on the UNE rate calculation, and ordered that the values for these elements be set at levels that they apparently found reasonable. Although I am not an attorney, it seems sensible for the Commission to consider the Legislature's concerns when setting UNE rates in this proceeding.

Worldcom, Inc., et al., Petitioners, vs. Verizon Communications, Inc., et al., Respondents, July 23, 2001, page 6 (emphasis added).

Q73. IF THE LEGISLATION WAS OVERTURNED, WOULDN'T THAT PRECLUDE THE USE OF FILL FACTORS BASED ON ACTUAL FILL RATES?

A73. No. The decision to overturn the legislation was not based on the fact that actual fill rates were part of the equation, but that only two factors out of many were updated. The Court indicated that *all* aspects that make up a UNE rate should be considered simultaneously. As a matter of fact, the court's ruling, in a decision written by Federal Circuit Judge Easterbrook, showed a substantial amount of support for the concept of using actual fill rates within a UNE cost proceeding, specifically mentioning SBC in the decision.

Q74. WAS ADDITIONAL GUIDANCE REGARDING THE USE OF ACTUAL FILL RATES AS THE APPROPRIATE FILL FACTORS FOR A TELRIC PROCEEDING PROVIDED IN JUDGE EASTERBROOK'S OPINION IN THE LITIGATION SURROUNDING THIS LEGISLATION?

A74. Yes. Judge Easterbrook concluded that actual fill rates could, indeed, be TELRIC compliant. Here are the pertinent extracts:

> "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 agree on the technology, they may be unable to agree on the vital details. One such detail is the "fill factor". Any sensible carrier builds more network capacity than can be used at the moment; that way capacity will be available as additional customers demand service, without waiting for the arrival of new equipment, excavating streets to lay new wire, and so on. Moreover, many kinds of telecommunications equipment have minimum efficient sizes; a switch able to handle 100,000 circuits may be cheaper than two switches able to handle 50,000 circuits apiece. The fill factor reflects the extent of this (economically justified) unused capacity. If an efficient network configuration would have 50% of the capacity in use and 50% idle – ready for new customers, a shift in demand, or use in the event of a breakdown – then the price per loop to a rival would be the average long-run cost per loop divided by 0.5. If the efficient fill factor were to have 2/3 of the circuits in use, then the price would be the long-run cost divided by 0.667, and so on. The lower the efficient fill factor, the higher the price per loop the incumbent can charge to rivals. And TELRIC does not

[32] Michael Kennedy, *Telecom*, February 2003, "Business Networks; Can the Last-Mile Problem Be Solved?"

> contain an algorithm for determining the fill factor. The FCC has approved several. 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 the state law – to flesh out. See Report and Order, FCC 03-36, 68 Fed. Reg. 52,276, 52,284 (Aug. 21, 2003). Moreover, the Commission has opened an investigation of TELRIC's operation to ensure that price does not fall below the level needed to encourage efficient investment in new facilities by both incumbents and their rivals. See Notice of Proposed Rulemaking, FCC 03-224, 68 Fed. Reg. 59,757 (issued Sept. 15, 2003, and published Oct. 17, 2003)."[33]

> "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."[34]

In the end, 7th Circuit opinion supports use of actual fill factors where they represent efficient network operations, which is the situation here.

Q75. WHAT IS YOUR UNDERSTANDING OF THE APPROPRIATE PARAMETERS FOR DEVELOPING FILL FACTORS UNDER THE TELRIC METHODOLOGY?

A75. I agree with Mr. Hoagg that the TELRIC methodology requires the Company to determine per-unit costs by dividing the total costs associated with an element by a reasonable projection of the actual total usage of the element (at pp. 25-26). From that point on, however, Mr. Hoagg and I part company. Contrary to his assertion, the FCC has never precluded use of current (or "embedded") fill factors in the development of TELRIC costs (at p. 26). I note that Mr. Hoagg provides no citation for this proposition.

[33] AT&T Communications of Illinois, Inc., et al., vs. Illinois Bell Telephone Co. and Ameritech Corp., U.S. Court of Appeals for the Seventh Circuit, Case Nos. 03-2735 & 03-2766, Pages 3-4.
[34] AT&T Communications of Illinois, Inc., et al., vs. Illinois Bell Telephone Co. and Ameritech Corp., U.S. Court of Appeals for the Seventh Circuit, Case Nos. 03-2735 & 03-2766, Pages 3-4.

I demonstrated in my direct testimony and Mr. William Palmer further demonstrates in his rebuttal testimony that numerous state commissions have used actual fill factors in UNE studies.

Q76. IN ADDITION TO THE EXAMPLES PROVIDED BY MR. PALMER, ARE THERE OTHER STATES THAT HAVE APPROVED FILL FACTORS COMPARABLE TO WHAT SBC ILLINOIS IS PROPOSING HERE?

A76. Yes. In a Florida decision, the FPSC adopted a fill factor of 47% as supported by CLEC witness Joseph Riolo. Significantly, Mr. Riolo appeared to agree that two pairs per dwelling unit is a minimum guideline for sizing distribution facilities:

> The two pair per dwelling unit is somewhat of a minimal guideline. The actual design criteria are really left to the engineer, who should be more familiar with the geography to be served. For example, in some very affluent areas where the perception might be, and very well so, that five and six pair would be the proper number per household, although it certainly does not preclude the engineer from doing that. There has to be some sufficient material that would indicate things of that nature. But I know of locations that were designed on certainly more than 2 pairs per dwelling.[35]

Thus, Mr. Riolo supported fills based on an assumption of at least two distribution pairs per household. That testimony is consistent with SBC Illinois' loop deployment guidelines, which use 2.25 pairs per household. This guideline is one of the drivers of the fill levels proposed by SBC Illinois in this proceeding.

The Arizona Commission also adopted fill factors that are very close to what SBC Illinois is proposing for distribution fill factors in this proceeding. Specifically, the Arizona Commission stated:

[35] Florida Docket No. 990649-TP Order No. PSC-01-1181-FOF-TP May 2001.

the HAI model's use of a 75 percent cable sizing factor for distribution plant, resulting in an average fill factor of 48.8% (or slightly more than 2 lines per household) is appropriate.[36]

Q77. DR. STARANCZYK (PP. 20-21) AND MR. LAZARE (P. 15) CLAIM THAT SBCI'S CURRENT ACTUAL FILL FACTORS FOR DISTRIBUTION PLANT DO NOT REFLECT AN EFFICIENT LEVEL OF OPERATION. DO YOU AGREE?[37]

A77. No. In support of this claim, they assert that the current actual fill factors for distribution cable reflect a "significant level of excess capacity" which is "inconsistent with efficient business practice." As Mr. White demonstrates, these fill factors are reflective of the realities associated with engineering a ubiquitous telecommunications network that can meet the demands of consumers and the service requirements of this Commission.

Q78. COULD SBC ILLINOIS EVER ACHIEVE THE HIGH LEVELS OF UTILIZATION REFLECTED IN THE STAFF AND CLEC FILL RECOMMENDATIONS?

A78. No. It simply will not happen in the real world.

Q79. DR. STARANCZAK CONTENDS THAT SBC ILLINOIS' UTILIZATION OF ITS OUTSIDE PLANT IS LOW COMPARED TO OTHER INDUSTRIES (PP. 14-17). PLEASE COMMENT.

A79. Dr. Aron responds in detail to Dr. Staranczak's arguments. However, I would point out that the notion of comparing the utilization of loop plant to the utilization of completely different production facilities in completely unrelated industries has no grounding whatsoever in TELRIC principles, nor have I ever seen another state commission even consider such an analogy. The objective of a TELRIC study is to determine the costs of an efficient *telecommunications* provider, not an efficient automobile manufacturer or airline or bank.

[36] Arizona Docket No. T-00000A-00-0194.

Q80. DR. STARANCZAK (PP. 14-15) REPEATEDLY REFERS TO SBCI'S 45% FILL FACTORS WHEN COMPARING SBCI TO OTHER INDUSTRIES.[38] IS THIS A DISTORTION OF SBCI'S PROPOSED FILL FACTORS?

A80. Yes. Dr. Staranczak never makes clear that SBCI's fill factors vary by the type of plant. For example, SBCI's distribution plant tends to have the lowest utilization rates. Feeder plant has much higher utilization rates, as does circuit equipment and switches.

Q81. WHAT SHOULD THE COMMISSION CONSIDER WHEN IT IS DETERMINING WHETHER SBCI'S PROPOSED USE OF CURRENT ACTUAL FILLS IS REASONABLE?

A81. The Commission should determine if an "efficient" firm providing a ubiquitous telecommunications network that has been installed over time to meet customer service demands and that is subject to the quality of service requirements faced by SBCI would operate at significantly higher levels of utilization. I have not seen any evidence that that is possible.

Q82. DR. STARANCZAK (PP. 20-21) CLAIMS THAT SBCI'S DISTRIBUTION FILL FACTORS ARE THE RESULT OF RATE OF RETURN REGULATION. DO YOU AGREE WITH THAT ARGUMENT?

A82. No. Mr. Staranczak offers absolutely no evidence that his assertion is true. Mr. White demonstrates that, in fact, SBC Illinois has designed and constructed its network efficiently, regardless whether it was under rate-of-return regulation or price cap regulation.

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[37] Lazare, p. 15.
[38] See ICC Staff Exhibit 2.0, pp. 14, 15, and 18.

Q83. DO THE UTILIZATION RATES OF SBC ILLINOIS' NETWORK REFLECT EFFICIENT ENGINEERING PRACTICES (PP. 176-177)?

A83. Yes. Many factors affect the achievable utilization rate in the network. Three examples are standardized cable sizes, regulatory requirements, and engineering for long-term demand. Cables come in standard sizes and are not custom made by cable vendors. This standardization is cost-effective because it makes the vendors' manufacturing costs lower, but at the same time it makes spare capacity inevitable. In addition, regulatory requirements, including universal service obligations and service quality standards, mandate that SBC Illinois be able to provide service on demand and remedy outages quickly. This means that SBC Illinois must deploy spare capacity that will be available when and if needed. Long-term planning is required because of the great expense associated with augmenting distribution plant. However, such long-term planning means that, inevitably, there will be spare capacity in the distribution plant. SBC witness Mr. White has discussed these issues from an engineering perspective.

As Mr. White explained at length, SBC Illinois has followed industry-accepted engineering practices throughout its existence. Specifically, SBC Illinois has employed the Carrier Serving Area ("CSA") concept since its inception. This standard was developed by AT&T and it is still the efficient forward-looking design criteria for a wireline network. Managing a dynamic network is a process in which facilities are continuously being added in some areas and approaching exhaust in other areas. Achieving the high average levels of fill recommended by Staff and the CLECs is simply not feasible in a real network. That is why the CLECs have not pointed to a single network provider, including themselves, that has achieved such levels of utilization.

Q84. THE CLECS CLAIM THAT YOU HAVE MISINTERPRETED THE FCC'S ORDER WITH RESPECT TO HOW FILL FACTORS SHOULD BE DEVELOPED (PP. 179-182). PLEASE COMMENT.

A84. I have not misinterpreted the FCC's order. The CLECs engage in a tortured textual analysis of the FCC's Order, in which they try to distinguish between "actual" usage, which they say *can* be used, and "actual" fill, which they say *cannot* be used. The short answer to this argument is that no one else agrees with them--not the 7th Circuit, not the numerous state commissions that have approved use of actual fill factors in TELRIC studies, not the FCC when it found those rates to be TELRIC-compliant in Section 271 proceedings and not the FCC when it issued its preliminary views in its TELRIC NPRM.

Q85. MR. HOAGG CONTENDS THAT YOU MADE AN ERROR IN YOUR STUDIES BECAUSE THE DIVISOR IN YOUR ANALYSES DOES NOT REFLECT FORWARD-LOOKING DEMAND (P. 27). IS HE CORRECT?

A85. No. Mr. Hoagg misunderstands the FCC's requirements and SBC Illinois' study methodology. The FCC does not require SBC Illinois to project *future* demand and then use that number to calculate TELRICs based on the *existing* network size and costs. This would result in a mismatch between demand and costs. If demand were projected forward, then network size/costs would have to be projected forward too. To the extent that this issue is related to fill factors, it would *not* be appropriate to ratchet SBC Illinois' existing fill factors upwards based on an assumption that demand will grow in the future. As Mr. White explains, an increase in demand is typically accompanied by an increase in network capacity required to serve that demand. If one were to forward look both demand and network capacity, they would net out to essentially the same fill factors proposed in this proceeding.

Q86. BOTH STAFF AND THE CLECS MAKE MUCH OUT OF THE FACT THAT THE FILL LEVELS SBC ILLINOIS IS PROPOSING IN THIS DOCKET ARE LOWER THAN THOSE APPROVED IN DOCKET NOS. 96-0486/0569.[39] PLEASE COMMENT.

A86. Although the fill factors proposed in this proceeding are different from the fills adopted in 1998, they are fully consistent with the TELRIC standard. As Mr. William Palmer explains, the fill factors approved in the original TELRIC docket were the product of a record that did not even provide the Commission with an opportunity to consider the approach SBC Illinois is recommending here. In addition, those fill factors did not, and were not intended to, reflect overall utilization levels. They reflected the point at which network relief jobs are triggered—i.e. the point at which the operating costs associated with continuing to provide service at a particular capacity level exceeds the capital costs associated with installing new plant. The best evidence of forward-looking utilization levels comes from the fill factors achieved by SBC Illinois today.

Q87. IS IT NECESSARY TO USE THE SAME FILL FACTORS FOR BOTH RETAIL AND WHOLESALE COST STUDIES, AS MESSRS. STARKEY AND FISCHER SUGGEST [PP. 193-194]?

A87. No. The cost object of and the purpose served by retail and wholesale cost studies are very different and warrant the use of different fill factors. Mr. William Palmer discusses this issue in light of SBC Illinois' historical costing and pricing practices. My views and his views are virtually identical. Total Service Long Run Incremental Cost ("TSLRIC") studies are used to determine a "price floor" for a retail service. Price floors are used to ensure that one service is not receiving a cross-subsidy from another service. However, every service cannot be priced at the price floor, as the firm would receive no

[39] Second Interim Order, Illinois Commerce Commission, Consolidated Docket Nos. 96-0486 and 96-0589.
Footnote continued on next page …

contribution to its common overheads and other costs not included in TSLRIC, including spare capacity. In practice, SBC Illinois, like the other SBC companies, prices certain retail services like residence network access lines at or near the price floor (i.e., no or little markup), while other services like central office vertical features are priced to provide a substantial margin and a substantial contribution to common overheads and other costs (like spare capacity).

In contrast to TSLRIC, a TELRIC cost study for a UNE is used to set a price *ceiling*, not a price *floor*, for a specific network element. In the case of the UNE loop cost study, that element is a UNE loop. Hence, the spare capacity of the loop plant is directly incremental to the UNE loop element and is appropriately included in the cost of that element. The formulaic nature of TELRIC pricing does not allow the network provider any pricing flexibility to recover spare capacity costs from other wholesale products. Nor would it be appropriate to assign spare capacity costs properly recovered from CLEC UNE customers from other wholesale customers (or retail customers, for that matter). Therefore, it is imperative that SBC Illinois be able to recover spare capacity costs by reflecting them in the UNE element costs. Dr. Aron addresses any price squeeze issues arising from SBC Illinois' proposals in this proceeding.

Q88. WHAT IS SBC ILLINOIS'S POSITION WITH RESPECT TO THE APPROPRIATE FILLS THAT SHOULD BE USED IN A TELRIC COST STUDY?

A88. SBC Illinois, consistent with the FCC's TELRIC rules, supports the use of a reasonable projection of actual utilization of the network. Further, SBC Illinois believes that its

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February 17, 1998.

current actual utilization rates are the best estimate of future utilization levels and, therefore, should be used for TELRIC costing purposes.

V. RESPONSE TO TESTIMONY REGARDING INSTALLATION FACTORS

Q89. PLEASE DESCRIBE THE METHOD THAT SBCI USES TO CALCULATE THE INSTALLATION INVESTMENT ASSOCIATED WITH THE MAJORITY OF EQUIPMENT USED IN THE LOOPCAT MODEL.

A89. SBCI uses a factor-based methodology to develop the installation investment for the majority of equipment used in the LoopCAT model. This factor approach is used for premises termination equipment, copper and fiber cabling, feeder-distribution interfaces ("FDIs"), and digital loop carrier ("DLC") systems. In order to develop these installation factors, SBCI uses information from its accounting system to develop installation factors that represent the relationship between certain installation costs to either materials or labor. These installation costs represent all of the relevant costs required to install equipment in SBCI's network. These factors account for all installation costs, including any unforeseen costs that can occur after an initial engineering cost estimate is done. The installation factor development using general ledger data is a simple process that is easily verified, and provides an excellent accounting of all costs associated with every one of the thousands of projects (i.e., undertakings) that SBC has conducted in Illinois. In fact, the data used in creating the installation factors flow into the general ledger (which undergoes substantial annual auditing) and ultimately into the company's filings with the FCC and SEC. SBCI witness Mr. Timothy Dominak discusses the use of accounting data in his Rebuttal Testimony.

Q90. IF THE PROCESS IS SIMPLE, WOULD YOU EXPLAIN IT?

A90. Yes. The Company tracks all of the costs incurred in each undertaking by FRC (Field Reporting Code) and sub-account (these sub-accounts are called transaction cost codes, or TCCs), as depicted in the following diagram.

Undertaking XXXXXX

FRC 45C - Buried Copper	FRC 22C - Aerial Copper	FRC 5C - Underground Copper
TCC 520 - Materials	TCC 520 - Materials	TCC 520 - Materials
TCC B46 - Engineering	TCC B46 - Engineering	TCC B46 - Engineering
TCC B12 - Plant Labor	TCC B12 - Plant Labor	TCC B12 - Plant Labor
• • •	• • •	• • •
TCC B37 - General Admin	TCC B37 - General Admin	TCC B37 - General Admin

At the end of the year, SBC accumulates the totals of all labor, engineering, vendor, and miscellaneous costs incurred for construction of all outside plant placed in service, in Illinois, throughout the year. This actual construction cost data flow to the general ledger and also form the basis for the installation factors that were used in SBC's loop cost study.

Q91. AT&T WITNESSES PITKIN AND TURNER (PP. 32-34) AND JOINT CLEC WITNESSES MESSRS. STARKEY AND BALKE (P. 54) CRITICIZE SBCI'S DEVELOPMENT OF INSTALLATION FACTORS. IS SBCI'S USE OF INSTALLATION FACTORS AN APPROPRIATE METHODOLOGY FOR DEVELOPING UNE LOOP COSTS?

A91. Yes. The use of installation factors for developing the installation investment associated with loop cabling and equipment is a long accepted practice in telecommunications costing and has been used in cost studies approved by this Commission in the past.

Further, I find it interesting that Mr. Balke would criticize the use of installation factors for cable since the method employed in SBC Illinois's current loop study is the same as that used in the AFAM cost study developed under Mr. Balke's direction and approved by this Commission.

Q92. MESSRS. PITKIN AND TURNER (P. 31) CLAIM THAT "IT IS ABSOLUTELY IMPOSSIBLE FOR A PROCESS THAT RELIES EXCLUSIVELY ON HISTORICAL INSTALLATION RELATIONSHIPS OF AN EMBEDDED NETWORK TO REFLECT THE FORWARD-LOOKING TECHNOLOGY AND NETWORK ARCHITECTURE MANDATED BY A PROPERLY PERFORMED TELRIC STUDY." MR. LAZARE (P. 18) MAKES A SIMILAR ARGUMENT. DO YOU AGREE?

A92. No. The installation factors used in the cost study were developed based on SBC Illinois's recent actual data for both material costs and installation costs in order to establish a relationship between such costs. For example, if last year SBC Illinois spent $4.00 in total costs for every $1.00 in major material costs, then the installation factor would be equal to 4.0. Then, in the model, SBC Illinois would take current contract costs for equipment and multiply that contract price for the equipment by the factor to obtain a forward looking total installed cost. As a result, the total installed equipment costs included in the Company's study are neither "embedded" nor "historical". Neither Staff nor the CLEC witnesses offer any evidence that demonstrates that this method is unsound or that the relationship between material costs and installation costs over the past few years will not hold true for the future. It is appropriate to base a forward looking cost study on known facts.

Q93. MESSRS. PITKIN AND TURNER (P. 32) CLAIM THAT THE USE OF EMBEDDED LOADING FACTORS IS NOT FORWARD LOOKING, AND GIVE THE EXAMPLE OF HOW, WHEN BUILDING A NEW HOME, ONE WOULD

USE A BOTTOM-UP ESTIMATING APPROACH. IS THIS A LEGITIMATE COMPARISON?

A93. This metaphor is misleading because of the scale of the comparison. In Messrs. Pitkin's and Turner's example, they refer to the fact that one would not use loading factors when building a single home. If you were constructing a home, and you knew right where the home would be placed, and the size of the home, and who is building that particular home, you *could* do such a detailed estimate. But what if none of those parameters were given? What if you were asked to determine the probable cost for the next home, somewhere in a large area (as large as half of the state) that you happen to build homes in, what would you do? You would certainly look at your recent costs for doing a like task. Hopefully, you are a major contractor and have a body of work from which you can make assumptions based on actual experience. Recent activities are the best, most legitimate, most reasonable means for performing such an estimate. Likewise, you could perform a fairly accurate detailed estimate for the cost of constructing outside loop plant to any single house. But this proceeding is not trying to determine the cost for supplying phone service to a single house. In this docket, SBC is trying to determine the probable cost for building outside plant for the next randomly selected home out of several millions of homes - and businesses. Neither SBC nor the CLEC knows where the home is, or if it easy or difficult to do construction in the area, or what type of plant is needed. There are no restrictions regarding where the next UNE customer is located. Given the uncertainty of such issues, it is certainly legitimate (and forward-looking) for SBC to use information regarding recent loop construction activities to estimate the cost of near-future loop construction.

Q94. IS THERE ANY REASON TO BELIEVE THAT SBCI'S INSTALLATION FACTOR METHODOLOGY MIGHT BE CONSERVATIVE?

A94. Yes. To the extent that certain equipment prices, such as that of electronics tend to stay relatively flat or decline (which Messrs. Pitkin and Turner claim is a fact), and that labor costs tend to rise, it suggests that the ratio of total installed costs to equipment costs might increase in the future, not decrease.

Q95. MR. LAZARE (P. 19) AND MESSRS. PITKIN AND TURNER (P. 40) CONTEND THAT SBCI'S EF&I FACTORS ARE INFLATED BECAUSE THE COST ACCOUNTS USED BY SBCI TO REFLECT EXPENDITURES ARE NOT ONLY FOR NEW NETWORK CONSTRUCTION BUT ALSO INCLUDE COSTS TO REINFORCE OR EXPAND THE EXISITNG NETWORK. DO YOU AGREE?

A95. No. Mr. Lazare makes this argument because some of SBCI's construction jobs reflect "augmentations" to the existing network. In other words, SBCI has to undertake construction in an area in which it has already deployed facilities. However, Mr. Lazare provides no evidence that every augmentation would be smaller that any new construction effort. Regardless of the size of augmentation jobs, the fact is that SBCI's EF&I factors reflect a variety of job sizes. This is not inconsistent with forward-looking principles. Even in a forward-looking network, facilities are built over time and not instantaneously. In other words, the reality is that networks are built incrementally. Therefore, it is appropriate to include reinforcement jobs.

Q96. MESSRS. PITKIN AND TURNER (P. 41) CLAIM THAT MR. WHITE'S TESTIMONY DEMONSTRATES THAT REINFORCEMENT JOBS COST MORE THAN INSTALLING SPARE CAPACITY AT THE OUTSET. DOES THAT MAKE THESE JOBS INCONSISTENT WITH TELRIC?

A96. No. Mr. White was pointing out that reinforcement jobs are expensive. That is why SBC Illinois , like other efficient network providers, builds spare capacity into the network. However, as Mr. White explains in his rebuttal testimony, plant reinforcements must and

will occur over time and these reinforcements represent part of the engineering process involved in the efficient operation and maintenance of the network. Again, TELRIC is designed to calculate the cost of an efficient network provider, not the "perfect" network. All providers will incur reinforcement expenses. To ignore this fact would result in an underestimation of forward-looking costs.

Q97. IN A RELATED ARGUMENT, MESSRS. PITKIN AND TURNER ASSERT THAT INSTALLATION FACTORS DO NOT REFLECT THE SCALE OF JOBS THAT WOULD BE UNDERTAKEN IN A TELRIC ENVIRONMENT. (PP. 38-39) DO YOU AGREE?

A97. No. Messrs. Pitkin and Turner claim that "SBC's embedded relationships of installation to material costs reflect SBC's experience with construction projects that are much smaller than those that are associated with a scorched node, forward-looking cost study as required by the FCC and the ICC."[40] Messrs. Pitkin and Turner apparently do not understand the way in which outside plant is constructed. They assume that TELRIC requires that forward-looking costs only consider the average cost of large construction jobs, but then their testimony inaccurately depicts the way in which construction jobs are completed. Even when there are large construction jobs that need to be completed, those jobs are typically structured as a series of smaller jobs. Thus, even assuming SBC Illinois were going to rebuild its network from scratch, such an extremely large construction project would actually be completed as a series of much smaller projects, which in the end would accomplish what the "total" project intended to realize. In the real world, outside plant is constructed in phases, allowing projects to be managed more efficiently.

SBC Illinois' installation factors reflect a sufficiently large sample to accurately represent a realistic, forward-looking mix of small, medium, and large construction projects. SBC Illinois's installation factors are based on three years of recent construction jobs in Illinois. By covering a multiple number of recent years, the data include a sufficient sample of all sizes of projects to ensure that the resulting installation factors accurately represent the normal forward looking relationship between equipment costs and engineering and installation labor costs.

Q98. HAS THE FCC RECOGNIZED THE FACT THAT NETWORKS ARE BUILT OVER TIME?

A98. Yes. In its recent TELRIC NPRM, the FCC stated that "In the real world, however, even in extremely competitive markets, firms do not instantaneously replace all of their facilities with every improvement in technology. Thus, even the most efficient carrier's network will reflect a mix of new and older technology at any given time."[41] This argument would equally apply to types of technology and the cable sizing mix. The FCC went on to say that "As discussed above, the UNE pricing methodology, while forward-looking, must be representative of the real world and should not be based on the totally hypothetical cost of a most-efficient provider building a network from scratch."[42] These clarifications on the TELRIC standard by the FCC clearly refute arguments of the Staff

[40] Testimony of Brian F. Pitkin and Steven E. Turner, ICC Docket No. 02-0864, p. 39.
[41] Federal Communications Commission, FCC 03-224, *Notice of Proposed Rulemaking*, In the Matter of Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers (WC Docket No. 03-173). Released: September 15, 2003. ¶ 50
[42] *Id.*, ¶ 53

and CLEC witnesses regarding the use of actual data for the development of forward-looking UNE costs.

Q99. MESSRS. STARKEY AND BALKE ALSO STATE THAT LOOP INSTALLATION FACTORS MAY NOT BE REPRESENTATIVE OF EQUIPMENT CURRENTLY BEING PLACED. (PP. 57-60) DO YOU AGREE?

A99. No. The cable installation factors used in the LoopCAT model are representative of the equipment currently being installed. Those factors are developed specifically for the type of cable (i.e., either copper or fiber and for aerial, buried, and underground). Therefore, I must assume that digital loop electronics, not cables, were the subject of this discussion. Again, the Company's proposed installation factors, as revised in this rebuttal filing, are representative of the DLC equipment currently being installed. As discussed below, the DLC installation factors are developed based on the most recent three years of available data (2000-2002). During that period, Alcatel's Litespan DLC system has been the predominant DLC system installed. This is the system that is currently being installed.

Q100. MESSRS. STARKEY AND BALKE (P.57) AND MESSRS. PITKIN AND TURNER (PP. 43-44) CLAIM THAT IT IS INAPPROPRIATE TO USE STATEWIDE DATA TO DEVELOP INSTALLATION FACTORS ON A STATEWIDE AVERAGE?

A100. No. It is not expected that installation costs will vary significantly by zone. That aside, it is also important to note that such granularity does not exist in the accounting system and, therefore, it is not possible to calculate geographically deaveraged installation factors, given existing data.

Q101. DO INSTALLATION FACTORS CREATE GEOGRAPHIC AVERAGING DISTORTIONS, AS MESSRS. PITKIN AND TURNER CLAIM (PP. 33, 43)?

A101. No. Messrs. Pitkin and Turner incorrectly contend that, just because larger pieces of equipment may be installed in higher-density (i.e., urban) areas, installation factors will

overstate construction costs in those areas. The fact is that per unit construction costs may actually increase in higher-density areas because of the nature of construction in urban areas. Namely, higher-density areas are likely to involve more concrete, more traffic, and more municipal regulations, to name but a few complicating factors that increase the cost of doing business in more congested areas.

Q102. HAVE MESSRS. PITKIN AND TURNER ADMITTED IN OTHER PROCEEDINGS THAT INSTALLATION FACTORS ARE APPROPRIATE?

A102. Yes. In a recent California proceeding, these witnesses acknowledged that installation factors are appropriate in some instances.[43] That is the case with the factors used in SBC Illinois's loop cost study. It would be overly burdensome, if not impossible, to develop accurate installation costs for outside plant otherwise. As I will discuss below, SBC Illinois's method is far superior to the "bottoms-up" approach proposed by AT&T, which omits a significant amount of the activities and related costs that are necessary to install loop facilities.

Q103. HAVE THERE BEEN ANY RECENT PROCEEDINGS WHERE AN INSTALLATION FACTOR APPROACH HAS BEEN ADOPTED?

A103. Yes. In general, linear loading factors have been used in, and approved in, various Ameritech UNE rate proceedings for several years, including in previous Illinois UNE rate cases. Further, in a recent Virginia Arbitration (CC Docket 00-218), the FCC's Wireline Competition Bureau issued an order on August 29, 2003, and addressed the use of an installation factor. Verizon proposed a factor in its transport studies that is very

[43] California Reply Declaration of John Donovan, Brian Pitkin, and Steven Turner at p. 48.

similar to the type of in-place factor proposed by SBC Illinois in this proceeding. The Bureau approved Verizon's factor:

> We find that, although we have concerns about Verizon's and AT&T/Worldcom's proposal, the Verizon proposal is the better of two proposals because it relies on more recent vintage data. (paragraph 519)

Clearly, the FCC's Wireline Competition Bureau does not find that the use of factors to develop installation costs are inconsistent with TELRIC. Moreover, the Bureau confirms the propriety of using "recent vintage data," just as SBC Illinois has done.

It should also be noted that the Indiana Utility Regulatory Commission ("the "Indiana Commission") recently entered an order establishing UNE rates for SBC Indiana, in which it expressly approved the installment factor methodology used by SBC Illinois in this case and, in doing so, rejected many of the same criticisms that have been directed at that methodology in this case. The Indiana Commission also rejected the "bottoms up" approach proposed in that case by Messrs. Pitkin and Turner[44] which is virtually identical to the approach that they propose in this case. In arriving at these conclusions, the Indiana Commission stated as follows:

> "In analyzing this dispute we are guided by the recognition that TELRIC does not preclude the use of total, long-run averages. That is, installation costs have to be computed as average costs across a variety of situations in order to be usable in setting generally applicable rates.
>
> The Commission reaffirms that SBC Indiana's use of linear loading factors is reasonable."[45]

[44] Indiana Utility Regulatory Commission, Cause No. 42393, In the Matter of the Commission Investigation and Generic Proceeding of Rates and Unbundled Network Elements and Collocation, Approved Jan 05, 2004, p. 44.
[45] Indiana Utility Regulatory Commission, Cause No. 42393, p. 44.

The Indiana Commission also recognized that the build-out of telephone plant is incremental by nature, thereby contradicting the Messrs. Pitkin's and Turner's argument that the TELRIC method requires an assumption that an entire state's network could be replaced in a few days:

> "TELRIC assumes that a forward-looking network will be constructed over time, not instantly, and networks placed over time will include construction projects of all shapes and sizes.
>
> SBC Indiana's linear loading factors approach is a reasonable way to compute such average installation costs."[46]

SBC Illinois uses the same reasonable approach in its cost studies for this TELRIC-based rate case proceeding as was used in the Indiana proceeding.

Q104. HAS THIS COMMISSION APPROVED COSTS DEVELOPED THROUGH THE USE OF LOADING FACTORS?

A104. Yes. In Docket No. 96-0456 and 96-0569, which set the current Illinois UNE rates, linear loading factors were used in the same manner that SBC Illinois proposes they be used in the current docket.

Q105. MESSRS. PITKIN AND TURNER STATE THAT THE FLORIDA AND GEORGIA COMMISSIONS REJECTED THE USE OF LINEAR LOADINGS IN BELLSOUTH'S LOOP MODEL. IS THIS CORRECT?

A105. This statement is not entirely true. The Florida Commission ordered different labor loadings for cable, but there are other labor investment components associated with cable that are derived by using factors. In addition, the only "bottom-up approach" that was

[46] Indiana Utility Regulatory Commission, Cause No. 42393, In the Matter of the Commission Investigation and Generic Proceeding of Rates and Unbundled Network Elements and Collocation, Approved Jan 05, 2004, p. 44.

adopted was for cable investment. The Georgia Order also requires alternative labor inputs, but it adopts an engineering factor as part of the installation costs.[47]

Q106. WHAT CABLE LABOR FACTORS AND OTHER LOADING FACTORS ARE CURRENTLY USED IN BELLSOUTH'S LOOP MODEL AND WERE NOT CHANGED BY THE RECENT FLORIDA COMMISSION ORDER?[48]

A106. BellSouth continues to use the following factors as loadings on the cable material investment:

- Engineering
- Exempt Material

In addition, BellSouth uses the following loadings on other loop equipment:

- Poles
- Conduit
- Land
- Buildings
- Support Equipment
- Power

Q107. WAS BELLSOUTH ORDERED TO USE A BOTTOM-UP APPROACH TO CALCULATE THE LABOR ASSOCIATED WITH DIGITAL LOOP CARRIER EQUIPMENT?

A107. No. BellSouth continues to use an in-place factor similar to what SBC uses, to calculate the labor portion of the DLC investment.

Q108. HAS SBCI REVISED THE CABLE INSTALLATION FACTORS IN ITS REVISED COST STUDY?

A108. Yes. The cable installation factors have been revised to remove premises termination labor investments, making the factors more precise with respect to cable. This adjustment

[47] Georgia Public Service Commission Order, Docket No. 14361-U, June 25, 2003.
[48] Florida Public Service Commission Order, Investigation Into the Pricing of Unbundled Network Elements, Order No. PSC 01-1181-FOF-TP, May 25, 2001, Section O starting at page 221.

is being made in response to a point made by AG witness Dunkel, as will be discussed in more detail in Section VI of this rebuttal testimony.

Q109. HAVE YOU REVIEWED MR. LAZARE'S PROPOSAL FOR REVISING SBC'S PROPOSED EF&I FACTORS FOR COPPER AND FIBER CABLE?

A109. Yes. At pages 28 to 29 of his testimony, Mr. Lazare proposes that each copper and fiber installation factor be based on the lowest installation factor of each of the years 1999, 2002 and 2001, rather than using the factor that is developed based on data for all three years.

Q110. HAS MR. LAZARE PRESENTED ANY EVIDENCE THAT SBCI'S COPPER AND FIBER CABLE FACTORS ARE INACCURATE?

A110. No. Mr. Lazare simply argues that they are not accurate because the factors are developed based on historical relationships between material and labor. Mr. Lazare argues that SBCI has not proven that these relationships will be accurate in the future.[49] As I have previously discussed, there is no reason to expect that the relationship between the costs of cable material and the costs for installing cable for a recent three year period are likely to change**.** Mr. Lazare presents no evidence that those costs will change. If anything, the approach taken by the Company produces a conservative result since use of data for only the most recent year available at the time that the study was performed (2001) would have produced installation factors that are generally higher than the installation factors developed by the Company on the basis of three years data (1999-2001). The conservative nature of the Company's proposal is confirmed by the fact that general ledger data for the years 2000 through 2002 produces cable installation factors

[49] Lazare pp. 27-28

that are slightly higher than those used by the Company in its study. Thus, there is generally a trend toward increases in the ratio of cable installation cost to material costs, which is not surprising in light of increases in labor costs.

Q111. GIVEN MR. LAZARE'S CONCERNS REGARDING HISTORICAL DATA, DOES HIS PROPOSAL TO PICK THE VINTAGE OF DATA THAT PRODUCES THE LOWEST FACTOR MAKE SENSE (PP. 27-28)?

A111. No. If Mr. Lazare were truly concerned with the age of the data used to predict future costs, then it would have made more sense for him to recalculate the factor based on data for 2001, the most recent of the three years for which data was available. As shown in his Exhibit 4, pages 2-7, however, only one of the factors developed by Mr. Lazare was based on data for 2001. The rest were based on data for 1999 and 2000. There is no basis for Mr. Lazare's approach of selectively using data for the particular year that happens to produce the lowest number.

Q112. WHY DID SBC ILLINOIS BASE CABLE FACTORS ON THREE YEARS OF RECENT DATA, RATHER THAN ON DATA FOR THE ONE MOST RECENT YEAR?

A112. There may be fluctuations in the precise ratio of installation and engineering labor costs and material costs on a year to year basis reflecting factors such the particular mix of facilities that are installed in each year. As I previously discussed, by covering three recent years, the data includes a sufficient sample of all sizes of projects to ensure that the resulting installation factors accurately represent the normal forward looking relationship between equipment costs and engineering and installation labor costs.

Q113. MR. LAZARE ARGUES THAT HIS METHOD IS CONSERVATIVE BECAUSE IT IS THE LOWEST OF WHAT HE CLAIMS ARE INFLATED ESTIMATES. COULD YOU PLEASE COMMENT ON MR. LAZARE'S POSITION (PP.28-29)?

A113. Yes. Mr. Lazare claims that all of SBCI's annual installation factors for cable are necessarily inflated because those data contain reinforcement jobs, which Mr. Lazare seems to believe are always higher than new construction jobs. There are several conceptual problems with this approach. First, Mr. Lazare seems to be suggesting that TELRIC should be interpreted in a way that assumes that SBCI is a perfect firm. For Mr. Lazare to claim that reinforcement jobs in the network are inefficient he is saying that an efficient forward-looking firm would never reinforce its network. In other words, the firm would be perfect, and would always predict the location and amount of future growth perfectly. As I discussed above, that idea is clearly contradictory to the FCC's clarification on TELRIC in its recent NPRM.

Second, I would like to explore the concept of "new construction" versus "reinforcement jobs" as they occur in the real network. In the real network, new construction typically refers to constructing telephone plant in a new, previously undeveloped area, such as a new subdivision. The construction costs there are lower in many cases because SBCI has the opportunity to place its cable and other items of plant before streets, driveways and sidewalks are placed. Real network reinforcement jobs imply that SBCI is going back into a developed area to place additional facilities. Because of man-made impediments such as streets, those jobs tend to be more expensive. If one assumes Mr. Lazare's completely hypothetical version of TELRIC, then one must assume that the world stands as it is, with the exception that the telephone network is not in place. This means that all roads, bridges, sidewalks, driveways, buildings, etc. are in place as they are today, but

SBCI would have to come in and build its network in that environment. This would require SBCI to tear up streets in urban areas, bore under all existing sidewalks and driveways in the neighborhoods, and all of the other activities that accompany building telecommunications plant in an established area. Therefore, every construction project in this hypothetical world, to serve the existing customer base, would look more like a reinforcement job than a new construction job. This suggests that Mr. Lazare's fundamental premise that reinforcement jobs are not TELRIC compliant is simply wrong.

Q114. MESSRS. PITKIN AND TURNER (PP. 42-47) CRITICIZE SBC ILLINOIS'S USE OF INSTALLATION FACTORS FOR ESTIMATING INSTALLATION COSTS ASSOCIATED WITH CABLING AND EQUIPMENT. PLEASE EXPLAIN WHY LOOPCAT INCORPORATES INSTALLATION FACTORS IN THIS MANNER.

A114. Installation factors allow for a more accurate and comprehensive accounting of installation costs for outside plant than do the bottom-up cost estimates recommended by the CLECs. SBC Illinois's cost studies use installation factors to develop the installation costs for major material. The use of such factors is reasonable and has been applied in the development of network costs for many years. Contrary to the claims of Messrs. Pitkin and Turner, the installation factors employed by SBC Illinois's UNE cost studies are not based upon SBC Illinois's embedded costs; rather, the installation factors are based on very recent data that give an accurate reflection of the relationship between major material investment and the costs to install the major material. Finally, these factors represent a mix of projects from very small to very large in scope, and thus are reasonably representative of forward-looking construction activities.

Q115. MESSRS. PITKIN AND TURNER PROPOSE TO CALCULATE A "BOTTOMS UP" ESTIMATE OF CABLE INSTALLATION COSTS BY USING SBC'S JOB ADMINSTRATION MANAGEMENT ("JAM")TOOL. IS THIS APPROPRIATE?

A115. No. As Mr. White explains in his rebuttal testimony, JAM is not a system that attempts to capture all costs; it is an engineering estimator's tool. The JAM estimating tool serves its purpose of providing feedback to the engineers on the relative impact of various choices. It provides labor force information, helping those who have to create workforce schedules make their plans. But it has shortcomings when it comes to determining the total costs for outside plant placement, which is what matters under TELRIC. Moreover, even if JAM were an appropriate tool for developing TELRIC costs (and it is not), Messrs. Pitkin and Turner's workpapers reveal that they did not really use JAM properly. Rather, they hand picked various factors from JAM to create the story they wanted to create. Moreover, to the extent Pitkin and Turner relied on JAM data, they misused and misinterpreted it. In particular, as Mr. White demonstrates in his rebuttal testimony, Messrs. Pitkin and Turner did not properly apply JAM because they did not take into account all of the steps that must be taken to install cable facilities. As a result, their so-called "bottoms up" calculation does not accurately reflect all of the hours of engineering and labor time needed to complete any cable installation project.

Finally, as Mr. White also discusses, there are a myriad of costs that are incurred on real-world cable installation projects that cannot be fully and accurately predicted and estimated at the time that the job is planned and that are not estimated using JAM. As a result, using JAM to develop a "bottoms up" estimate is simply not a proper method for calculating the total installed cost of facilities for purposes of developing TELRIC loop cost estimates. The reasonable approach is to calculate a loading factor taking into

account all of the costs actually incurred to engineer and install labor facilities and which are audited and booked to the Company's general ledger.

Q116. CAN YOU DESCRIBE JAM'S SHORTCOMINGS WHEN IT COMES TO DETERMINING THE COSTS OF PLANT PLACEMENT?

A116. There are two main types of cost estimation errors generated within the JAM estimation tool: systemic errors and job-specific estimation errors.

Systemic Errors are those errors built into the JAM system. Of the systemic errors, there are two main causes that are readily identifiable:

1. Missing TCCs (Transaction Charge Codes) – SBC tracks costs by field reporting code (FRC), and by the TCC subaccounts. JAM does not capture all of these TCCs for the outside plant FRCs, causing JAM to under-report costs.

2. JAM time estimate errors – While SBC tries to maintain correct time estimates for every function, there are errors. These can be either job-specific estimation errors, which are errors that occur on any given job estimate, or these can be engineering estimation errors, which are errors that occur when the engineer simply makes a mistake.

   - Unforeseeable Issues – These errors occur when, despite SBC's best efforts to perform a correct estimate, events outside of SBC's control have an impact on the level of effort required to perform the task. Examples of such costs are discussed by Mr. White.

Q117. WHY DO YOU SAY THAT MESSRS. PITKIN AND TURNER DID NOT USE JAM PROPERLY?

A117. Messrs. Pitkin and Turner claim to have relied on JAM for inputs to their revised cost estimates (such as man-hours to perform a splice), but a review of their workpapers shows that they did not really use JAM inputs at all. To properly claim that one used an estimating tool like JAM implies that the data were used without significant

modifications to the inputs and outputs. Messrs. Pitkin and Turner, however, have altered the output in a way that makes the original outputs all but irrelevant.

For example, Messrs. Pitkin and Turner attempt to develop the time required to place and splice an aerial terminal. They show that *****Begin Proprietary*****End Proprietary***** hours are required to place and splice a 25 pair aerial terminal. But the JAM Estimator Report, which they claim to have used for the time estimates, shows *****Begin Proprietary*****End Proprietary***** hours to place and splice an aerial terminal and *****Begin Proprietary****End Proprietary***** hours to test the terminal. After performing such modifications, one could say that JAM wasn't really used at all. Instead, Messrs. Pitkin and Turner created their own stand-alone estimate and simply alleged that it came from JAM inputs. Mr. White discusses other errors in Messrs. Pitkin's and Turner's use of JAM.

Q118. DO YOU HAVE ANY ADDITIONAL COMMENTS REGARDING THE TIME ESTIMATES PROPOSED BY PITKIN/TURNER?

A118. Yes. Their estimates so severely depart from even the JAM estimates (which already tend to be low) that there is no doubt that the estimates are unrealistically low. For example, they cut the JAM estimate presented above by over two-thirds. Given that Mr. Turner has little if any "hands-on" experience in constructing outside plant and Mr. Pitkin appears to have none, and, given that the estimates they present represent such a departure from SBC Illinois's high level estimates of the time required to construct outside plant, Messrs. Pitkin and Turner's estimates are clearly unrealistic.

Q119. ARE THERE ANY OTHER PROBLEMS WITH THE WAY IN WHICH MESSRS. PITKIN AND TURNER CALCULATED CABLE INSTALLATION COSTS USING THEIR "BOTTOMS UP APPROACH"?

A119. Yes. Messrs. Pitkin and Turner purported to calculate cable installation costs by multiplying their inadequate estimates of the time it takes to perform the activities necessary to install cable equipment by the hourly labor rates developed by AT&T witness Robert Flappan. As discussed by Mr. Barch in his rebuttal testimony, the labor rates proposed by Mr. Flappan do not accurately reflect SBC Illinois' forward-looking labor costs. For example, as demonstrated by Mr. Barch, Mr. Flappan arbitrarily reduced wage and benefit levels below those that SBC Illinois is actually required to pay its union employees pursuant to collective bargaining agreements.

Q120. HOW DO MESSRS. PITKIN AND TURNER'S INSTALLATION COST ESTIMATES COMPARE WITH THE COSTS ACTUALLY INCURRED ON ACTUAL JOBS?

A120. The installation cost estimates offered by Messrs. Pitkin and Turner are simply too low. SBCI's cable installation factors reflect the relationship between the material and installation costs that SBCI has and will continue to experience in the actual construction of its network. Messrs. Pitkin and Turner's estimates on the other hand are not accurate.

Q121. HAS ANY STATE COMMISSION COMMENTED ON THE "BOTTOMS UP" METHOD OF CALCULATING INSTALLATION COSTS PROPOSED BY AT&T IN THIS CASE?

A121. Yes. As I previously indicated, in the recently completed UNE cost docket for SBC Indiana, the Indiana Commission specifically analyzed AT&T's proposed methods for calculating installation costs, and found that AT&T's bottom-up method for calculating installation costs understates the true costs involved with outside plant construction.

> "The Commission finds that AT&T's proposed bottom-up approach to developing loop costs is unworkable because, among other things, it does not account for all of the different variables that can occur at each job, and thus it would understate SBC Indiana's actual costs. "[50]

The Commission also determined that AT&T's source for much of its information, an engineering estimation tool used within the SBC Midwest region called JAM (Job Administration Management), has shortcomings when pressed into service for the task of developing TELRIC-based costs.

> "Moreover, AT&T's bottom-up approach depends on using data from the JAMS database to develop proposed costs. The evidence shows that JAMS is not appropriate for use in developing SBC Indiana's total costs, because it is not designed to, and does not reflect the actual total costs of a project."[51]

In their filing in this Illinois proceeding, AT&T began with the same source for their installation cost estimates, SBC's engineering estimating tool JAM. They made further *downward* adjustments to the information retrieved from JAM, suggesting to me that their methods are even less TELRIC-compliant than if they had used the JAM information unaltered. Specific issues within Messrs. Pitkin's and Turner's bottom-up costing methods, as they have filed in this proceeding, are discussed in more detail in the rebuttal testimony of SBC witness Mr. White.

[50] Indiana Utility Regulatory Commission, Cause No. 42393, In the Matter of the Commission Investigation and Generic Proceeding of Rates and Unbundled Network Elements and Collocation, Approved Jan 05, 2004, p. 44.
[51] Indiana Utility Regulatory Commission, Cause No. 42393, In the Matter of the Commission Investigation and Generic Proceeding of Rates and Unbundled Network Elements and Collocation, Approved Jan 05, 2004, p. 44.

Q122. DO THE STAFF AND AT&T WITNESSES MAKE ANY CRITICISMS OF THE INSTALLATION FACTOR APPROACH TAKEN BY THE COMPANY THAT ARE SPECFIC TO THE DLC EQUIPMENT?

A122. Yes. At pages 36 to 38 of their testimony, Messrs. Pitkin and Turner criticize the Company's use of the PICS/DCPR data base to calculate DLC installation factors on the grounds that it is a "black box" containing data that "cannot be verified. " Mr. Lazare, on the other hand, points out that the PICS/DCPR data used to calculate installation factors in the study presented by SBC Illinois in this case was from the years 1997 through 2000. Mr. Lazare (p. 22) argues that it is inappropriate to use data that is as old as 6 years to develop forward-looking costs.

Q123. DO YOU AGREE WITH THESE CRITICISMS ?

A123. No. It is not true that SBC's PICS/DCPR-based factors are a "black box." In fact, SBCI provided the supporting data for its factors and also responded to discovery related to the PICS/DCPR database. Furthermore, I do not agree that data from the years 1997 through 2000 is necessarily too old to use as the basis for developing a forward-looking relationship between material and installation costs. Nonetheless, to address these specific concerns and reduce the number of contested issues that need to be resolved by the Commission in this case, SBC Illinois has revised its cost study to use DLC installation factors developed on the basis of data from the Company's general ledger (rather than from PICS/DCPR) for the years 2000 through 2002, the three most recent years for which data is currently available. As I have previously discussed, the general ledger was also the source of the data used to calculate the Company's cable installation factors.

Q124. MR. DUNKEL ALSO CRITICIZES THE COMPANY'S PROPOSED DLC INSTALLATION FACTORS AND PROPOSES AN ALERNATIVE. HAVE YOU REVIEWED MR. DUNKEL'S TESTMONY IN THIS REGARD?

A124. Yes. Mr. Dunkel (p. 29) notes that the total engineering and installation costs for a 2016 line DLC remote terminal included in SBC Illinois' original study was ******BEGIN CONFIDENTIAL***************END CONFIDENTIAL ******. Mr. Dunkel asserts that this number is higher than the costs indicated by SBC Illinois' responses to certain data requests. Based on those responses, Mr. Dunkel recommends that the DLC-RT installation investment be set at ******BEGIN CONFIDENTIAL****** ****** ******END CONFIDENTIAL****** for a 2016 line DLC-RT cabinet and ******BEGIN CONFIDENTIAL***************END CONFIDENTIAL****** for a 672 line DLC-RT cabinet.

Q125. DO YOU AGREE WITH MR. DUNKEL'S RECOMMENDATION?

A125. No. The data request responses upon which Mr. Dunkel relies made it clear that the time and cost estimates provided in those responses were just that – estimates, and are not reflective of the total amount of costs associated with installing DLC remote terminals. For example, the response to AT&T Data Request BFP 398 includes the following cautionary note about applying the data: "Each remote terminal is unique with differing conditions. The hourly estimates can vary widely based on the conditions present at each site. In addition, the estimate does not include planning or engineering time, nor does it include any time associated with right of way acquisition that are highly variable on a site by site basis". I would note that the total installation costs for a 2016 line DLC-RT cabinet and a 672 line DLC-RT cabinet reflected in SBC Illinois' revised cost study contained in Schedule JRS - R1 are *****BEGIN CONFIDENTIAL***************

*************END CONFIDENTIAL***. These amounts are calculated based on the application of an installation factor that reflects actual, audited DLC engineering and installation costs booked to the Company's general ledger and, therefore, are a more accurate representation than Mr. Dunkel's numbers for the forward looking DLC engineering and installation costs.

Q126. MESSRS. PITKIN/TURNER ADVOCATE USING***BEGIN CONFIDENTIAL****************END CONFIDENTIAL****** AS THE TOTAL INSTALLATION COST FOR A DIGITAL LOOP CARRIER ("DLC") REMOTE TERMINAL ("RT").[52] IS THAT APPROPRIATE?**

A126. Absolutely not. Initially, I would point out that Messrs. Pitkin and Turner say they are using the ******BEGIN CONFIDENTIAL***************END CONFIDENTIAL******* figure, but their Figure 4 at page 69 indicates that they have assumed a total cost of installing a DLC remote terminal of only half that amount, or *******BEGIN CONFIDENTIAL***** ***********END CONFIDENTIAL.** Furthermore, the amount of expenses associated with site preparation related to real estate acquisition and construction pad installation included by Messrs. Pitkin and Turner is only *******BEGIN CONFIDENTIAL******* ****************END CONFIDENTIAL . These amounts grossly understate the total installation cost for the following reasons:

- They grossly underestimate the costs for preparing the site and laying the concrete pad on which the RT is placed.
- They have grossly underestimated SBC Illinois's labor costs by excluding costly and time-consuming activities.
- They have misinterpreted the Alcatel contract for purchasing DLCs.
- They have excluded or understated right-of-way acquisition and purchase costs.
- They have excluded or understated costs for minor materials.

[52] Pitkin/Turner at p. 77.

Q127. WHAT COSTS FOR PREPARING THE SITE WERE EXCLUDED OR UNDERESTIMATED FROM THE ESTIMATE?

A127. Messrs. Pitkin and Turner excluded or underestimated the construction work that must be done to prepare the site for the RT placement. This work is typically done by a construction company hired as a contractor by SBC Illinois. The contractor's activities include the following:

- Using a Bobcat or other machinery to clear and level the site
- Digging a 4–5 foot deep trench to accommodate the conduit that must be placed for use by the RT
- Placing a form and laying gravel in the form
- Placing rebar within the form for reinforcement purposes
- Pouring concrete and leveling to create the pad
- Creating a driveway or other access to the site

Q128. WHAT ACTIVITIES MUST SBC ILLINOIS ITSELF PERFORM BEFORE AND DURING A DLC RT INSTALLATION?

A128. The following activities must take place:

- The Loop Planner performs a feeder route study and develops design requirements. The Loop Planner also initiates the right-of-way acquisition and obtains all necessary work permits.

- The Loop Electronic Coordinator ("LEC") implements the Loop Planner's request to engineer facilities. The LEC estimates the cost of the detailed equipment requirements and provides this to the Loop Planner; prepares all necessary Telephone Equipment Orders (TEOs); processes all material order requests; and establishes the inventories of the equipment in TIRKS, LFACS, and SOLID.

- The Design Engineer pre-fields the site to get measurements and validate right-of-way ("ROW") specifications; provides detailed drawings to the construction contractor to show the RT and the conduit placement; and obtains commercial power for the site.

- The Construction Facility Workgroup ("FWG") is responsible for site preparation including easement requirement, municipal permits, and placement of foundations, driveways and landscaping. The FWG coordinates the placement of all cables and conduit and places fiber and copper cables from the remote terminal.

- Network Support Personnel perform additional activities to monitor and manage the installation and order process.

Messrs. Pitkin and Turner fail to include, or grossly underestimate, the time and costs for all of these activities in their estimate.

Q129. ARE INSTALLATION COSTS COVERED IN THE ALCATEL PROCUREMENT CONTRACT?

A129. No. As discussed by Mr. Donald Palmer in his rebuttal testimony, the Alcatel contract does not include any installation costs. All installation activities are performed by telephone company personnel and outside contractors.

Q130. YOU STATED THAT MESSRS. PITKIN AND TURNER'S INSTALLATION COST FIGURE DOES NOT INCLUDE MINOR MATERIALS. WHAT ARE MINOR MATERIALS?

A130. Minor materials are items such as clamps, cable, connectors that are needed in the installation of the RT. None of these items are included in Messrs. Pitkin and Turner's installation cost estimate.

Q131. MESSRS. PITKIN AND TURNER (PP. 40-41) STATE THAT THEIR DLC INSTALLATION COST FIGURE WAS USED BECAUSE IT REPRESENTED THE RT INSTALLATION COSTS IN AN SBC PROJECT PRONTO BUSINESS CASE. WAS THIS AMOUNT USED CORRECTLY?

A131. No. The amount used by Pitkin/Turner is invalid for a number of reasons. The Pronto business case is dated. The business case was developed in April, 1999, almost five years ago. The business case did not properly identify all the costs associated with an RT installation. It was not created for the purposes that Messrs. Pitkin and Turner propose. Further, other installation costs in the business case were not used by Messrs. Pitkin and Turner in their estimate. In short, the Pronto business case provides no support for Messrs. Pitkin and Turner's cost estimate.

Q132. MESSRS. STARKEY AND BALKE CLAIM THAT IT IS INAPPROPRIATE TO APPLY HARDWIRED IN-PLACE FACTORS TO ALCATEL DLC EQUIPMENT BECAUSE, ACCORDING TO THEIR TESTIMONY, MUCH OF THE COSTS ARE COVERED BY SBC'S CONTRACT WITH ITS DLC VENDOR. DO YOU AGREE?

A132. No. Messrs. Starkey and Balke have misread the SBC contract with its vendor and base their recommendations on this misreading. Mr. Donald Palmer explains in his rebuttal testimony what the Alcatel contract includes and does not include. Alcatel DLC equipment is recorded in the accounting system under field reporting code 257C, and SBC Illinois's installation factor is appropriately applied to equipment in that account.

VI. RESPONSE TO SPECIFIC UNE LOOP MODELING ISSUES

A. <u>INTRODUCTION</u>

Q133. PLEASE DESCRIBE THE STRUCTURE OF THIS SECTION OF YOUR TESTIMONY.

A133. In this section of my rebuttal testimony, I will be responding to a number of specific criticisms levied against the LoopCAT model and its inputs which are not addressed above. Since several witnesses have submitted direct testimony related to various aspects of the cost study, I have organized this section of my testimony to respond to these criticisms by topic.

B. <u>DLC REMOTE TERMINAL CAPACITIES</u>

Q134. MR. KOCH (PP. 14-15) ARGUES THAT THE RT SIZES USED IN LOOPCAT SERVE TO INFLATE LOOP COSTS. DO YOU AGREE WITH MR. KOCH'S ASSERTION?

A134. No. In support of his assertion, Mr. Koch states that Staff is aware that there are ten different sizes of RT cabinets but that SBCI only includes the two large cabinet sizes (*i.e.*, a 672 line DLC and a 2016 line DLC). As I indicated above in the sections itemizing the revisions to SBCI's loop cost study**,** SBCI has included one additional smaller cabinet

size (*i.e.*, a 448 pair cabinet) in its revised cost study to address Mr. Koch's concerns that SBCI did not include smaller RTs in its cost study. In addition, SBCI also included consideration of the use of CEVs in its revised cost study. This represents a total of 4 different RT sizes modeled in SBCI's revised UNE loop cost study. These 4 RT sizes are representative of the sizes that would be deployed in an efficient forward-looking network. It would not be efficient for SBCI to maintain ten different RT cabinets in the inventory. Doing so would require the development of ten different sets of RT cabinet engineering specifications that SBCI's engineers would then need to incorporate into their planning. Further, in order to support his argument that SBCI's cost study should include smaller sizes of NGDLC systems, Mr. Koch states that a 96 line NGDLC system costs roughly 75% less than a 672-line system. However, Mr. Koch fails to consider the fact that a 96 line system has approximately 86% less capacity than a 672 line system. Given that SBCI's UNE costs are developed on a per-unit of capacity basis, a 672 pair system is less expensive per-unit than a 96 pair system.[53] Finally, the number of these systems that would be efficient to deploy would likely be so small on a line count basis so as not to have any significant effect on the results of SBCI's cost studies. To the extent that any impact would exist, the effect would be to slightly increase the cost per loop.

[53] Please note that I have not personally verified the cost of a 96 pair capacity system reported by Mr. Koch. However, accepting Mr. Koch's numbers as correct, I am simply stating that if a 96 pair system has 25% of the cost of a 672 pair system but only 14% of the capacity, then the capacity cost of the 96 pair system is higher than that of the 672 pair system.

Q135. MR. KOCH (P. 14) USES THE EXAMPLE OF SBCI PLACING A 672 PAIR SYSTEM TO SERVE ONLY 50 CUSTOMERS.[54] IS THIS A REALISTIC EXAMPLE?

A135. No. SBCI would not place a 672 pair system to serve only 50 customers. SBCI places RTs to serve a carrier serving area ("CSA") that consists of one or more distribution areas ("DAs"). A distribution area is typically sized to accommodate 200 to 600 customers.[55] Therefore, Mr. Koch's example does not consider the impact of engineering the network consistent with CSA guidelines. These guidelines, along with job-by-job economic analyses, would ensure that SBCI would not deploy a 672 line system to serve 50 customers. Again, from a cost modeling perspective, the assumption that customers are served on larger systems, which have lower per line investments, serves to make SBCI's cost estimates conservative.

Q136. MR. KOCH (P. 15) ARGUES THAT SBCI'S DECISION TO LIMIT ITS FORWARD-LOOKING DLC SYSTEM SIZES INFLATES COSTS AND DECREASES UTILIZATION. IS THIS TRUE?

A136. No. Again, the per unit investment of DLC systems typically decreases with size as economies of scale are realized. Therefore, SBCI's omission of smaller systems is conservative. Second, SBCI's fill factors are based on actual data and are not calculated as a function of the DLC system sizes modeled in the forward-looking network. Given that many of the DLC systems in SBCI's actual network are older, smaller DLC systems such as a subscriber line carrier ("SLC") 96, which has only 96 lines, SBCI's utilizations are more reflective of smaller systems than its forward-looking network would suggest. Since smaller systems have fewer lines, it is more likely that those systems will be

[54] *Id.*, p. 14.
[55] SBC Loop Deployment Policies and Guidelines, September 15, 2000, para. 8.1.1.

capable of achieving higher utilizations. Again this is a conservative assumption. Given that SBCI has included the larger RTs with lower per-unit investment and that SBCI's DLC utilization rates reflect what has been achieved in its network that includes smaller systems, SBCI's forward-looking costs are lower than they would be had SBC included smaller systems and reflected fills based on a more pervasive deployment of larger systems.

Q137. MESSRS. PITKIN AND TURNER SUPPORT THE INCLUSION OF CEVS IN THE UNE LOOP COST STUDY AS A PART OF THE FORWARD-LOOKING DLC DESIGN. (PP. 160 – 161) DO YOU AGREE WITH THEIR POSITION?

A137. Yes. As mentioned, SBCI's revised cost study includes CEVs. This cost study revision should address Messrs. Pitkin and Turner's concerns.

C. <u>DLC INVESTMENTS</u>

Q138. MESSRS. PITKIN/TURNER SUGGEST THAT ADDITIONAL DISCOUNTS FROM SBC'S DLC CONTRACT SHOULD BE APPLIED IN THE COST STUDY. (PP. 131-136) DO YOU AGREE?

A138. No. As discussed by Mr. Donald Palmer in his Rebuttal Testimony, SBC Illinois has not received the benefit of the discounts discussed by Messrs. Pitkin and Turner, nor any equivalent benefit, that would apply to the DLC equipment that SBC Illinois has modeled in its study.

Q139. IN THEIR TESTMONY, MESSRS. PITKIN AND TURNER ADDRESS AN ISSUE REGARDING UNIVERSAL DIGITAL LOOP CARRIER ("UDLC") AND INTEGRATED DIGITAL LOOP CARRIER ("IDLC"). PLEASE DESCRIBE THE DIFFERENCE BETWEEN ULDC AND IDLC.

A139. UDLC refers to a DLC system that is configured in a way that individual circuits that are multiplexed onto a fiber facility for transport over the DLC system are demultiplexed back down to the individual circuits in the central office. From there, those circuits can

be routed to the necessary equipment within the central office. IDLC refers to a DLC configuration where the DLC system does not demultiplex the circuits back down to an individual level. Instead, the system leaves groups of circuits together at the DS1 level and those DS1 circuits are routed directly to the central office switch.

Q140. MESSRS. PITKIN AND TURNER ASSERT THAT THE LOOP COST STUDY SHOULD ASSUME THAT 100% OF DLC IS IDLC AND 0% UDLC. (PP. 140-146) DO YOU AGREE?

A140. No. In making this assertion, Messrs. Pitkin and Turner assume that every loop that rides on a DLC platform can and should be integrated. That is not true. First, any UNE loop that is handed-off to the CLEC (i.e., every non-UNE-P loop) in a DS-0 format cannot be integrated, thereby necessitating the deployment of substantial amounts of UDLC in any forward-looking model. Furthermore, UDLC capability is required for all non-switch special circuits riding on a DLC system.

Another consideration is that the switch has to be capable of handling the IDLC signal. IDLC-capable switches cost more, and are not deployed ubiquitously, unless there is cost justification. Mr. Randy White discusses this issue in more detail in his rebuttal testimony.

Q141. WHAT IS THE PROPER ASSUMPTION REGARDING THE MIX OF IDLC AND UDLC?

A141. The loop cost study that SBC Illinois has presented assumes a mix of approximately 88% UDLC and 12% IDLC. This weighting was developed by looking at the percentage of IDLC systems in the network and multiplying that percentage by the percentage of UNE-

P loops. This is appropriate because it accounts for the number of possible UNE loops that can be served on an IDLC platform.

Q142. MESSRS. PITKIN AND TURNER (PP.148-9) CLAIM THAT THE SBCI COST STUDY DOES NOT CONSIDER THE PROPER NUMBER OF REMOTE TERMINALS SERVED BY A COT. DO YOU AGREE?

A142. No. SBCI's cost study assumes that two RTs are served by each COT. This is a reasonable estimate of the average number of RTs that will likely be served from a COT.

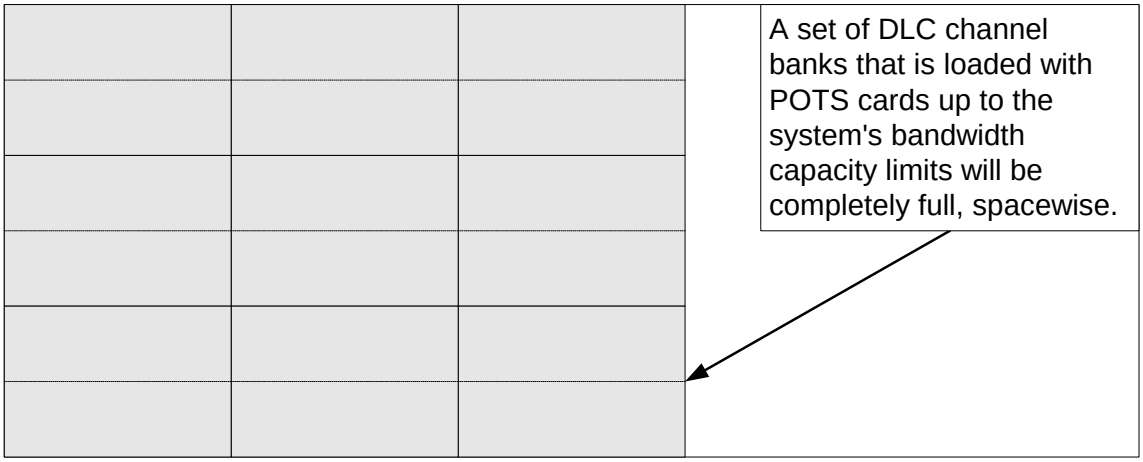
Q143. PLEASE EXPLAIN.

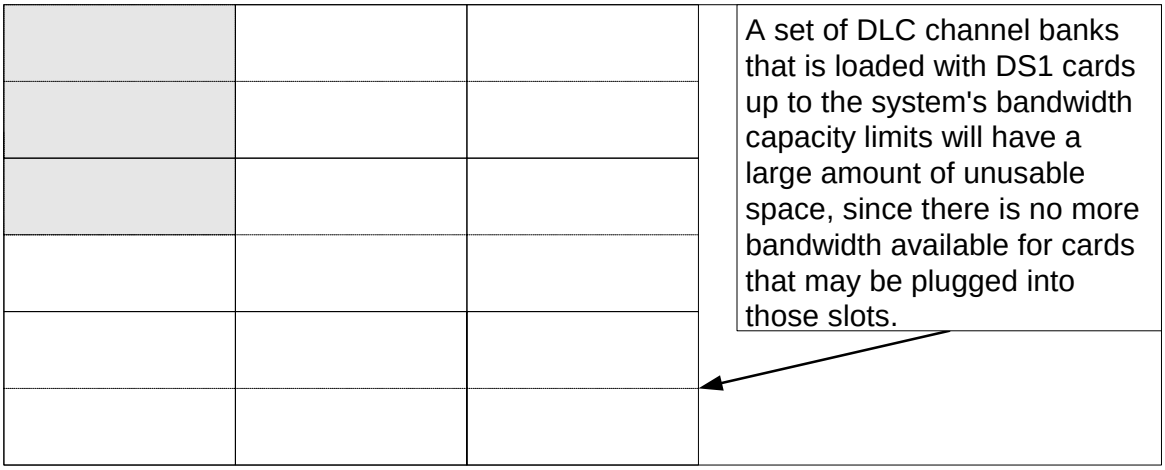
A143. There are only two optical ports on the COT, generally called the East optics and the West optics, so there can be at most two RTs that directly connect to the COT, and the others must "daisy-chain" off of those two. That sets up the requirement that the subordinate carrier serving areas need to be served across a common fiber cable route, so that the second RT's traffic can flow through the first. In order for that to be practical, there needs to exist sufficient demand to warrant two RTs located at some distance from the central office along the same route. In some towns, there may only enough demand to justify one RT

Also, as discussed earlier, there is a limited amount of bandwidth available on a COT. The presence of substantial numbers of special access loops and unbundled loops in an area can lower the overall number of customers that can be served by the COT in such a way that higher numbers of RTs cannot be served by the single COT.

Q144. MESSRS. PITKIN AND TURNER ALLEGE THAT SBCI'S UNE LOOP COST DEVELOPMENT INAPPROPRIATELY ALLOCATES THE SHARED DLC COMPONENTS ON A DS0 EQUIVALENT BASIS. (PP. 146 – 149) HOW DO YOU RESPOND?

A144. Messrs. Pitkin and Turner's argument lacks merit. Messrs. Pitkin and Turner have provided an incomplete analysis to determine the amount of space that a DS-1 card consumes. A DS-1 card consumes one slot, the same as a POTS card. However, when a DS-1 card is inserted into the system, it consumes 24 DS-0s worth of system bandwidth. The single DS-1 card has consumed the bandwidth that could have been used by six POTS cards which support 24 POTS lines. It has *effectively* consumed 24 POTS lines worth of DLC space, since, by using the DS-1 card, SBC is precluded from supporting 24 POTS customers. This concept is illustrated in the figures below.





As illustrated in the figures, due to bandwidth consumption, SBCI foregoes the ability to use a substantial amount of DLC space when a DS-1 card is installed. This indicates that bandwidth is the limiting factor that should be allocated as the cost causative factor, not actual physical space. Messrs. Pitkin's and Turner's contention that SBCI's cost allocation for DS-1 cards should be adjusted from 24 to four should be rejected.

Q145. MR. DUNKEL (PP. 26-27) SUGGESTS THAT SBCI INCLUDED BUILDING COSTS AT REMOTE TERMINAL LOCATIONS WHERE BUILDINGS WERE NOT NECESSARY. IS THIS CORRECT?

A145. The reason that building costs are allocated to the remote terminal is related to the way that the building factors are calculated. Under that method, the calculation of the building factor takes into account the ratio of all building investments to all electronic equipment investments (i.e., FRCs 257C and 357C), not just electronic equipment that is located in buildings. Therefore, it is proper to apply this factor to *any* telephone plant electronics investments, even those that are not in buildings. Since the remote terminal falls into the category of electronic equipment, the factor is appropriately applied to its investments. Moreover, if the building factor were applied only to electronic equipment

that actually is located in buildings as Mr. Dunkel suggests, it would be higher, because the total base of investment would be lower. This would net out and produce no overall change in costs. SBCI's methods are proper, and should be adopted.

D. DLC REMOTE TERMINAL INVESTMENT ALLOCATION

Q146. MR. KOCH ARGUES THAT 25% OF THE RT CABINET INVESTMENT SHOULD BE REMOVED FROM LOOPCAT.[56] THIS SAME ARGUMENT IS MADE BY MESSRS. PITKIN AND TURNER ON BEHALF OF AT&T (PP. 136 – 140) IS THIS AN ECONOMICALLY CORRECT MODIFICATION TO LOOPCAT?

A146. No. Mr. Koch makes this suggestion based on the fact that DLC systems used for both voice and DSL share certain facilities. However, SBCI's DLC systems modeled in LoopCAT are not configured to provide both voice and DSL. Rather, the DLC systems only contain the equipment necessary to provision voice circuits. Mr. Koch acknowledges this fact when he states "the NGDLCs deployed in [LoopCAT] are not configured to provide a data signal transmission path from the site of the Remote Terminal ("RT") to the central office. By SBCI's own admission a significant amount of equipment would be necessary to provision such services."[57] The DLC systems in LoopCAT are configured for voice services only and, as such, appropriately assign 100% of the investment in the RT to the UNE loops that the RT is configured to provide. Simply deleting 25% of the investment that is required to provide voice services is unacceptable.

[56] *Id.*, p. 19
[57] *Id.*, p. 11.

Q147. IS THERE ANOTHER ECONOMIC PROBLEM WITH MR. KOCH'S SUGGESTION TO REDUCE THE RT INVESTMENT BY 25%?

A147. Yes. First of all, to apportion any investment in the RT to data, the RT would have to be configured to provide both voice and data. Therefore, the additional investment required to support DSL would have to be added to the loop costs, including DSL capable common cards and DSL capable line cards. Second, the fact is that the DSL functionality that is added to an RT system is incremental to the investment required to provide voice services. Therefore, an economic solution would be to assign the incremental investment required for DSL to the data component of a Voice/Data equipped RT and to assign the remainder to voice. The end result of that calculation would be to assign the same investment to the voice compatible circuits as is contained in LoopCat. However, I want to reiterate that the DLC investments contained in LoopCAT are configured for narrow band services only. Any allocation of that investment to broadband services would be entirely inappropriate. Finally, the subscription rate of DSL services does not approach the 25% allocation recommended by Mr. Koch.[58] As a result, if one were to assume that every DLC was fully equipped to support DSL, the utilization rate for that broadband investment would be lower, thereby raising the per-unit fill adjusted investment.

[58] SBC has about 3 million DSL customers *nationwide*, compared to 55-60 million access lines.

E. DISTRIBUTION TERMINAL AND PREMISES TERMINATION COSTS

Q148. THE ATTORNEY GENERAL'S WITNESS, MR. WILLIAM DUNKEL, CLAIMS THAT SBCI'S LOOPCAT COST MODEL DOUBLE-COUNTS THE AERIAL NID, DROP, AND DISTRIBUTION TERMINAL COSTS IN ITS PROPOSED ILLINOIS UNE LOOP COST STUDIES. HAVE YOU REVIEWED MR. DUNKEL'S TESTIMONY ON THIS ISSUE? (DUNKEL AT PP. 18-22)

A148. Yes. Mr. Dunkel claims that SBCI is including the aerial and buried NID and drop-wire material costs as exempt material in its installation factors in LoopCAT and also in its premises termination investment. To eliminate this "double recovery", Mr. Dunkel proposes an adjustment to remove the separate line item costs for the NID and drop wire costs.

Q149. DO YOU AGREE WITH MR. DUNKEL'S PROPOSAL?

A149. No. Although I agree that there was inadvertent "double counting", as described by Mr. Dunkel, I do not agree with the adjustment that he has proposed to correct the problem. In light of the mandate of the Federal Communications Commission to offer subloop rate components, including "Term to NID", it is necessary to directly identify the costs of subloop components, including NID, drop wire and premises termination costs, as separate line items in loop cost studies, rather than indirectly through the use of an installation factor. SBCI used this direct method in the LoopCAT model. Upon review of Mr. Dunkel's testimony, however, the Company has determined that the costs associated with NIDs, drop wire and premises termination were not, in fact, removed from the cable installation factors, as Mr. Dunkel suggests. However, it is not appropriate to "zero out" the line items for NIDs, drop wire and premises termination costs, as proposed by Mr. Dunkel. Rather, the "double counting" should be corrected by fully removing NID, drop wire and premises termination costs from the cable installation

factors, where they do not belong. As I have previously discussed, the Company has recalculated its cable installation factors to remove these costs and the resulting factors are reflected in the revised UNE loop cost study presented with this rebuttal testimony.

Q150. WITH RESPECT TO PREMISES TERMINATION, MR. LAZARE ARGUES THAT THE TRAVEL TIME USED IN SBCI'S PREMISES TERMINATION COST DEVELOPMENT IS OVERSTATED. (PP. 3O-33) DO YOU AGREE?

A150. No. Mr. Lazare's recommendation is based on the idea that the travel time used in the cost study is reflective of a round trip from SBCI's facilities to the customer's premises and back. This is not the case. The travel time used in the cost study was developed assuming that the travel includes actual driving time from either the garage in the beginning of the day or from the last work site if this is a second job. Furthermore, the travel time line item is not only actual driving time. This line item also includes setting up work area protection (i.e., placing cones around the van or truck), contacting the customer,[59] and retrieving all necessary tools and supplies from the work truck. Also, it is important to note that this average travel time considers the driving time required in urban areas (sometimes with significant traffic congestion) and rural areas (sometimes with significant distances between sites). Mr. Lazare's recommendation of 10 minutes is insufficient to cover all of these activities.

[59] SBCI policy requires that technicians make contact with the customer to inform the customer that work will be completed at their premises.

Q151. MESSRS. PITKIN AND TURNER CLAIM THAT SBCI INAPPROPRIATELY ASSUMED THE SAME MIX OF RESIDENTIAL AND BUSINESS CUSTOMERS FOR PREMISES TERMINATION EQUIPMENT FOR LOOPS (*E.G.*, 4-WIRE ANALOG) THAT WOULD MORE TYPICALLY BE TERMINATED AT A BUSINESS LOCATION. (PP. 117 – 119) DO YOU AGREE?

A151. Yes. This is another area, as I identified above in my discussions of cost study revisions, in which SBCI has modified its modeling. SBCI has changed its premises termination modeling to reflect the appropriate weighting for business premises termination given the particular loop type.

Q152. WITH RESPECT TO THE MIX OF AERIAL AND BURIED PREMISES TERMINATION, MESSRS. PITKIN AND TURNER CONTEND THAT SBCI SHOULD USE THE SAME PERCENTAGE WEIGHTING FOR PREMISES TERMINATION AS IS FOUND IN THE DISTRIBUTION CABLE. (P. 120) IS THIS AN APPROPRIATE MODIFICATION TO LOOPCAT?

A152. No. SBCI's used an appropriate forward-looking estimate of ****** Begin Confidential*************** End Confidential ****** percent buried premises terminations and ****** Begin Confidential**** ****** End Confidential ****** percent aerial terminations. This is appropriate for a forward-looking network design. Furthermore, Messrs. Pitkin and Turner fail to recognize that the distribution cable weightings are based on pair-feet in service, not pairs in service. For example, a distribution pair that is 10,000 feet long may contain both aerial and buried plant, with the aerial plant running 8,000 feet from the FDI, along a right-of-way up to the subdivision, and 2,000 feet of buried plant running into the subdivision. In this case, the weighting would be 80% aerial and 20% buried. However, all of the customers would be served using buried drop wires because the distribution plant that runs into the subdivision is buried. Again, Messrs. Pitkin and Turner do not consider this issue. SBCI's mix of aerial and buried plant is appropriate and should be adopted.

Q153. WITH RESPECT TO BUILDING ENTRANCE FACILITES, MESSRS. PITKIN AND TURNER CLAIM THAT SBCI HAS MISSTATED THE INVESTMENT IN BUILDING ENTRANCE FACILITIES. (PP. 120 – 121) IS THIS TRUE?

A153. No. I have reviewed the calculation of building entrance facilities investment, and it is correct. On the "Premises_Termination_Bus" tab in LoopCAT, one can see that building entrance facility investment is developed only considering the weighting of lines that would be terminated on building terminals. This calculation ensures that the appropriate cost is being included.

F. CONSIDERATION OF MULTIPLE DWELLING UNITS

Q154. ICC STAFF WITNESS JAMES ZOLNIEREK CRITICIZES THE LOOPCAT MODEL FOR NOT ACCOUNTING FOR MDUS (PP. 72-76). FURTHER, MESSRS. PITKIN AND TURNER ALSO ASSERT THAT IT WOULD BE APPROPRIATE TO INCLUDE MULTIPLE DWELLING UNITS (PP. 95-101) IN LOOPCAT. DO YOU AGREE THAT LOOPCAT SHOULD ACCOUNT FOR MDUS IN MODELING UNE LOOP COSTS?

A154. Yes. Dr. Zolnierek and Messrs. Pitkin and Turner contend that SBC Illinois' LoopCAT model does not address instances where residential customers are located in a multiple dwelling unit ("MDU"). SBC Illinois agrees that MDUs are a factor that affects the deployment of premises termination equipment in Illinois. In its original cost study, SBC Illinois assumed that each residential customer would have a separate NID when modeling residential premises termination equipment. SBC Illinois is not opposed to modifying this assumption. Further, SBC Illinois would agree that using U.S. Census data is a reasonable way of estimating MDUs.

Q155. HAS SBCI'S REVISED UNE LOOP COST STUDY INCORPORATED MDUS INTO THE COST DEVELOPMENT?

A155. Yes. MDUs have been incorporated into the revised cost study based on U.S. Census data. SBCI believes that this modeling change should resolve this issue.

G. FDI COSTS

Q156. MESSRS. PITKIN AND TURNER'S COMMENT ON THE DEVELOPMENT OF FDI COSTS IN LOOPCAT. HAVE YOU REVIEWED THEIR COMMENTS IN THIS REGARD?

A156. Yes, I have. First, Messrs. Pitkin and Turner claim that LoopCAT inappropriately includes an FDI connections for each loop.(p. 90). Second, they claim that the number of FDI connections for each loop is too high (p. 128).

Q157. WHY IS IT APPROPRIATE FOR LOOPCAT TO ASSUME THAT FDI CONNECTIONS EXIST ON EVERY LOOP?

A157. That assumption is used in LoopCAT because forward-looking network design practices call for the global use of interfaced plant (i.e., plant with an interface between the feeder and distribution cabling). SBC Illinois recognizes that there may be exceptions where large office buildings are fed directly by feeder cable. However, SBC Illinois does not have a way to quantify these exceptions to the forward-looking deployment guidelines. In any case, Messrs. Pitkin and Turner's estimation of 25% direct-fed loops on a statewide basis is an inflated estimate of the percentage of loops that would not be interfaced in the forward-looking network.[60]

Q158. WHAT DO MESSRS. PITKIN AND TURNER SAY ABOUT THE NUMBER OF FDI TERMINATIONS (PP. 128 - 131)?

A158. Messrs. Pitkin and Turner argue that the three FDI terminations assigned to each working loop in the LoopCAT model are too high. They assert that the correct number is of terminations per working loop is 2.0588.

[60] See Attachment BFP-SET-02.

Q159. DO YOU AGREE WITH MESSRS. PITKIN AND TURNER?

A159. No. SBC Illinois's cost study appropriately includes three FDI pair terminations per loop. This is a standard engineering practice based on the physical construction of the FDI. The concept behind the three-panel FDI is that it allows a single pair within the feeder cable to supply service to any one of many distribution pairs in the distribution cables. This gives the feeder cable the most flexibility. All that is required to move service from one customer to another is a cross-connect change, which is easily accomplished given that the cabinet is designed for this task. The number that Messrs. Pitkin and Turner propose provides little more flexibility than straight-through cabling, which would have 2.0 terminations per working loop.

H. DISTRIBUTION AREA MODELING

Q160. MESSRS. PITKIN AND TURNER CONTEND THAT LOOPCAT INCLUDES TOO MANY DISTRIBUTION AREAS THAT ARE TOO SMALL (P. 155) DOES THEIR CONTENTION HAVE VALIDITY?

A160. No, it does not. Messrs. Pitkin and Turner contend that the distribution areas (DAs) in Illinois can be instantaneously reconfigured and resized to newer, larger sized distribution areas. They quote the Company's Loop Deployment Policies and Guidelines, which instruct the design engineer to expand the size of the DA under design if possible. Then they proceed to make wholesale changes to the quantities of equipment that is used to provide service to the distribution areas, such as the FDIs and cables. The fact is that, if the design engineer followed the guidelines as directed, he (or she) has already expanded the size of the distribution area to an efficient size, considering the trade-offs involved. It is not clear how Messrs. Pitkin and Turner can make a grand redesign of all of the SBCI

distribution areas in Illinois from afar, without any formal analyses of the DAs, and have valid results.

Q161. CAN YOU PROVIDE EXAMPLES OF HOW THEIR BLANKET REDESIGN WOULD BE INVALID?

A161. Yes. Take, for instance, those DAs that are spread throughout the state and that have natural boundaries such as rivers, highways, or large farm fields that prevent the easy rerouting of distribution cable. Messrs. Pitkin and Turner have not considered that such real-life restrictions on DA size exist, and they have summarily resized even those DAs in their modeling, with their assertion that all the DAs are inefficiently sized. Network design engineers who are intimately involved with the cities, the neighborhoods, and the customer base have analyzed alternatives where they exist. The engineers have already taken into account where natural boundaries exist and where it is feasible to expand distribution areas (per the guidelines as quoted by Messrs. Pitkin and Turner), and have chosen the efficient size of distribution area and the equipment that provides service to the area. Messrs. Pitkin and Turner have not uncovered some massive flaw in the design of SBCI's network, nor have they performed a true review of the network's design. They have not provided any evidence that they have visited several distribution areas, reviewed maps, and can now present better DA designs. Their concept of a wholesale redesign of all of the distribution areas in SBCI's territory should be rejected outright.

Q162. WHAT ARE THE TRADE-OFFS THAT, AS YOU MENTION, ENGINEERS MUST CONSIDER WHEN DESIGNING A DISTRIBUTION AREA?

A162. At the top of the list are the trade-offs between feeder and distribution. As the DA moves farther away from each DA, more and more cable is now considered to be distribution cable. Distribution cable is more expensive, and less flexible, so this would serve to raise

costs on initial installation and in operation hereafter. It does not make sense to replace flexible, economical feeder stub cable with distribution cable.

Q163. ARE THERE MAJOR FLAWS IN THE WAY THAT PITKIN AND TURNER HAVE IMPLEMENTED THEIR REDESIGN?

A163. Yes, there are substantial errors that render a good number of Messrs. Pitkin and Turner arguments, regarding the re-sizing of outside plant, invalid. In particular, they have upsized every piece of equipment in the outside plant without considering the effects that such upsizing would have on the fill factors for the equipment. This is illustrated by the table below, which deals with FDI quantities in SBCI's outside plant as extracted from Figure 12 on Page 159 of Messrs. Pitkin's and Turner's direct testimony.

***** BEGIN CONFIDENTIAL *****

*****END CONFIDENTIAL *****

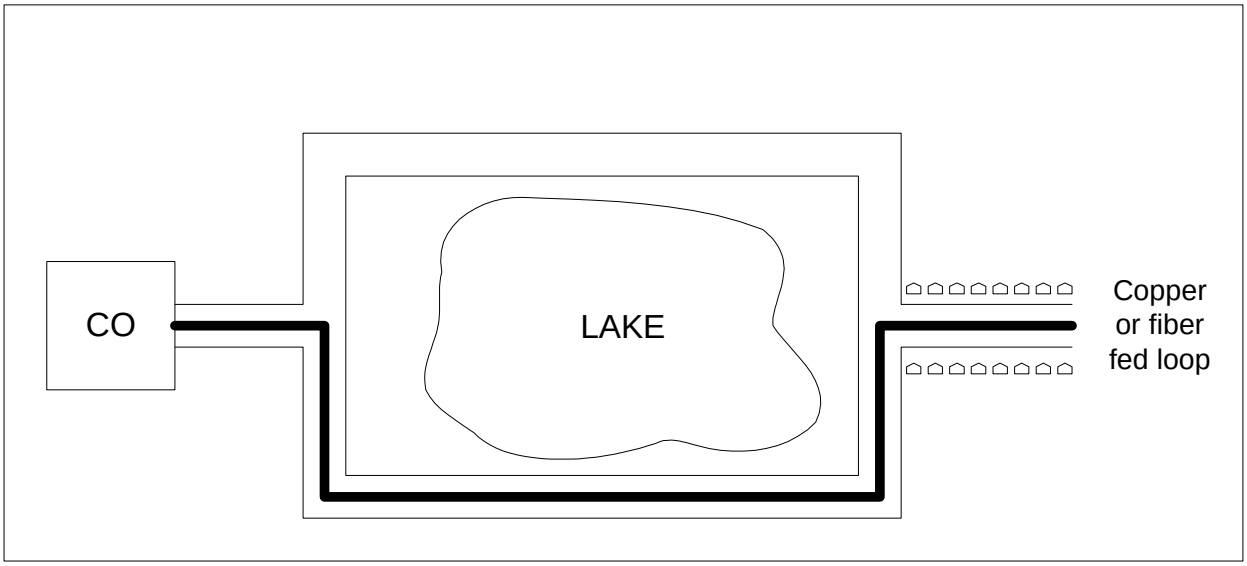
With their adjustments, Messrs. Pitkin and Turner have taken, for instance, the ********** 600 pair-sized FDIs in Zone 2 and converted them all to 900 pair sized FDIs. They have effectively added ********** FDI terminations into Zone 2, but in their study, they show no increase in demand. Therefore, the fill factors should be decreased accordingly. Instead, Messrs. Pitkin and Turner have argued

for *higher* fill factors. They have made similar adjustments to the outside plant cable inventory as contained in the cost study. This inconsistency is irreconcilable, and indicative of the way Messrs. Pitkin and Turner have made broad changes to the underpinnings of SBCI's cost studies with the only goal being to lower the results.

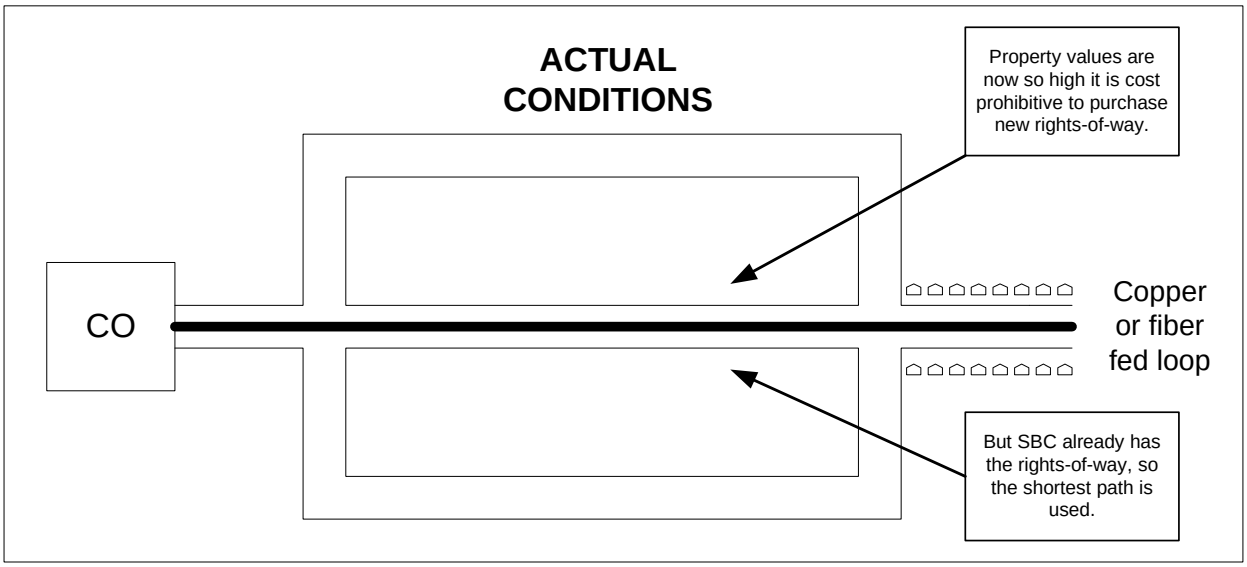
The upward adjustment of both FDI and cable sizing should be rejected, or else the fill factors for this equipment should be adjusted downward from the levels currently in the Company's studies.

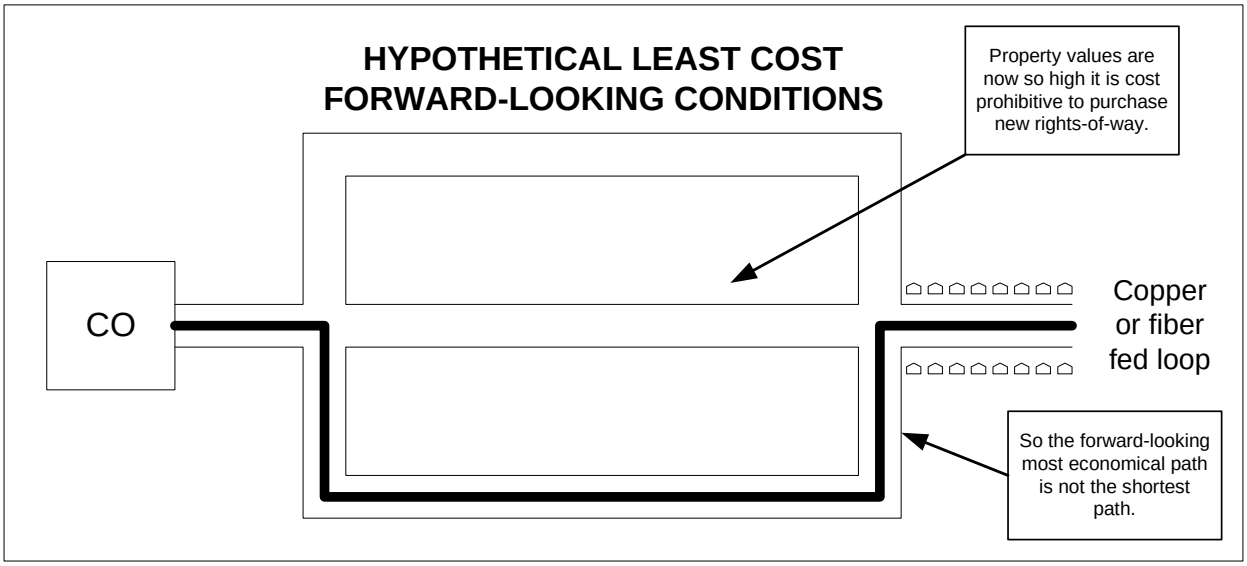
Q164. MESSRS. PITKIN AND TURNER ADJUST DISTRIBUTION LENGTHS DOWNWARD BY 5%, AND FEEDER LENGTHS BY 10%, TO "ESTIMATE THE EFFECT OF LOOPCAT'S OVERSTATEMENT OF CABLE LENGTH IN THE DEVELOPMENT OF UNE COSTS." (PP. 154-155) IS THIS ADJUSTMENT REASONABLE?

A164. No. In support of their position, Messrs. Pitkin and Turner present what they claim to be an illustration of the "before and after" effects of a farm that is subdivided. Supposedly, the subdivided farms will now allow telephone service to pass right through, allowing for shorter feeder *and* distribution lengths (it is not clear how distribution lengths are affected in their scenario). But for every purely hypothetical situation that allows for shorter lengths, there are realistic situations that would allow for *no* changes in loop length over time, such as in the situation where a lake (or a highway, or a housing development, or even a farm) is in the way:



There could also be situations where conditions have changed, and the existing telephone company rights-of-way are even *more* efficient than what would be currently available if the outside plant were to be totally reconstructed, as shown in the next two figures.





Accordingly, SBC's loop length information should not be adjusted based on Messrs. Pitkin and Turner's hypothetical conjecture regarding what conditions *might* have happened in the past few years. They offer no evidence that conditions that lead to shorter loops have occurred, and these conditional changes certainly have not occurred in any widespread nature throughout the state in a manner that warrants a significant reduction in the existing route length information. Such drastic adjustments should not be based strictly on conjecture. For these reasons, Messrs. Pitkin and Turner's suggestion that loop feeder and distribution lengths should arbitrarily be adjusted downward should be rejected in its entirety.

Q165. IS LOOPCAT ABLE TO REFLECT CARRIER SERVING AREA ("CSA") AND DISTRIBUTION AREA ("DA") DESIGN PRINCIPLES IN ITS COST DEVELOPMENT? (MESSRS. PITKIN/TURNER (P. 35))

A165. Yes, LoopCAT reflects the CSA and DA design principles since it relies on SBC Illinois' actual network data, and that network has been engineered on these principles for at least two decades and will continue to be in the future.

I. LOOP LENGTH, CABLE GAUGE AND CABLE SIZE MODELING

Q166. MESSRS. PITKIN/TURNER (PP. 101-108) CRITICIZE THE LOOPCAT PREPROCESSOR BECAUSE A SMALL NUMBER OF LOOPS HAVE GREATER THAN 18,000 FEET OF DISTRIBUTION CABLE. HOW DO YOU RESPOND?

A166. This is simply a red herring. The quantity of loops identified by Messrs. Pitkin and Turner represents a small percentage of the loops used in LoopCAT. Further, the fact that a very small percentage of loops falls outside of engineering guidelines is not surprising. SBCI must deal with real-world conditions, not the Panglossian hypothetical world which the CLEC community contends could exist. There will be, even in a forward-looking (but non-hypothetical) world, certain customers that live in such remote, outlying areas that their distribution lengths will be longer than ideal (i.e., longer than 18,000 feet), and range extending equipment is necessary for telephone service. Therefore, I do not find it inappropriate to account for those loops in a forward-looking cost study. In its study, SBCI chose to ignore the fact that such outlying customers will need *additional* equipment above the standard fare, the use of load coils and extended range line cards in the DLC being the most economical choice. This choice to ignore these added costs was made in part in recognition of the fact that load coils are not

considered "forward-looking" by some parties and would be controversial. In retrospect, perhaps SBCI should have included these items, which would have the effect of slightly raising the costs for those particular loops, and would have an (almost negligible) upward effect (of about a penny) on the final UNE rates. Furthermore, to the extent that there are a small number of relatively expensive loops that have longer than 18,000-foot distribution lengths, it is wholly inappropriate to simply eliminate those loops from the cost study, as Messrs. Pitkin and Turner have done.[61]

Q167. MESSRS. PITKIN AND TURNER CLAIM THAT LOOPCAT DOES NOT REALLY USE ACTUAL LOOP LENGTHS (P. 110). IS THIS TRUE?

A167. No. Messrs. Pitkin and Turner are, perhaps, confusing the loop data processing performed here with processes SBC has used in some other states. In their testimony, they describe the process this way: "Instead, LoopCAT computes loop length by using (1) actual *feeder* lengths in the embedded base, as indicated in SBC's ARES outside plant planning systems, and (2) the "maximum distribution length" for the distribution portion of the loop. However, the loop information extract from ARES cuts the maximum distribution length in half."[62] This process *has* been used in other states, where another loop length data source (LEIS) has been used, but the loop length information out of ARES represents both the actual feeder length and actual distribution length, and the distribution lengths have not been cut in half.

[61] See Testimony of Brian F. Pitkin and Steven E. Turner, ICC Docket No. 02-0864, p. 108.
[62] Testimony of Brian F. Pitkin and Steven E. Turner, ICC Docket No. 02-0864, p. 110.

Q168. MESSRS. PITKIN AND TURNER CLAIM THAT SBCI INAPPROPRIATELY USED A 900 OHM RESISTANCE LIMIT INSTEAD OF A 1,300 OHM RESISTANCE LIMIT IN ITS LOOP MODEL. (PP. 111 – 113) ARE THEY CORRECT?

A168. No. In modeling its UNE loops, SBC chose to place a 900 ohm limit on the resistance of the distribution cable that is fed by a digital loop carrier. This choice is valid and reasonable for two reasons: 1) SBC has an obligation to provide *all* services on its loops, and so must consider all services when designing outside plant, and 2) the electrical specifications of the circuit cards used for signal transmission from the digital loop carrier to the customer call for a nominal 900 ohm design target.

With the service obligations that SBCI has, there come some requirements that call for design choices that are not obviously correct, but are correct nonetheless. 'Design resistance limits' is one of these issues. While the vast majority of loops may be functional with higher resistance levels, the fact that there *could* be customers that request special services, and that SBCI must provide these services, guide SBCI to design its loop plant to these more stringent electrical requirements. The 900 ohm limit allows SBCI to provide all of the services to which it has an obligation without having to perform special construction at the time of the request. As with many engineering decisions, there is sometimes leeway, and there may be cases where the actual design for certain areas is outside this realm. But with modeling there must be choices, and the 900 ohm limit represents the level at which services can be delivered at specified quality. For this reason, the 900 ohm limit as used in SBC's modeling is appropriate.

Regarding the second point, the RPOTS (remote terminal POTS) line cards in the DLC system are designed for optimal performance at 900 ohms. This is also consistent with

the Company's CZ-9 (Carrier Zone – 900 ohm) resistance design standard that calls for the copper cabling extending from a remote terminal to have a maximum of 900 ohms of impedance.

The proposal from Messrs. Pitkin and Turner to adjust the resistance, or impedance, used for cable gauging has the effect of understating the gauging of the copper cable, would not guarantee quality telephone service, and understates costs. This proposal should be rejected.

Q169. MESSRS. PITKIN AND TURNER CRITICIZE SBCI'S APPROACH TO ALLOCATING ITS COPPER CABLE INVENTORY BETWEEN FEEDER AND DISTRIBUTION PLANT. (PP. 122 – 124) IS THEIR MERIT IN THEIR CRITICISMS?

A169. No. SBCI is able to separate its cable inventory by UNE zone, so the mix of cabling is zone-specific. However, SBCI does not have data required to separate that inventory between feeder and distribution plant. In order to separate the cable into feeder and distribution, SBC's network subject matter experts provided allocation percentages based on cable size. Despite the fact that Messrs. Pitkin and Turner criticize this approach, their solution is to perform the same allocation, only with different percentages. In other words, Messrs. Pitkin and Turner are saying that the Commission should not rely on SBCI's SME input, but, instead, should rely on Messrs. Pitkin and Turner's input. SBCI's SMEs, who actually are employed in telecommunications network jobs, have determined that this is a reasonable allocation. For AT&T's *consultants*, one of whom (*i.e.*, Mr. Pitkin, judging by his resume) has minimal, if any, experience with designing a telecommunications network, to claim that their SME input is better, is preposterous.

Q170. MESSRS. PITKIN AND TURNER ALSO MODIFIED SBCI'S COPPER CABLE MIX BY STRUCTURE TYPE AND ZONE. (PP. 125 – 128) IS THIS AN APPROPRIATE ADJUSTMENT?

A170. No. Again, Messrs. Pitkin and Turner simply use their own opinion as to what a structure mix should be based on route miles instead of sheath miles. There is no basis in fact for what they have done. This is simply another case of AT&T saying that their estimate is better than SBCI's estimate, with no evidence to support such a claim.

Q171. MESSRS. PITKIN AND TURNER (P. 104) CONTEND THAT LOOP LENGTH DATA FROM SBCI'S LEIS SYSTEM SHOULD BE USED RATHER THAN THE DATA FROM ARES AS IN SBCI'S COST STUDY. ARE THERE ANY COMPELLING REASONS TO MAKE SUCH A CHANGE?

A171. No. The ARES data base provides information on actual loop lengths. Messrs. Pitkin's and Turner's arguments rest on their contention that the data obtained from ARES does not include the universe of loops. However, the information that SBC Illinois has extracted is comprised of a data set of approximately five million loops out of a total population of approximately seven million loops. This constitutes approximately 70% of the population of available loops. As I discussed previously in response to Messrs. Starkey and Balke, this constitutes a valid base of data from which to calculate average loop lengths. Furthermore, as I discussed in my Direct Testimony, the Company did extract the universe of loop length data that was contained in ARES.

To further make the point, as I have mentioned, only 1,600 samples were deemed sufficient for the previous rate-setting docket, as verified by the Joint CLEC witnesses who were involved in the case.[63]

Q172. MESSRS. STARKEY/BALKE (PP. 64-65) CRITICIZE TECHNICAL ASSUMPTIONS IN LOOPCAT RELATED TO FIBER CABLE SIZING. DO THEIR ARGUMENTS HAVE MERIT?

A172. No. With respect to fiber cable sizing, the cost of fiber cable for a DS0 circuit in LoopCAT in Access Area A in the revised LoopCAT is under a penny per month, about ten cents per month in the Access Area B, and under a quarter per month in Access Area C. Fiber costs are a relatively small portion of the overall loop cost. Therefore, in my opinion, it is perfectly reasonable to make simplifying assumptions of an average fiber cable size by zone.

Q173. MESSRS. STARKEY AND BALKE (PP. 46-47) CLAIM THAT LOOPCAT DOES NOT CALCULATE EFFICIENTLY-SIZED CABLES. ARE THEY CORRECT?

A173. No. This, like many other criticisms of LoopCAT levied by the CLECs, reveals the fundamental difference between SBCI and the CLECs with respect to cost modeling. SBCI's position is that forward-looking cost modeling should be based, as an initial matter, on network characteristics. The claim that SBC Illinois's cable sizing is not correct, and that LoopCAT is not correct as a result, rests on the notion that the forward-looking network under TELRIC can be built to a perfect size and never need to be augmented as demand changes. This is an unrealistic assumption. The fact is that all

[63] "The version of AFAM advocated by Ameritech, and ultimately adopted by the Commission in Docket No. 96-0486/0569 relied on a sample of approximately 1,600 distribution facilities." Direct Testimony of Michael Starkey and John Balke, page 29.

telecommunications networks are built over time incrementally as demand for services materializes and/or grows. To assume otherwise would be to artificially underestimate UNE costs.

Further, distribution plant is placed to meet ultimate demand. The way in which the feeder and distribution plant "spiders" out into a geographic area around the central office requires that the cable segments get progressively smaller as the loop plant approaches a customer location. The smallest cables in the network are typically the distribution cables that serve a particular street or block on a street. Telcordia's Notes on the Networks (Section 12.1.2, page 12-2) describes distribution plant as follows:

> The distribution plant consists of small cables/systems that cross-connect the feeder plant to the customer. This plant is designed to meet the greatest expected customer demand in an area for the life of the plant. In the distribution facilities, copper cables of 26, 24, 22 (and rarely 19) gauge predominate. Distribution network design requires more distribution pairs than feeder pairs; distribution networks contain more distribution cables than feeder cables. Most distribution plants include either direct-buried or aerial cable, with the ultimate needs installed initially.

SBC Illinois' UNE cost studies mirror this efficient design of distribution plant, which has not changed over time and would not change in a forward-looking network. Messrs. Starkey and Balke have not provided any evidence to the contrary.

J. MISCELLANEOUS

Q174. MR. DUNKEL (PP. 30-31) PROPOSES INCLUDING THE COSTS OF THE "FEEDER STUB" IN ITS REMOTE TERMINAL COSTS INSTEAD OF INCLUDING THE FEEDER STUB AS A SEPARATE ITEM AS IN THE SBCI COST STUDY. DO YOU SEE A PROBLEM WITH MR. DUNKEL'S PROPOSAL?

A174. Yes. Feeder stub really does become copper feeder cable that happens to have been fed by a DLC system. Many of these 'stubs' run several thousands of feet long, as they may feed distribution areas far from the remote terminal. All activities, like maintenance or repair, are no different than for other all-copper-fed loops, and are, therefore, booked to the cable accounts (e.g., FRCs 45C, 22C, and 5C) within SBCI's accounting systems, and not to the loop electronics account (i.e., FRC 257C). These costs are kept segregated, and the methods used by SBCI in which investments in feeder stub are calculated separately, are correct.

Q175. MS. BALDWIN (P. 15) CRITICIZES SBCI'S USE OF A FOUR-YEAR PLANNING PERIOD IN ITS UNE LOOP STUDIES. PLEASE EXPLAIN WHY SBCI USED THIS PLANNING PERIOD IN ITS STUDIES.

A175. Ms. Baldwin has reviewed the SBCI study and has come to the assumption that the planning period is linked to the various asset lives of the loop components. That is not the case. The planning period in SBCI's cost studies are linked with the approximate time span between UNE cost proceedings. Presumably, a UNE docket will be held periodically. The use of the planning period is intended to allow consideration of the variation in costs for the many components within the cost studies over the planning period.

Q176. MESSRS. PITKIN AND TURNER CLAIM THAT COSTS SHOULD BE DEVELOPED AT THE WIRECENTER LEVEL. (PP. 114-115) DO YOU AGREE?

A176. No. As discussed earlier in response to testimony from Messrs. Starkey and Balke, SBCI's cost study appropriately deaverages the inputs for which granularity exists down to the UNE zone level. This is an appropriate level to develop deaveraged costs, and is consistent with the structure of the Illinois UNE tariff. Their contention that they have done a more thorough, granular analysis is invalid. To truly perform an analysis at a more granular level, some portion of the input data should be de-averaged to the more granular level. The CLECs have, in fact, *reduced* the level of granularity in their restatement from the levels that SBCI used, by, for example, assuming the same fill rates for every wirecenter, every zone, statewide.[64] This renders their claim that they have performed a more accurate, more granular study invalid. What they *have* done is create a substantial amount of extra data, which makes it harder to analyze the data for reasonableness. SBCI's method for de-averaging should not be changed.

VII. CONCLUSION

Q177. PLEASE SUMMARIZE YOUR TESTIMONY.

A177. The CLECs' criticisms of SBC Illinois' UNE loop studies are unfounded. They waste much effort attacking the LoopCAT model, but LoopCAT is no different than any other TELRIC cost model, except that it is more easily audited. The CLECs also expend considerable effort attempting to paint any use of actual data in the cost study as being "embedded" and unsuitable for the development of TELRIC costs, but there is no support for that view. Rather, it is logical to assume that the best predictor of forward-looking

costs are inputs such as current material prices, recent installation cost data, and current utilization rates. This is exactly the type of information used in SBC Illinois' cost studies, and it is appropriate for the development of TELRIC rates. SBC Illinois has deployed and operates a local exchange network in Illinois facing budget constraints, competitive pressure, and stockholder and regulatory scrutiny. SBC Illinois' loop cost estimates benefit from this experience and accurately project the forward-looking cost for efficiently placed loop plant. The fact is that SBC Illinois' forward-looking cost estimates for investment in loop facilities are consistent with industry experience. AT&T, by contrast, bases its cost estimate on the opinion of consultants that have essentially never deployed or operated a network.

In response to several points made by Staff, Citizen's Utility Board, the Attorney General's Office, and CLEC witnesses, SBC made certain revisions to the loop cost study in this case. These revisions include a change to the fill rate applied to the FDI, the inclusion of additional capacities of digital loop carrier equipment, the inclusion of special consideration for multiple dwelling units, a recalculation of certain installation factors, and a revision in the assumed mix of customers for several loop types.

SBC Illinois' UNE revised loop cost studies are consistent with long-run incremental costing methodologies, and the results represent the forward-looking costs of an efficient carrier. Specifically, SBC Illinois' loop costs are developed based on forward-looking network designs and inputs in compliance with the FCC's TELRIC standard.

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[64] Except for some slight variation in distribution cable fill rates on a per zone basis.

Establishing appropriate forward-looking costs for UNEs is important to the development of sustainable local competition in Illinois. Setting UNE rates too low will send inappropriate and inefficient pricing signals to the Illinois telecommunications market, and discourage infrastructure investment by all carriers. On the other hand, setting UNE rates too high would discourage competitive entry by CLECs that truly need to employ a UNE-based strategy to get off the ground. SBC Illinois thus recognizes the importance of the Commission's work in this proceeding. SBC Illinois urges the Commission to rely on the very real data and evidence provided by SBC Illinois as opposed to the CLECs' unfounded assertions.

Q178. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A178. Yes.