

**STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH**

DOCKET NO. P-100, SUB 133d

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of
General Proceeding to Determine Permanent)
Pricing for Unbundled Network Elements) ORDER ADOPTING
) PERMANENT UNBUNDLED
) NETWORK ELEMENT
) RATES FOR BELLSOUTH
) TELECOMMUNICATIONS, INC.

HEARD IN: Commission Hearing Room 2115, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina, beginning on November 18, 2002 and ending on November 21, 2002

BEFORE: Commissioner James Y. Kerr, II, Presiding; Chair Jo Anne Sanford, Commissioners J. Richard Conder, Robert V. Owens, Jr., Sam J. Ervin, IV, and Michael S. Wilkins

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BY THE COMMISSION: Section 251(c)(3) of the Telecommunications Act of 1996 (TA96, the 1996 Act, or the Act) requires incumbent local exchange companies (ILECs) to provide “nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory.” Section 252(d) provides as follows:

(1) Interconnection and network element charges. – Determination by a State commission of the just and reasonable rate for the interconnection of facilities and equipment for purposes of subsection (c)(2) of section 251, and the just and reasonable rate for network elements for purposes of subsection (c)(3) of such section –

(A) shall be –

(i) based on the cost (determined without reference to a rate-of-return or other rate-based proceeding) of providing the interconnection or network element (whichever is applicable), and

(ii) nondiscriminatory, and

(B) may include a reasonable profit.

Pursuant to this statutory mandate, the Federal Communications Commission (FCC) has determined that prices for unbundled network elements (UNEs) must be based on the total element long-run incremental cost (TELRIC) of providing those elements.¹ The “forward-looking economic cost of an element is the sum of (1) the total element long-run incremental cost of the element [TELRIC,] and (2) a reasonable allocation of forward-looking common costs,”² incurred in providing a group of elements that “cannot be attributed directly to individual elements.”³ Further, TELRIC “should be measured based on

¹ *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, First Report and Order, 11 FCC Rcd 15499, 15844-47, paras. 674-79 (1996) (Local Competition First Report and Order) (subsequent history omitted); 47 C.F.R. §§ 51.501-51.515 (2001).

² 47 C.F.R. § 51.505(a).

³ 47 C.F.R. § 51.505(c)(1).

the use of the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing location of the incumbent[s] wire centers.”⁴

The FCC’s TELRIC methodology, which was upheld by the United States Supreme Court,⁵ was the basis for the UNE prices established by this Commission in its order issued December 10, 1998⁶ (the *First UNE Order*) and subsequent orders in this docket.

On February 5, 2002, WorldCom, Inc. (WorldCom) filed its Petition for Expedited Commission Action to Promote Local Competition. In its Petition, WorldCom argued that UNE rates were too high in North Carolina which inhibited competition.

By Order dated February 7, 2002, the Commission requested comments from interested parties on WorldCom’s Petition.

By Order issued March 20, 2002 in response to WorldCom’s Petition, the Commission initiated a new UNE proceeding, restricted to BellSouth Telecommunications, Inc. (BellSouth) only. The Commission stated in the *March 20, 2002 Order* that the primary reasons for the new proceeding were that the data on which the current UNE rates were based were several years old and that a new loop model, the BellSouth Telecommunications Loop Model (BSTLM), was available and used in other states. The *March 20, 2002 Order* stated that the validity of the BSTLM would be assumed and that the case would be restricted to the inputs and assumptions affecting recurring and nonrecurring UNE rates. The Commission specified that neither collocation rates nor nonrelevant policy issues would be considered.

On April 19, 2002, the Commission issued its *Order Establishing Schedule for New UNE Proceeding* wherein it set dates for prefiled testimony and an evidentiary hearing to begin on November 18, 2002.

The prefiled testimony of the following witnesses was either presented at the hearing or entered into the record by stipulation of the Parties: BellSouth witnesses W. Bernard Shell, Jane Raulerson, W. Keith Milner, Walter S. Reid, G. David Cunningham, D. Daonne Caldwell, John A. Ruscilli, and Dr. Randall S. Billingsley (direct and rebuttal), and witness James W. Stegeman (rebuttal); Department of Defense and all other federal executive agencies (jointly referred to as the Department of Defense) witness Harry Gildea (rebuttal); Public Staff witness John Robert Hinton (rebuttal); AT&T of the Southern States, LLC (AT&T)/WorldCom witnesses Thomas Weiss, Steven Turner, Catherine Pitts, Brian Pitkin, Joseph Gillan, and Greg Darnell (rebuttal); AT&T, WorldCom, Birch Telecom of the South,

⁴ 47 C.F.R. § 51.505(b)(1).

⁵ *Verizon Communications, Inc. v. FCC*, 535 U.S. 467 (2002).

⁶ 88 N.C.U.C. 139 (1998).

Inc., Access Integrated Networks, Inc., ITC DeltaCom Communications, Inc., NuVox Communications, Inc., and Network Telephone Corporation (collectively the competing local providers - CLPs) witness Joseph Gillan (revised rebuttal testimony and exhibits).

The evidentiary hearing was held beginning on November 18, 2002 and ending on November 21, 2002.

After requests for extensions of time were filed and granted, on February 14, 2003, Proposed Orders, Briefs, and Issue Matrices were filed by the Parties, as follows:

Company	Issues Matrix	Proposed Order	Post-Hearing Brief
BellSouth	X		X
AT&T/WorldCom	X	X	X
Covad			X
Department of Defense			X
Public Staff	X	X	

The Parties appear to agree on what the actual issues are before the Commission for a decision. AT&T/WorldCom, BellSouth, and the Public Staff each filed an Issues Matrix and all three Matrices reflect the same 17 issues to be addressed and decided by the Commission, as follows:

Issue No. 1 – Do BellSouth’s cost models and cost studies comply with the 1996 Act and the FCC’s UNE pricing rules?

Issue No. 2 – Should the engineered, furnished, and installed cost of outside plant be calculated using in-plant factors, as is done in BellSouth’s cost study filing in this docket, or by utilizing so-called “bottoms-up” inputs in the BSTLM?

Issue No. 3 – If in response to **Issue No. 2** above the Commission determines that it is appropriate to utilize in-plant factors, Issue No. 3 is moot. If, however, the Commission determines that it will utilize “bottoms-up” inputs in the BSTLM to calculate UNE rates, then what are the appropriate “bottoms-up” inputs?

Issue No. 4 – Should the Commission use multiple scenarios in the BSTLM to set UNE loop rates?

Issue No. 5 – How should shared digital loop carrier equipment costs be allocated in the BSTLM?

Issue No. 6 – Is BellSouth’s use of a melded value based on the costs of its two vendors’ prices for digital loop carrier (DLC) equipment appropriate?

Issue No. 7 – What fill factors should be used in BellSouth’s cost model?

Issue No. 8 – What is the appropriate cost of capital to use in calculating BellSouth’s UNE rates?

Issue No. 9 – What depreciation rates/economic lives should be used in calculating BellSouth’s UNE rates?

Issue No. 10 – What are the appropriate shared and common cost factors to use in calculating BellSouth’s UNE rates?

Issue No. 11 – Is it appropriate to decrease UNE rates based on AT&T/WorldCom’s forecasted “growth” adjustment?

Issue No. 12 – What is the appropriate application of the Commission’s previously ordered geographic deaveraging methodology to the UNE loop costs produced by the BSTLM?

Issue No. 13 – Are AT&T/WorldCom’s proposed adjustments to BellSouth’s switching cost study appropriate?

Issue No. 14 – What are the appropriate task times and other inputs to use in calculating BellSouth’s nonrecurring rates?

Issue No. 15 – Should disconnect costs be recovered through nonrecurring charges?

Issue No. 16 – Should the costs BellSouth incurs when CLPs access BellSouth’s operations support systems (OSS) be recovered as a nonrecurring charge on a per Local Service Request (LSR) basis?

Issue No. 17 – Are AT&T/WorldCom’s proposed adjustments to BellSouth’s Daily Usage File (DUF) cost study appropriate?

On February 20, 2003, the FCC reached a decision in its UNE Triennial Review proceeding. The FCC released its Order in this regard on August 21, 2003⁷. Part of the FCC's decision was a clarification on the cost of capital and depreciation used in TELRIC-compliant cost studies. The cost of capital and depreciation are identified as separate issues to be decided in the instant docket, specifically Issue Nos. 8 and 9.

On August 8, 2003, the Commission issued an *Order Requesting Late-Filed Exhibits* which asked for AT&T/WorldCom and BellSouth to file additional information regarding the DUF cost studies.

By Order dated August 27, 2003, the Commission scheduled a conference call among the Parties to discuss outstanding matters related to this docket to be held on August 28, 2003.

On August 28, 2003, the Commission held the conference call as scheduled.

On August 29, 2003, the Commission issued its *Order Requesting Late-Filed Exhibit*. The Commission requested the Public Staff to provide a late-filed exhibit containing the UNE rates produced by the Public Staff's recommendations with geographic deaveraging based on (1) loop investment; and (2) UNE cost by wire center along with the statewide average rate for each UNE.

On September 2, 2003, AT&T/WorldCom and BellSouth separately filed their late-filed exhibits on the DUF cost studies in compliance with the Commission's *August 8, 2003 Order*.

On October 17, 2003, the Public Staff filed its late-filed exhibit showing UNE rates as ordered in the Commission's *August 29, 2003 Order*.

A glossary of the acronyms referenced in this Order is attached hereto as Appendix A.

WHEREUPON, based upon a careful consideration of the entire record in this proceeding, the Commission now makes the following

FINDINGS OF FACT

1. BellSouth's cost models, from a design perspective, are capable of developing UNE prices which comply with the Act and the FCC's pricing rules, when the factors and

⁷ *Report and Order and Order on Remand and Further Notice of Proposed Rulemaking* issued in CC Docket No. 01-338 (Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers), CC Docket No. 96-98 (Implementation of the Local Competition Provisions of the Telecommunications Act of 1996), and CC Docket No. 98-147 (Deployment of Wireline Services Offering Advanced Telecommunications Capability) (Triennial Review Order or TRO).

inputs are correctly calculated.

2. It is appropriate for BellSouth to use a “tops-down” approach in its cost studies.
3. Since the Commission determined that the “tops-down” approach should be used, Issue No. 3 concerning the appropriate inputs for a “bottoms-up” model is moot.
4. It is appropriate for BellSouth to use its proposed five-scenario methodology in the BSTLM to determine BellSouth’s UNE loop rates.
5. It is appropriate for BellSouth to allocate investments on a per DS0 equivalent basis.
6. BellSouth’s use of a melded value based on the costs of its two vendors’ prices for DLC equipment is appropriate.
- 7(a). An input value higher than 1.25 pairs is not justified for residential locations, and BellSouth should adjust its input values accordingly in its cost study.
- 7(b). It is appropriate for BellSouth to base its factors for feeder facilities on the FCC’s inputs from the Synthesis Model, since BellSouth does not have utilizations by density.
- 7(c). BellSouth’s proposed interoffice transport factors and methodology are appropriate for use in this proceeding.
- 7(d). BellSouth’s proposed transport study input for busy hour CCS per circuit of 18.7 CCS is appropriate.
8. BellSouth’s reasonable and appropriate forward-looking cost of capital associated with the provision of UNEs and interconnection is 9.79%, based on the following capital structure and cost rates:

<u>Cost Weighted Component</u>	<u>Ratio</u>	<u>Rate</u>	<u>Cost Rate</u>
Long-Term Debt	40%	7.23%	2.89%
<u>Common Equity</u>	<u>60%</u>	<u>11.50%</u>	<u>6.90%</u>
Total	<u>100%</u>		<u>9.79%</u>

The Commission will consider the potential impact of the FCC’s TRO on the cost of capital as reflected in the UNE rates for BellSouth, Carolina Telephone and Telegraph Company (Carolina), Central Telephone Company (Central), and Verizon South, Inc. (Verizon) by soliciting comments in this regard by separate order.

9. The reasonable and appropriate economic lives and future net salvage values for calculating depreciation rates for use in the cost studies continue to be those within the FCC-authorized ranges and approved by the Commission in the *First UNE Order* with the exception of digital switching, which should have a life of 12 years.

The Commission will consider the potential impact of the FCC's TRO on depreciation as reflected in the UNE rates for BellSouth, Carolina, Central, and Verizon by soliciting comments in this regard by separate order.

10. BellSouth's proposed shared and common cost factors, adjusted for the effects of changes to the annual cost factors, cost of capital, capital structure, depreciation rates, and effective tax rates, are reasonable and appropriate. BellSouth should revise its shared and common cost factors to the extent necessary to reflect modifications ordered herein regarding the underlying factors included in the calculations of the shared and common cost factors.

11. It is not appropriate to decrease UNE rates based on AT&T/WorldCom's forecasted "growth" adjustment.

12. BellSouth should group wire centers based on UNE costs, and not investment, as originally decided by the Commission in its March 15, 2001 *Recommended Order Concerning Geographic Deaveraging*. The Commission will explore and address this issue as it relates to Sprint's and Verizon's deaveraging methodology by separate order.

13. The switching costs proposed by BellSouth are reasonable and appropriate subject to the applicable adjustments and modifications concerning the various cost and capital expense factors discussed elsewhere herein to calculate its UNE rates. Vertical features should be unbundled and priced separately from the local switch. Additionally, BellSouth should be allowed to combine vertical features in a bundled package, and thus, offer a composite features per port rate which includes all available vertical features.

14. The nonrecurring charges currently filed and approved by the Commission in BellSouth's Statement of Generally Available Terms and Conditions (SGAT) are reasonable and appropriate for recovering its nonrecurring costs associated with providing UNEs and interconnection.

15. BellSouth should not create a separate recurring rate to recover the costs of disconnection for loops and ports. The costs associated with the disconnection of the various loops and ports are already included in the nonrecurring rates of those UNEs and should not be added to BellSouth's recurring rates.

16. Recovery of one-time developments costs for new OSS and improvements to existing systems through nonrecurring charges on a per-LSR basis are appropriate. The correct nonrecurring charges for OSS costs are those in the SGAT currently approved for BellSouth.

17(a). BellSouth's DUF cost study appropriately attributes costs for specific jobs to the messages being processed by those jobs, whether the messages considered are CLP messages, BellSouth messages, or a combination of both. AT&T/WorldCom's proposed adjustments to the per message costs are inappropriate.

17(b). The BellSouth DUF cost study should be adjusted to reflect a cost recovery period of five years for Optional Daily Usage File (ODUF) and Enhanced Optional Daily Usage File (EODUF), as a five-year period would match the recovery period to the useful economic life of the DUF systems. There should be no change with respect to the 10-year Access Daily Usage File (ADUF) recovery period since BellSouth voluntarily offered and agreed to the longer period and has not requested any change.

17(c). BellSouth's decision to expense computer resource costs is reasonable.

17(d). BellSouth should revisit the Employment Cost Index (ECI) and submit calculations based on updated ECI data. BellSouth should also submit evidence of all contract terms, if any, which tend to show BellSouth is bound to a contractual labor inflation rate that cannot be adjusted based on changes in economic and market conditions.

17(e). AT&T/WorldCom's proposal that the cost for magnetic tape development be removed from the message processing costs for ODUF and moved into the magnetic tape provisioning costs is inappropriate.

17(f)(1). BellSouth's DUF cost study should be amended to reflect input of actual message volume data from October 2001 through November 2002 in the cost per message calculations and this data should also be used to revise the levels of growth in DUF messages for future years contained in the cost study.

17(f)(2). BellSouth should modify its Operating Carrier Number (OCN) cost study assumptions to reflect a decrease in the number of OCNs purchasing ADUF and ODUF over the respective cost study periods.

17(g). BellSouth's cost study does not double recover for switching investment by including Automated Message Accounting (AMA) recording costs in the ODUF recording rate element, which is charged only to CLPs that would not be charged a usage rate for switching due to the fact that they own their own switches.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 1

ISSUE NO. 1: Do BellSouth's cost models and cost studies comply with the 1996 Act and the FCC's UNE pricing rules?

POSITIONS OF PARTIES

BELLSOUTH: BellSouth believes that its cost models comply with both the Act and the FCC's pricing rules. BellSouth asserted that it developed cost studies to reflect the costs BellSouth expects to incur in providing UNEs and interconnection services on a going-forward basis in North Carolina. Further, BellSouth stated in its Issues Matrix that its cost methodology was approved by the Commission in the past and has been endorsed as TELRIC-compliant by the FCC in approving each BellSouth Section 271 application.

AT&T/WORLDCOM: AT&T/WorldCom stated that with proper inputs, BellSouth's cost models may be used to develop UNE prices which comply with the Act and the FCC's pricing rules. However, AT&T/WorldCom argued that because BellSouth used embedded and other improper inputs in both its "tops-down" and "bottoms-up" versions of the BellSouth Telecommunications Loop Model - Cost Pro[®] (referred to as the BSTLM-CP or BSTLM), as well as its other cost models, the UNE prices proposed by BellSouth do not comply with the Act or the FCC's pricing rules.

COVAD: Covad maintained that BellSouth's proposed nonrecurring rates should be rejected. Covad contended that the Commission should treat the nonrecurring rates in BellSouth's May 7, 2002 SGAT as the highest potential rates that could be ordered in this proceeding. In support of its position, Covad observed that this Commission and the FCC agreed that BellSouth's nonrecurring SGAT rates are TELRIC-compliant. With regard to recurring UNE rates for digital subscriber line (DSL)-critical network elements, Covad asserted that the Commission should accept the recurring rates set forth in BellSouth's Revised Exhibit JAR-3 [John A. Ruscilli] upon modification to reflect the cost of capital revisions proposed by the Public Staff.

DEPARTMENT OF DEFENSE: The Department of Defense stated that BellSouth's cost models and studies do not comply with the requirements of the Act and the FCC's pricing rules in some important respects. In particular, the Department of Defense maintained that the models and studies do not accurately portray the costs for facilities provided to competitors; they do not account for anticipated productivity improvements; they do not reflect BellSouth's expected distribution cable fill and capital structure; and BellSouth should not require users to pay bundled feature charges, instead, competitors should be permitted to acquire individual features.

PUBLIC STAFF: The Public Staff stated that BellSouth's cost models and studies are in compliance with the Act and the FCC's pricing rules.

DISCUSSION

Pursuant to Section 252(d)⁸ of the Act, the FCC determined that prices for UNEs must be based on the TELRIC of providing those elements. According to FCC Rule 51.505(a) and (c)(1), the forward-looking economic cost of an element is the sum of: (1) the TELRIC of the element and (2) a reasonable allocation of forward-looking common costs incurred in providing a group of elements that “cannot be attributed directly to individual elements.” The TELRIC of an element, as defined in FCC Rule 51.505(b) is “the forward-looking cost over the long run of the total quantity of the facilities and functions that are directly attributable to, or reasonably identifiable as incremental to, such element, calculated taking as a given the incumbent LEC’s provision of other elements.” Further, pursuant to FCC Rule 51.505(b)(1), TELRIC “should be measured based on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing location of the incumbent LEC’s wire centers.”

The FCC’s TELRIC methodology, which was upheld by the United States Supreme Court, (*Verizon Communications, Inc. v. FCC*, 535 U.S. 467 (2002)) was the basis for the UNE prices established by this Commission in its December 10, 1998 *Order Adopting Permanent Prices for Unbundled Network Elements* and subsequent orders in this docket.

By *Order* issued March 20, 2002, in Docket Nos. P-100, Sub 133d and P-55, Sub 1022, in response to a WorldCom Petition titled “Petition for Expedited Commission Action to Promote Local Competition”, the Commission instituted a new UNE proceeding, restricted to BellSouth only. According to the *Order*, the primary reasons for the new proceeding were that the data on which the current rates are based are several years old and that a new cost model, the BSTLM, is available, and BellSouth is using it in other states. The *Order* specifically concluded the following:

1. That this UNE proceeding be restricted to BellSouth only.
2. That the validity of BellSouth’s new loop model, the BSTLM, will be assumed and the scope of the case will include both recurring and nonrecurring rates but will be restricted to the inputs and assumptions affecting those rates.

⁸ “252(d) Pricing Standards.-

“(1) Interconnection and Network Element Charges.- Determinations by a State commission of the just and reasonable rate for the interconnection of facilities and equipment for purposes of subsection (c)(2) of section 251, and the just and reasonable rate for network elements for purposes of subsection (c)(3) of such section –

“(A) shall be-

“(i) based on the cost (determined without reference to a rate-of-return or other rate-based proceeding) of providing the interconnection or network element (whichever is applicable), and

“(ii) nondiscriminatory, and

“(B) may include a reasonable profit.”

3. Neither collocation rates nor non-relevant policy issues, such as whether “currently combined” or “ordinarily combined” UNEs should be made available, will be considered.

By Order issued April 19, 2002, the Commission established the schedule for the new proceeding and stated that the scope of the hearing would be as set forth in its *March 20, 2002 Order*.

In its Post-Hearing Brief, BellSouth reported that in the first phase of this proceeding, the Commission conducted an extensive, detailed investigation into UNE cost methodology and concluded that “the most appropriate basis for establishing permanent prices for UNEs and interconnection is TELRIC plus a reasonable allocation of joint and common costs, which include a reasonable profit or return.”⁹ Further, BellSouth stated that although the Commission made adjustments to BellSouth’s cost studies (e.g., cost of capital, depreciation, etc.), the Commission accepted BellSouth’s cost methodology; that is, “The Commission concludes that the cost studies proposed by the ILECs, subject to the modifications outlined herein, are reasonable and appropriate and should be adopted.”¹⁰

Additionally, BellSouth noted that in reviewing BellSouth’s Section 271 application for North Carolina, the FCC agreed with the Commission’s finding that the prices it established for BellSouth’s UNEs were based upon the FCC’s TELRIC principles: “The North Carolina Commission demonstrated its commitment to developing UNE prices based on a forward-looking cost methodology and the Commission’s [FCC’s] TELRIC principles.”¹¹ Furthermore, BellSouth pointed out that after a thorough review of the Commission’s decisions in the earlier phases of this docket, the FCC concluded: “[W]e find that BellSouth’s UNE rates in Alabama, Kentucky, Mississippi, North Carolina, and South Carolina are just, reasonable, and nondiscriminatory, and are based on cost plus a reasonable profit as required by section 252(d)(1).”¹²

BellSouth asserted that its fundamental cost methodology supporting the costs BellSouth filed in the instant proceeding is identical to the approach approved by the Commission in the earlier phases of this docket. BellSouth explained that this methodology reflects the costs BellSouth expects to incur in providing competitors with UNEs on a going-forward basis in North Carolina. These costs, according to BellSouth,

⁹ *First UNE Order* at Page 11.

¹⁰ *Id.* Page 26.

¹¹ Joint Application by BellSouth Corporation, BellSouth Telecommunications, Inc. and BellSouth Long Distance, Inc. for Provision of In-Region, InterLATA Services in Alabama, Kentucky, Mississippi, North Carolina and South Carolina, WC Docket 02-150, Memorandum Opinion and Order, (*Five-State 271 Order*), Paragraph 48.

¹² *Id.* Paragraph 33.

are based on an efficient network, designed to incorporate currently available forward-looking technology, and recognize BellSouth's provisioning practices and network guidelines associated with these forward-looking technologies as well. Additionally, BellSouth stated that shared and common costs – based on a projection of BellSouth's anticipated expenses – were considered.

BellSouth contended that its costing methodology and cost models fully comply with the Act and the FCC's pricing rules. In developing both recurring and nonrecurring costs, BellSouth reported that it utilized several cost models. As provided in the testimony of BellSouth witness Caldwell, BellSouth used the following models in this proceeding: (1) the BSTLM to support the cost development for unbundled loop elements and combinations; (2) Telcordia's Switching Cost Information System/Model Office (SCIS/MO) and the Switching Cost Information System/Intelligent Network (SCIS/IN), and BellSouth's Simplified Switching Tool[®] (SST) to support the development for all switch-related elements, including ports, usage, and vertical features; (3) the BellSouth Cost Calculator[®] which converts input data (material prices/investments by field reporting code, recurring additives, nonrecurring additives, and work times by job function code) into cost; (4) the Capital Cost Calculator[®], which produces depreciation, cost of money, and income tax factors that are applied to investments to calculate capital costs; (5) the Synchronous Optical Network (SONET) and Digital Service One (DS1) price calculators, which develop the material price of specialized components used in the provisioning of various network capabilities; and (6) the Nonrecurring Cost Model to develop estimates of the activities and time required to provision the element under study, with the estimates being input into the BellSouth Cost Calculator[®]. BellSouth stated that the Parties agree that these models are appropriate for use in establishing rates in this proceeding.

BellSouth commented that it developed recurring and nonrecurring costs, as appropriate, for all network elements and interconnection services, including unbundled local loops (*Elements A.1-A.18*); unbundled local exchange ports and features (*Elements B.1-B.5*); unbundled switching and local interconnection (*Elements C.1-C.2*); unbundled transport and interoffice transport (*Elements D.1-D.12*); signaling network, data bases, and service management systems (*Elements E.1-E.6*); selective routing (*Elements G.9 and G.11*); dark fiber (*Element J.1*); loop make-up and line sharing (*Elements J.3-J.4*); access to the DCS (*Element J.5*); advanced intelligent network services (*Elements K.1-K.2*); access daily usage (*Element L.1*); daily usage files (*Elements M.1-M.2*); service order (*Element N.1*); and combinations (*Elements P.1-P.58*). BellSouth's proposed rates for these elements are set forth in Revised Exhibits JAR-1, JAR-2, and JAR-3 to the prefiled testimony of BellSouth witness Ruscilli. BellSouth contended that these rates are "just and reasonable" and comply with all applicable requirements of the Act and the FCC Rules.

BellSouth maintained that the CLPs would have the Commission believe that, if BellSouth has used any factor, input assumption, decision, or practice that has any basis in BellSouth's existing network, then its resulting costs cannot be TELRIC-compliant. BellSouth pointed out that the Commission has rejected that argument in the past and

suggested that it should again be rejected. BellSouth explained that even in a forward-looking cost study, past results which are indicative of future trends provide valid input in TELRIC-compliant cost analysis. In particular, BellSouth observed that the Commission has recognized that forward-looking studies can include costs that “are sufficiently grounded in the ILECs’ actual operating conditions and experience to offer a realistic and achievable measure of the costs on which the Act says prices should be based.”¹³

According to BellSouth, in the study filed in this proceeding, BellSouth used year-end expenses and investment data as starting points in developing some cost factors. BellSouth stated that projected forecast information is then used to determine future investments and expenses and, ultimately, the factors. In some cases, however, BellSouth acknowledged that actual historical data was used to develop ratios that predict future relationships with respect to forward-looking investments and expenses. BellSouth remarked that in all such cases, the historical relationships were used only if they were accurate representations of the future. In other words, BellSouth stated that these factors were only used if the data is a realistic indicator of incremental costs BellSouth “actually expect[s] to incur.” Moreover, BellSouth reported that these ratios are applied against forward-looking material prices/investments, and thus, produce forward-looking costs.

BellSouth stated that its new model, the BSTLM, properly computes the costs of loops¹⁴ and related elements. BellSouth provided that, in conjunction with INDETEC International, Inc., CostQuest Associates, and Stopwatch Maps, BellSouth developed a new BellSouth proxy model for loop investment calculations that replaced the loop sample approach used by BellSouth in the first phase of this proceeding.

BellSouth witness Stegeman testified that the BSTLM has been filed and adopted “as-is” in six other BellSouth states over the last 2½ years as the appropriate model to calculate BellSouth’s loop and loop-related costs.¹⁵ Furthermore, BellSouth noted that the FCC found the rates produced by the BSTLM in Alabama, Kentucky, Louisiana,

¹³ *First UNE Order* at Page 18.

¹⁴ Witness Caldwell testified that although the model has the ability to develop investments for high-capacity loops, BellSouth confined the use of the BSTLM to loops with transmission rates up to DS1. According to witness Caldwell, the current, limited customer demand for high-capacity loops and high-capacity local channels would create unrealistic results, since common system costs would necessarily be spread over a small number of customers. Witness Caldwell stated that this calculation would not be indicative of an efficient, least-cost network. Thus, BellSouth developed the investments for high capacity (DS3 and higher) facilities on spreadsheets outside the BSTLM.

¹⁵ In its Proposed Order, BellSouth stated that the Alabama, Florida, Kentucky, Louisiana, Mississippi, and South Carolina Commissions have all issued UNE orders adopting loop rates calculated by the BSTLM. BellSouth provided the Commission with these decisions as a late-filed exhibit on December 20, 2002.

Mississippi, and South Carolina to be TELRIC-compliant in accordance with the FCC's pricing rules in its *GA/LA II 271 Order*¹⁶ and in its *Five-State 271 Order*.

BellSouth commented that the new model incorporates geographically coded ("geocoded") BellSouth customer serving addresses and the types and quantities of services at each location. When combined with BellSouth-specific input values, according to witness Caldwell, the model produces loop investments that reflect the forward-looking, most efficient costs of providing service in BellSouth's territory in North Carolina at a more detailed level than a statewide average. Further, witness Caldwell stated that since the BSTLM is a proxy model, it produces a hypothetical network that incorporates efficiencies (for example, cable sizes and route lengths) that may or may not exist in BellSouth's actual network. To satisfy the FCC's TELRIC principles with respect to cost development, BellSouth explained that it is critical that the inputs reflect the costs BellSouth will incur on a going-forward basis. The inputs BellSouth used in running the BSTLM for this proceeding are provided in Exhibit DDC-7, submitted by BellSouth witness Caldwell.

Finally, BellSouth contended that the use of the BSTLM to generate rates in this proceeding is not in dispute. In fact, BellSouth stated that AT&T/WorldCom specifically asked the Commission to order BellSouth to file loop costs generated by the BSTLM.¹⁷ Importantly, BellSouth pointed out that in the Commission's *Order Ruling on WorldCom Petition* issued March 20, 2002, the Commission ordered "[t]hat the validity of BellSouth's new loop model, the BSTLM, will be assumed and the scope of the case will include both recurring and non-recurring rates but will be restricted to the inputs and assumptions affecting those rates."

AT&T/WorldCom did not dispute that BellSouth's cost models "as designed" could produce UNE prices which comply with the Act and the FCC's pricing rules. In fact, in their Proposed Order, AT&T/WorldCom pointed out that they had agreed they would not challenge the design of BellSouth's cost models in this proceeding. Instead, AT&T/WorldCom agreed that this proceeding would be limited to inputs to the models.

AT&T/WorldCom argued that under FCC Rule 51.505(e), BellSouth bears the burden of proving that its proposed UNE prices do not exceed forward-looking costs on a per-unit basis. Additionally, AT&T/WorldCom maintained that FCC Rule 51.505(b)(1) prohibits BellSouth's use of embedded or historical costs. AT&T/WorldCom argued that the factors and other costs used by BellSouth in its "tops-down" version of the BSTLM are based on BellSouth's embedded and historical costs and thus by definition are based on embedded or historical costs.

¹⁶ Joint Application by BellSouth Corporation, BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc. for Provision of In-Region InterLATA Services in Georgia and Louisiana, CC Docket No. 01-35, FCC 02-147, Memorandum Opinion and Order (May 15, 2002) (*GA/LA II 271 Order*).

¹⁷ WorldCom's Petition for Expedited Commission Action to Promote Local Competition, February 5, 2002; AT&T's Motion in Support of Petition for Expedited Commission Action, February 22, 2002.

Additionally, AT&T/WorldCom argued that pursuant to FCC Rule 51.511(a), in determining the forward-looking economic cost of an element, costs must be divided by a reasonable sum of the total units of the element in demand. AT&T/WorldCom argued that BellSouth had failed to comply with this FCC rule for many key elements because BellSouth uses a numerator (cost) that is too high and a denominator (demand) that is too low, resulting in proposed UNE prices which are greatly inflated.

In their Proposed Order, AT&T/WorldCom stated that because they had agreed that this proceeding would be limited to inputs to BellSouth's cost models, the Commission should conclude that BellSouth's cost models, from a design perspective, are capable of developing UNE prices which comply with the Act and the FCC's pricing rules. However, AT&T/WorldCom maintained that the issue of whether BellSouth's cost model inputs develop such compliant UNE prices is another matter. AT&T/WorldCom argued that because BellSouth used factors and other inputs which are based on BellSouth's embedded and historical costs and other improper inputs, BellSouth's proposed UNE prices based on its "tops-down" version of the BSTLM are not TELRIC-compliant; and BellSouth's cost models' inputs do not satisfy the FCC's requirement that a reasonable amount of demand for services must be considered in establishing cost-based UNE prices.

Covad explained that on May 7, 2002, BellSouth filed a revised SGAT adopting any nonrecurring rates ordered in Louisiana that were lower than the nonrecurring rates in North Carolina in order to avoid any conceivable issue during BellSouth's efforts to win Section 271 approval from the FCC. On July 9, 2002, after minor amendment, the Commission approved BellSouth's revised SGAT price list in its *Order and Advisory Opinion Regarding Section 271 Requirements* issued in Docket No. P-55, Sub 1022.

Covad observed that BellSouth readily admitted that BellSouth's May 7, 2002 SGAT filing contained nonrecurring rates that were cost-based and TELRIC compliant. Nevertheless, as stated by Covad, on June 10, 2002, in this docket, BellSouth filed a cost study reflecting enormously higher rates. However, Covad pointed out that BellSouth's witnesses admitted that BellSouth could not specifically identify cost elements that had increased since BellSouth's May 7, 2002 SGAT filing, nor could BellSouth provide a cost study to allow a comparison to identify those elements that may have increased since May 7, 2002. Covad argued that BellSouth had failed to fulfill its obligation under 47 C.F.R. §51.507(e) to "prove to the state commission that the rates for each element it offers do not exceed the forward-looking economic cost per unit of providing the element, using a cost study that complies with the methodology set forth in this section and section 51.511."

Covad asserted that the Commission should set the nonrecurring rates contained in BellSouth's current SGAT as a ceiling for nonrecurring UNE rates because BellSouth had failed to prove that the prices it seeks "do not exceed the forward-looking economic cost per unit of providing the element." Covad maintained that the FCC, this Commission, and

BellSouth all agree that BellSouth's nonrecurring SGAT rates are TELRIC-compliant in North Carolina. Furthermore, Covad argued that BellSouth had failed to provide any evidence supporting the massive increase it seeks in nonrecurring SGAT rates.

In regard to recurring UNE rates for DSL-critical network elements, a list of which was attached to Covad's Post-Hearing Brief as Exhibit A, Covad stated that the Commission should accept the recurring rates set forth in BellSouth's Revised Exhibit JAR-3, submitted by BellSouth witness Ruscilli, subject to the cost of capital revisions proposed by Public Staff witness Hinton.

The Department of Defense contended that BellSouth's models do not accurately portray the costs for facilities provided to competitors. In particular, the Department of Defense asserted that BellSouth's cost models do not account for anticipated productivity improvements. The Department of Defense witness Gildea explained in his direct testimony that it is important to give significant weight to past productivity increases in the process of determining future UNE prices. Witness Gildea observed that according to the Bureau of Labor Statistics, the Labor Productivity Index for the telecommunications industry has experienced steady increases in recent years. Witness Gildea maintained that BellSouth used incorrect inputs in its cost models which result in higher costs. Additionally, the Department of Defense concurred with AT&T/WorldCom that the "bottoms-up" approach would provide a better basis for establishing the UNE charges. Furthermore, the Department of Defense stated that the Commission should reject BellSouth's proposals to increase charges above the levels claimed in obtaining Section 271 approval.

In its Issues Matrix attached to its Proposed Order, the Public Staff stated that BellSouth's cost models and studies are in compliance with the Act and the FCC's pricing rules. The Public Staff noted that the Commission has found several of the models, either the specific version used in this proceeding or earlier versions, to be TELRIC-compliant. However, the Public Staff pointed out that the inputs used by BellSouth differ from those previously adopted by the Commission. The Public Staff recommended that the Commission find that the cost studies presented by BellSouth, with certain input modifications and adjustments, are reasonable and appropriate for determining its recurring costs of providing UNEs and interconnection.

Further, the Public Staff contended that the nonrecurring charges currently filed and approved by the Commission in BellSouth's SGAT are reasonable and appropriate for recovering its nonrecurring costs associated with providing UNEs and interconnection. The Public Staff accepted the statements made by BellSouth in its May 7, 2002, SGAT filing and its June 20, 2002, Five-State 271 filing with the FCC that the rates contained in the SGAT are cost-based and TELRIC-compliant.

In summary, the Parties' positions on this issue are as follows:

- (1) BellSouth believes that its cost models comply with both the Act and the FCC's pricing rules;
- (2) AT&T/WorldCom agreed they would not challenge the design of BellSouth's cost models in this proceeding. However, AT&T/WorldCom asserted that many of BellSouth's cost model inputs used in developing recurring and nonrecurring rates are inappropriate;
- (3) Covad agreed that the Commission should accept BellSouth's proposed recurring rate development for DSL-critical elements except that the cost of capital input should be revised. Further, Covad contended that the nonrecurring rates in BellSouth's May 7, 2002 SGAT should be the highest potential rates that could be ordered in this proceeding;
- (4) The Department of Defense maintained that BellSouth used incorrect inputs in its cost models which result in higher costs. The Department of Defense also stated that the Commission should reject BellSouth's proposals to increase charges above the levels claimed in obtaining Section 271 approval; and
- (5) The Public Staff stated that BellSouth's cost models and studies are in compliance with the Act and the FCC's pricing rules. However, the Public Staff also stated that the nonrecurring charges currently filed and approved by the Commission in BellSouth's SGAT are reasonable and appropriate for recovering its nonrecurring costs associated with providing UNEs and interconnection.

Based upon the foregoing, the Commission understands that the Parties are in agreement that BellSouth's cost models may be used to develop UNE prices which comply with the Act and the FCC's pricing rules. However, the Commission also understands that many of the inputs to BellSouth's cost models have been contested in this proceeding. The Parties' proposed modifications and adjustments, along with the question of the appropriateness of BellSouth's nonrecurring charges currently approved by the Commission as filed in BellSouth's SGAT filing on May 7, 2002, will be addressed in the remaining issues discussed in this Order.

Further, the Commission notes that in the *Order Ruling on WorldCom Petition*, issued March 20, 2002, in Docket Nos. P-100, Sub 133d and P-55, Sub 1022, in response to a WorldCom Petition titled "Petition for Expedited Commission Action to Promote Local Competition", the Commission instituted a new UNE proceeding, restricted to BellSouth only and stated that the validity of BellSouth's new loop model, the BSTLM, will be assumed and the scope of the case will include both recurring and nonrecurring rates but will be restricted to the inputs and assumptions affecting those rates.

Accordingly, the Commission believes that BellSouth's cost models and cost studies used in this proceeding will comply with the Act and the FCC's pricing rules when appropriate factors and inputs are used, as addressed in the subsequent issues.

CONCLUSIONS

The Commission concludes that, since the Parties essentially agree that the issues in this proceeding are limited to modifications and adjustments to inputs to BellSouth's cost models, BellSouth's cost models, from a design perspective, are capable of developing UNE prices which comply with the Act and the FCC's pricing rules, when the factors and inputs are correctly calculated.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 2

ISSUE NO. 2: Should the engineered, furnished, and installed cost of outside plant be calculated using in-plant factors, as is done in BellSouth's cost study filing in this docket, or by utilizing so-called "bottoms-up" inputs in the BSTLM?

POSITIONS OF PARTIES

BELLSOUTH: BellSouth's use of in-plant factors produces TELRIC compliant costs. The in-plant calculation is based upon the latest year-end data available at the time BellSouth's cost studies were conducted. This Commission has previously approved BellSouth's use of in-plant factors. The FCC has concluded that BellSouth's use of these factors and the Commission's reliance upon those factors was consistent with TELRIC principles.

AT&T/WORLDCOM: As stated by AT&T/WorldCom, the engineered, furnished, and installed cost of outside plant should be calculated by utilizing the "bottoms-up" version of the BSTLM with the inputs recommended by AT&T/WorldCom.

COVAD: Covad did not address this issue in its Brief.

DEPARTMENT OF DEFENSE: The "bottoms-up" approach should be employed. The "bottoms-up" approach provides a more accurate gauge of the costs underlying the UNE charges to be established in this case.

PUBLIC STAFF: The Public Staff stated that probably the most hotly contested issue in this proceeding involves whether BellSouth should be permitted to use the "tops-down" approach in determining the costs of UNEs and interconnection. The Public Staff stated that it is appropriate for BellSouth to use a "tops-down" approach in its cost studies.

DISCUSSION

BellSouth stated that the FCC's BellSouth 271 Orders remove any doubt cast by the CLPs concerning whether BellSouth's in-plant loading factors approach in this case is TELRIC compliant. The in-plant factor calculation is based on the latest year-end data available at the time BellSouth's cost studies were conducted. Thus, the foundation of BellSouth's factor development is the most recent calendar year of plant addition activity. As stated by BellSouth, this data provides the most accurate reflection of inputs influencing variables such as vendor's contracts, exempt material prices, and any outsourcing initiatives. The relationship of capitalized labor, exempt material costs and sales tax to material prices is reasonably anticipated to continue into the foreseeable future.

As stated by BellSouth, as in the earlier phase of this docket, the CLPs' principal criticism of BellSouth's UNE cost development focuses on whether those costs are forward looking. The CLPs repeatedly complain that BellSouth's costs are embedded, historical or a product of a monopoly mindset. BellSouth stated that the record evidence in this case demonstrates conclusively that CLPs have proposed network architectures, provisioning processes, and expense reductions that are not attainable by BellSouth, or any other telecommunications provider, in the foreseeable future.

BellSouth commented that the CLPs would have the Commission believe that, if BellSouth has used any factor, input assumption, decision or practice that has any basis in BellSouth's existing network, then its resulting costs cannot be TELRIC compliant. Even in a forward-looking cost study, past results are indicative of future trends which provide valid input in TELRIC-compliant cost analysis. As further stated by BellSouth, the Commission recognized that forward looking studies can include costs that are "sufficiently grounded in the ILECs' actual operating conditions and experience to offer a realistic and achievable measure of the costs on which the access prices should be based." (*First UNE Order*, page 18.)

As further stated by BellSouth concerning the study filed in this proceeding, it used year-end expenses and investment data as starting points in developing some cost factors. Projected forecast information is then used to determine future investments and expenses and ultimately, the factors. BellSouth commented that in some cases actual historical data was used to develop ratios that predict future relationships with respect to forward-looking investments and expenses. Furthermore, historical relationships were used only if they were accurate representations of the future. According to BellSouth, factors were only used if the data is a realistic indicator of incremental costs BellSouth actually expects to incur. BellSouth stated that these ratios are applied against forward-looking material prices/investments and thus produce forward-looking costs.

BellSouth commented that the bottoms-up method requires that specific telephone company activities and associated costs be developed at a more granular level. This method requires a cost developer to attempt to gather inputs that are not readily available

or empirically supported at the specific level required by the model. Furthermore, BellSouth stated that the bottoms-up approach does not correlate to more accurate or precise costs. As an example, BellSouth commented that although it is able to determine from existing contracts the per-foot cost of placing cable, actual data is not available to enable determination of how often a particular activity occurs. Furthermore, BellSouth commented that it does not have actual data to forecast how often sod must be cut and restored or how often cable must be bored under driveways or how these probabilities would differ between an urban and rural location.

AT&T/WorldCom witness Pitkin claimed that the development of in-plant factors “reflect the activities associated with smaller construction projects” and thus results in an overstatement of costs. However, BellSouth witness Caldwell demonstrated that large projects do not necessarily cost less than smaller projects and that BellSouth’s cost study reflects costs for both large and small construction projects.

As further stated by BellSouth, witness Pitkin complained that BellSouth’s loading factors are a “black box.” BellSouth commented that its cost study contains the files that developed the in-plant loading factors for both outside plant and circuit accounts, and that the files reflected all calculations and inputs. Therefore, its loading factors have not been hidden from the CLPs or the Commission.

Furthermore, BellSouth commented that its in-plant factors do not distort geographically deaveraged investment, as claimed by witness Pitkin. BellSouth stated that the FCC recognized that the average loading factor will tend to overstate the cost of installing a cable that is larger than average and that it will tend to understate the cost of installing a cable that is smaller than average. BellSouth witness Caldwell stated that the FCC found that use of in-plant factors will provide an accurate estimate of the costs of installing the average size cable when applied to the unloaded cable cost estimate for the average size cable.

BellSouth contended that the level of accuracy through the use of the CLP’s bottoms-up approach is no greater than through the use of the in-plant factors. BellSouth stated that “not only has this Commission accepted the use of in-plant factors in developing UNE costs, the FCC has endorsed this approach as well in ruling that North Carolina’s current UNE rates satisfy the FCC’s pricing rules.” Furthermore as BellSouth concluded, “the Commission should continue the use of in-plant factors in this proceeding and reject the CLP’s bottoms-up approach.”

AT&T/WorldCom witnesses Pitkin and Weiss directed their testimony in opposition to BellSouth’s use of in-plant factors versus a “bottoms-up” approach in determining costs. By utilizing in-plant factors and other factors, AT&T/WorldCom argued that BellSouth does not develop “actual” or “direct” costs for much of the network which it models. AT&T/WorldCom argued that this methodology is inaccurate, unreliable and inappropriate because the BSTLM has the capacity to actually or directly develop almost all investments.

As stated by AT&T/WorldCom, through various examples, the use of BellSouth's factors can quickly add substantial costs to UNEs without much definitive justification other than their "simplicity."

AT&T/WorldCom argued that unlike the "tops-down" or "factors" approach, the "bottoms-up" approach uses as few loading factors as possible in the development of costs and investments. Furthermore, as stated by AT&T/WorldCom, to the extent factors need to be used, the "bottoms-up" approach applies them in a way that is consistent with the way costs are incurred. AT&T/WorldCom agreed that some factors are necessary to estimate the costs associated with minor materials (i.e., nuts and bolts), but factors should never be used to estimate the cost of major plant items (i.e., poles and conduit) in the way that BellSouth develops costs for these items in using its "tops-down" approach.

As stated by AT&T/WorldCom, BellSouth's "tops-down" approach used factors which reflect BellSouth's embedded and historical costs and thus recovers BellSouth's existing and historical costs. Because BellSouth's loop-related UNE prices are based on BellSouth's use of embedded cost inputs to establish engineering and installation costs, its prices are not compliant with the FCC's rules; and therefore, do not recover forward looking costs.

AT&T/WorldCom commented that BellSouth's approach is inconsistent with the FCC's approach of using specific installed material prices (i.e., for each piece of equipment) to develop forward-looking investment. According to AT&T/WorldCom, BellSouth's methodology cannot identify the total investment for any individual piece of equipment, and therefore cannot be relied on to develop appropriate investments for the network on a deaveraged basis.

The Commission cannot blindly use these embedded relationships as a mechanism for estimating forward-looking installation costs because the mix of technology and the installation practices for those technologies have changed over time. AT&T/WorldCom further stated that the FCC has not adopted the "tops-down" approach for its own universal service purposes, but rather developed a Synthesis Model which engages a multi-year review of cost models and cost model inputs. AT&T/WorldCom stated that the Florida Commission adopted prices based on the "bottoms-up" inputs into the BSTLM rather than relying on the "tops-down" approach and also the Georgia Commission ordered BellSouth to file a "bottoms-up" version.

AT&T/WorldCom stated in its Brief that BellSouth's BSTLM does not calculate all costs based on their "actual" or "direct" costs. For example, costs for items such as cable, feeder/distribution interface equipment and digital loop carrier equipment are based on the "actual" or "direct" investment costs for these items as determined by the BSTLM. AT&T/WorldCom stated that BellSouth calculates other significant material investment items (such as telephone structure) by applying factors to those material costs which have been actually or directly developed.

Furthermore, AT&T/WorldCom commented that BellSouth uses yet another set of factors to develop total engineered and installed costs. These engineering and installation factors are referred to as “in-plant” factors by BellSouth and should not be confused with other “factors” included in the model. AT&T/WorldCom stated that BellSouth’s BSTLM develops only a portion of total costs and uses a series of factors to develop all other costs.

As an example of how the model works, AT&T/WorldCom stated that the BSTLM determines the number of feet of cable needed to construct the loop. Next, the model then calculates the investment costs for this cable by multiplying the number of feet of cable needed by the cable vendor’s unit price; the product is the actual or direct investment cost of the cable. AT&T/WorldCom witness Weiss testified, if a 500 ft. long piece of 25-pair aerial cable involves an investment cost of \$0.30 per ft. from the cable vendor, then the total direct investment cost is \$150.00. It is undisputed that the total material cost of a 500 ft. piece of 25-pair aerial cable does not include any engineering or installation costs. As a comparison, the tops-down BSTLM method produces an investment of \$393.20 for this very same plant addition which does not include the cost of installation and engineering. AT&T/WorldCom stated that BellSouth witness Caldwell confirmed the accuracy of witness Weiss’s example in testimony.

AT&T/WorldCom commented that the above example provides the Commission with one example of how BellSouth’s factors can quickly add substantial costs to UNEs without much definitive justification other than their simplicity.

Unlike the “tops-down” or “factors” approach, the “bottoms-up” approach seeks the use of as few loading factors as possible in the development of costs and investments. One significant difference between the “tops-down” versus “bottoms-up” approach is that with the bottoms-up approach each piece of equipment or material (i.e., whether cable or telephone structure) has a specific unit-cost input. As stated by AT&T/WorldCom, the “bottoms-up” version of the BSTLM explicitly will identify the cost of a pole rather than determining the cost of a pole based on the assumption that the cost of the pole somehow is related to the cost of the cable – as occurs in the tops-down version of the BSTLM. However, AT&T/WorldCom agreed that some “factors” are necessary to estimate the costs associated with minor pieces of equipment such as bolts and nuts, but “factors” should never be used to estimate the cost of major plant items such as poles and conduit as is done in the “tops-down” approach.

The Department of Defense commented that BellSouth proposes a complex set of interrelated models that have important deficiencies. The Department of Defense stated that BellSouth’s study of work time inputs for processing and provisioning UNEs rests substantially on present and past work practices. As stated by the Department of Defense, there is no discussion of modifications or adjustments to allow for process improvements in the future, or recognition of work time reductions due to increased productivity for any reason.

Furthermore, the Department of Defense stated that significant productivity improvements should be expected in the telecommunications industry. As a large and diversified telecommunications firm, BellSouth has shared in the significant productivity gains that the industry has enjoyed in the past. The Department of Defense witness Gildea testified that it is important to give significant weight to past productivity increases in the process of determining future UNE prices.

The Department of Defense stated that AT&T/WorldCom commented that since BellSouth's "tops-down" or "factor" approach does not require the application of prices or expenses that can be verified on a unit basis, there is abundant opportunity for confusion in the development of these factors, and by extension opportunity for error in the company's development of proposed UNE prices. The "bottoms-up" approach attempts to use as few loading factors as possible in the development of investments. The Department of Defense commented that with the "bottoms-up" method, each item of material, whether cable or structure, has a specific unit-cost input. However, the bottoms-up approach necessarily employs factors to estimate the costs of minor pieces of equipment such as exempt material, rather than major plant items such as poles and conduit.

As stated by the Department of Defense, a bottoms-up approach should yield more accurate cost estimates than BellSouth's tops-down methodology. However, with incorrect inputs a bottoms-up approach can still yield costs that are much greater than what might be the expected results.

As stated by the Public Staff, BellSouth witness Caldwell described BellSouth's methodology as identical to the approach used by BellSouth in earlier phases of this docket. Furthermore, as commented by the Public Staff, she contended that the CLPs' advocacy for a bottoms-up approach is beyond the scope of this proceeding, as the Commission restricted it to the inputs and assumptions affecting rates. Additionally, witness Caldwell contended that a bottoms-up approach requires the use of many more inputs which add complexity but not accuracy to the cost studies.

The Public Staff stated that AT&T/WorldCom witness Pitkin contended that BellSouth's loading factors are based on the installation of existing equipment and the accounting relationships from BellSouth's existing network design. Therefore, the application of these factors does not reflect technological advances that reduce installation costs when developing forward-looking costs.

As commented upon by the Public Staff, witness Pitkin testified that BellSouth's model is designed to calculate investments at a very discrete level, although BellSouth's study only utilizes a portion of the model's capabilities. Furthermore, witness Pitkin commented that the tops-down methodology calculates average costs and it is

inappropriate to rely on averages when UNE rates are supposed to be geographically deaveraged.

The Public Staff stated that CLP witness Weiss testified that the tops-down approach used by BellSouth distorts costs. For example, BellSouth's study assumes that the installed costs of a 25-pair aerial cable and 50-pair cable differ by a factor equal to the difference in cable cost, whereas little, if any, more miscellaneous material and other costs are required to place the same length of either size cable. Thus, a comparison of installed costs of different sized facilities would indicate a distorted ratio between the costs calculated using the tops-down approach versus actual costs.

In response to witness Pitkin's arguments that adjustments should be made to BellSouth's loading factors due to technological advances in installation practices, witness Caldwell pointed to the extremely labor intensive aspects of installing outside plant equipment and cable, which would not experience dramatic changes in installation practices due to technological advancements. With regard to the argument that "in-plant" factors distort the investment costs, witness Caldwell testified that the BSTLM generates the material cost of an average cable, which reflects various cable sizes.

The Public Staff commented that the testimony in this case reveals the fundamental issue between BellSouth and the CLPs is whether BellSouth should be required to use all of the capabilities of the BSTLM in its cost studies. The Public Staff commented that this issue is well within the scope of this proceeding. Furthermore, BellSouth's in-plant approach is viewed as being similar to, but not identical to the approach used in earlier phases of this docket.

As stated by the Public Staff, as a general position, it believes that either the "tops-down" or a "bottoms-up" methodology can produce forward-looking cost studies and TELRIC-compliant rates if the factors and inputs are calculated correctly. The Public Staff commented that it is familiar with the tops-down approach and agrees with BellSouth that it avoids the substantial complexity of the bottoms-up approach without sacrificing accuracy. Furthermore, the Public Staff stated that the CLPs have not presented sufficient evidence to justify BellSouth having to use a bottoms-up approach.

Furthermore, the Public Staff stated that it was concerned that many of the recommendations proposed by witness Pitkin to the bottoms-up study have not been supported with adequate evidence. The number of recommended input adjustments could easily number in the hundreds, with many of those being contended as overstated without providing justification. The Public Staff stated that it was not inclined to adopt such a large number of adjustments without a more thorough review for reasonableness.

The Public Staff stated that it understands witness Pitkin's concern that a tops-down approach that calculates average costs is inappropriate when UNE rates are supposed to be deaveraged. As stated by the Public Staff, it is not recommending modification to the

geographically deaveraged zones for BellSouth at this time or the manner in which each zone's rates are calculated, and so the "in-plant" factors will only be used to calculate statewide UNE costs. In summary, the Public Staff stated that it is appropriate for BellSouth to use a "tops-down" approach in its cost studies.

The Commission notes that overall the application of the tops-down or bottoms-up approach, given adequate and reasonable inputs, should yield similar cost outputs. The Commission believes that expanding the number of inputs, as would be the case with a bottoms-up approach, would not necessarily increase the accuracy of the cost outputs. Many of the issues discussed in this proceeding, such as productivity gains, industry changes and advancements in various installation practices and discrete unit specific count versus aggregated investment categories are arguably subject areas which require a great deal of review and sensitivity analyses to prove applicable to the development of UNE costs.

CONCLUSIONS

The Commission concludes that it is appropriate for BellSouth to use a "tops-down" approach in its cost studies.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 3

ISSUE NO. 3: If in response to **Issue No. 2** above the Commission determines that it is appropriate to utilize in-plant factors, Issue No. 3 is **moot**. If, however, the Commission determines that it will utilize "bottoms-up" inputs in the BSTLM to calculate UNE rates, then what are the appropriate "bottoms-up" inputs?

DISCUSSION

The Commission has found in Finding of Fact No. 2 that it is appropriate for BellSouth to use a "tops-down" approach in its cost studies. Therefore, the Commission believes that this issue is moot.

CONCLUSIONS

The Commission concludes that Issue No. 3 is moot due to the fact that the Commission has found in Finding of Fact No. 2 that it is appropriate for BellSouth to use a "tops-down" approach in its cost studies.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 4

ISSUE NO. 4: Should the Commission use multiple scenarios in the BSTLM to set UNE loop rates?

POSITIONS OF PARTIES

BELLSOUTH: Yes. BellSouth asserted that the use of multiple scenarios in establishing BellSouth's rates for loops and loop combinations has been accepted by every state in BellSouth's region to consider this issue. BellSouth maintained that calculating rates using only the combo scenario leads to an under-recovery of BellSouth's costs because the combo scenario does not accurately reflect the costs associated with unbundled standalone loops, unbundled integrated services digital network (ISDN) loops, or copper-only loops.

AT&T/WORLDCOM: No. AT&T/WorldCom argued that the multiple scenarios proposed by BellSouth are not consistent with a single forward-looking network required by FCC Rules. AT&T/WorldCom maintained that forward-looking costs should be determined by using the UNE combo scenario, which is the scenario proposed by BellSouth that most closely approximates a forward-looking network design.

COVAD: Covad did not take a specific position on this issue.

DEPARTMENT OF DEFENSE: The Department of Defense did not take a specific position on this issue.

PUBLIC STAFF: Yes. The Public Staff argued that it is appropriate for BellSouth to use multiple scenarios in determining the loop investment amounts.

DISCUSSION

AT&T/WorldCom witness Darnell stated in his rebuttal testimony that in BellSouth's five scenario approach, each of the five scenarios assumes different engineering design limits, which forces BellSouth's loop model, the BSTLM, to construct a different type of network in each scenario. Witness Darnell argued that BellSouth's loop cost development does not design the most efficient network. Witness Darnell asserted that there should just be one multi-service network design that provides the greatest efficiency. Witness Darnell noted that BellSouth assumes in each of the five scenarios that all customers who could possibly want a particular type of communications service will require UNEs to provision that type of service. Witness Darnell maintained that BellSouth uses maximum potential customers in each scenario using a customer's historical preferences as a guide and does not use actual demand or forecasted demand in the development of its UNE costs. Witness Darnell stated that as an example, in the development of its proposed ISDN digital-grade loop rates BellSouth assumes a network design to provide ISDN service to

the residential plain old telephone service (POTS) customers BellSouth had in calendar year 2000. Witness Darnell argued that it is not reasonable to assume that all residential POTS customers would want ISDN service.

Witness Darnell maintained that BellSouth's cost modeling approach ignores economies of scope. Witness Darnell defined economy of scope as the ability of one system to provide multiple products or services cheaper than two or more systems can provide the same total number of products or services. Witness Darnell stated that this is due to the complementary nature of certain steps of productions between certain products. In contrast, witness Darnell noted, economy of scale is the ability of one system to provide one product or service cheaper than two or more systems can provide the same total number of that one product or service.

Witness Darnell asserted that since BellSouth's model ignores economies of scope, its cost model approach causes rates to exceed those that would exist in a competitive marketplace. Witness Darnell maintained that there are certain economies, or efficiencies, that are gained when multiple types of telecommunications services are provided over the same network. Witness Darnell stated that as an example, some residential customers will want both POTS for voice and DSL service for their personal computers. Witness Darnell argued that an efficient carrier would engineer and deploy a network that could accommodate both POTS and DSL services at the same time using complementary network facilities and production methods. Witness Darnell maintained that the result is that the carrier is able to provide two services without having to double its costs, thus lowering its overall cost of providing each unit of service.

Witness Darnell argued that BellSouth witness Caldwell's assertion that BellSouth's five-scenario approach is justified because certain digital and analog services are incompatible is incorrect. Witness Darnell maintained that BellSouth can and does consider the location of its digital loops to minimize the cost of its analog loops. Likewise, witness Darnell noted, BellSouth can and does consider the location of its analog loops to minimize the cost of its digital loops. He also maintained that BellSouth provides data and voice services using a single network configuration, as is the case when BellSouth provides its voice and FastAccess DSL services over the same line and when fiber optical cable hangs on the same telephone pole or lies in the same conduit with analog copper facilities.

Witness Darnell stated that a specific example of BellSouth's integrated data and voice network is its current initiative to retrofit its network with dual-purpose line cards. Witness Darnell maintained that BellSouth is using dual-purpose line cards in DLC equipment at remote terminals so that it can provide both voice and DSL data services over one existing copper wire. Witness Darnell argued that BellSouth's combined voice and data network exists today and is expected to expand in the future.

Witness Darnell asserted that engineering and deploying a combined voice and data network at one time reduces labor cost. In addition, he stated, material costs incurred in the construction of the combined POTS and DSL network would be less than if the POTS or DSL networks were built at separate times. In short, witness Darnell maintained, BellSouth's loop cost modeling methodology fails to incorporate these economies of scope, and therefore, the loop costs calculated by BellSouth are overstated.

Witness Darnell argued that there are additional problems with the assumptions underlying BellSouth's proposed copper scenario. Witness Darnell maintained that in the development of its proposed Unbundled Copper Loop rate, BellSouth's copper scenario assumes an all-copper network, even though in reality many customers could not receive service with all-copper loops because of the significant loop-length limitations that exist for transmitting signals over copper loops. Witness Darnell maintained that BellSouth's methodology produces copper-loop lengths that are much longer than could be used in practice, and its copper scenario overstates the average length of a copper loop. He explained that because copper-loop costs vary according to loop length, the copper scenario overstates cost. Witness Darnell argued that BellSouth's copper scenario assumes a network design that is inefficient, impractical, and more expensive than the forward-looking network.

Witness Darnell maintained that BellSouth's use of a copper-only scenario to determine the costs of a copper loop is an example of a systemic problem throughout BellSouth's loop cost methodology. Witness Darnell asserted that BellSouth's methodology never attempts to determine the cost of the forward-looking loop; it attempts to determine the cost of a technology. Witness Darnell stated that the forward-looking loop is an amalgamation of many different technologies depending on the distance the customer is located from the wire center, the geography between the customer and the wire center, and the demand density around the wire center. Witness Darnell maintained that as such, the forward-looking loop that should be costed is not any one technology but an average of all technologies to satisfy customer demand in each wire center.

Witness Darnell asserted that the FCC has UNE pricing rules that address economies of scale and scope and that BellSouth's costing methodology clearly violates three of the FCC's Rules. Witness Darnell stated that BellSouth's costing methodology violates FCC Rules 51.505(b), 51.505(b)(1), and 51.511(a). Witness Darnell stated that FCC Rule 51.505(b) requires the cost of a UNE to be calculated by taking as a given the ILEC's provision of other elements. Witness Darnell maintained that FCC Rule 51.505(b)(1) requires that UNE rates be set based on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing locations of the ILEC's wire centers. Witness Darnell noted that FCC Rule 51.511(a) requires UNE rates to be set by taking the cost of the UNE as defined in 51.505(b) and dividing it by the anticipated wholesale and retail demand for the UNE. Witness Darnell noted that FCC Rule 51.511(a) ensures that the sum of the parts equals the total forward-looking cost.

Witness Darnell argued that BellSouth's current network design contains inefficiencies and excesses as compared to the network cost that would be recovered in a competitive marketplace.

Witness Darnell argued that the Commission should adopt a network design for cost modeling purposes that is different from both the actual network in place and the network design BellSouth is deploying for the future. Witness Darnell noted that the Commission should do this so that the costs, and, ultimately UNE rates ordered by the Commission, can best approximate the rates that would exist in a competitive marketplace. Witness Darnell stated that in a competitive marketplace, the rates that the market will permit companies to charge customers can be no higher than the rates the least-cost, most-efficient firm in the market would charge.

Witness Darnell maintained that BellSouth's loop model can determine the cost of all UNEs at the same time using the single least-cost, most-efficient network design. Witness Darnell stated that the cost modeling flaws can be corrected. However, witness Darnell maintained, AT&T/WorldCom requested BellSouth provide it with the information necessary to make these corrections, but BellSouth has blocked all attempts to obtain the information necessary to correct these cost modeling flaws.

Witness Darnell noted that although other State Commissions have permitted BellSouth to use its five-scenario costing methodology to develop UNE rates, they did so begrudgingly and have not affirmatively endorsed BellSouth's multiple-scenario costing methodology as the correct way to determine UNE rates. Witness Darnell quoted the Alabama Commission which stated in its *May 2002 Order*¹⁸:

[t]he Commission accepts the use of the five different scenarios for the purposes of determining TELRIC rates in this proceeding. That is not to say, however, that we do not have concerns with BellSouth's multiple scenario approach. In particular, we are concerned that the various scenarios presented by BellSouth do not capture the economies of scale associated with the provision of multiple services.

The Commission notes that the Alabama Commission further stated in its *May 2002 Order*:

We will, therefore, investigate in future proceedings the question of whether a model which prices all elements and combinations in a single scenario can be developed. For the purposes of this proceeding, however, we have

¹⁸ May 31, 2002 Order issued by the Alabama Public Service Commission in the Matter of Generic Proceeding to Establish Prices for Interconnection Services and Unbundled Network Elements, issued in Docket 27821 (*May 2002 Order*).

focused our efforts on the merits of the Combo and BST 2000 scenarios proposed by BellSouth.

Witness Darnell also noted that the Alabama Commission issued an order in August 2002 to investigate having a follow-up UNE cost case to determine the cost of all loop UNEs with one modeling scenario.

Witness Darnell maintained that the Florida Commission stated in its UNE cost case order that:

[i]t appears to us that a single unified network design is most appropriate. However, we believe this goal is not attainable based on the record.

Witness Darnell asserted that these Commissions felt they had no choice but to accept BellSouth's methodology at this time and that this Commission should not reward BellSouth's litigation position and accept the five-scenario approach in North Carolina.

Witness Darnell argued that the Commission should use the BellSouth combo scenario to set UNE rates in North Carolina. Witness Darnell maintained that this scenario should be chosen because, of the scenarios presented in this proceeding, it most closely replicates the total cost that would be recovered from customers in a competitive marketplace. Witness Darnell asserted that the combo scenario is the most appropriate because the overwhelming majority of network element demand comes from POTS.

Witness Darnell concluded that if the Commission permits BellSouth to use its five-scenario loop cost methodology, the UNE rates available to CLPs will be higher than the costs that could be incurred by BellSouth; this will provide BellSouth a competitive advantage over CLPs, and competition will not develop as quickly as it should.

Witness Darnell argued in his summary at the hearing that five different networks, as proposed by BellSouth, cannot all be the most economically efficient ways to provide the expected level of service. He asserted that the network design that should be used for costing purposes in this proceeding is the one network design that is the least cost and most efficient to provide service to all demand.

AT&T/WorldCom argued in their Proposed Order that the BSTLM must be adjusted so that it designs a single forward-looking network, as required by the FCC's TELRIC methodology, rather than five networks, as proposed by BellSouth. AT&T/WorldCom noted that BellSouth uses its five network scenarios to generate the costs associated with different elements. AT&T/WorldCom commented that these scenarios assume different engineering design limits which forces the BSTLM to construct a different type of network for each scenario. AT&T/WorldCom asserted that BellSouth's approach artificially increases UNE rates, because it ignores the economies of scope that come from providing multiple services over a single network. AT&T/WorldCom maintained that, for example,

BellSouth uses the same network to provide its local voice service and its FastAccess DSL service and indeed provides both services over the same telephone line. AT&T/WorldCom argued that using different scenarios for different products removes cost advantages that a single forward-looking network would provide.

AT&T/WorldCom maintained that the scenario that is most consistent with forward-looking principles is the combo scenario. AT&T/WorldCom asserted that of the scenarios BellSouth has presented in this proceeding, the combo scenario comes closest to replicating the total cost that would be recovered from customers in a competitive marketplace. AT&T/WorldCom argued that rather than distorting UNE rates by using five scenarios, the Commission should determine UNE rates by choosing the combo scenario, which, of the alternatives available, best models a forward-looking network.

AT&T/WorldCom noted that BellSouth relies on decisions by other states that have permitted BellSouth to use its five-scenario costing methodology to develop UNE rates. AT&T/WorldCom footnoted that although the FCC did not reject state commissions' adoption of the five-scenario approach in its Section 271 analysis, the FCC did not approach the issue in total, but rather gave substantial deference to the state commissions' decisions. AT&T/WorldCom asserted that state commissions have expressed serious reservations, however, about the use of BellSouth's multiple-scenario costing methodology.

AT&T/WorldCom argued that the Commission should reject BellSouth's five-scenario approach and determine rates based on the UNE combo scenario. AT&T/WorldCom noted that they are concerned that BellSouth's use of the five scenarios does not truly reflect the cost of a forward-looking network. AT&T/WorldCom maintained that by assuming different networks to handle different types of loops, BellSouth necessarily contemplates network designs that forfeit the efficiencies of using just one network. AT&T/WorldCom commented that although BellSouth asserts that this problem is overcome by exaggerating the demand for the loop types involved, BellSouth did not explain satisfactorily why these adjustments offset the cost savings of using just one network. AT&T/WorldCom asserted that because BellSouth admits that the UNE combo scenario most closely resembles a forward-looking network, this scenario should be used to determine North Carolina UNE rates.

In her direct testimony, BellSouth witness Caldwell provided a description of the five scenarios used by BellSouth in the BSTLM, as follows:

Scenario #1 – Combo - Used for 2-wire analog unbundled network element - platform (UNE-P) loops.

This scenario assumes that all switched UNE-P loops served on DLC systems are directly integrated into the BellSouth switch at the DS1 level since these loops are only offered in conjunction with a corresponding switch port. Rather than only using existing customer locations with UNE-P loops as the cost basis for the rates for

these UNEs, all POTS, private branch exchange (PBX), Centrex, and Coin services are assumed to be potential UNE-P customers, and the cost study results reflect the average cost of serving all of these locations.

Scenario #2 – BST2001 – Used for all stand-alone UNE loops except copper only loops.

This scenario is required to determine the cost of stand-alone loops (those not terminating in a BellSouth switch) except stand-alone copper-only loops. It is identical to the first scenario except stand-alone loops cannot be directly integrated into the BellSouth switch and must be brought into the central office on a nonintegrated basis. Again, all POTS, PBX, Centrex, and Coin customer locations are used as the basis for this cost. The only difference in this scenario and the first occurs in the termination of the loops in the central office.

Scenario #3 – Copper Only – Used for copper-only loops.

This scenario for copper loops is required so that the cost study reflects the cost of providing a copper loop of any length that the CLP might order from BellSouth. Without this scenario, unbundled copper loop costs would be based only on loops less than 12,000 feet from the central office. BellSouth, however, has copper loops that the CLPs may request that are much longer than 12,000 feet. As a result of this mismatch between what the CLPs may order and what is considered in BellSouth's network guidelines, this scenario was created by extending the copper-to-fiber crossover from 12,000 feet to a point where all loops are assumed to be provisioned over copper. The alternative would be to base the unbundled copper loop costs on loops less than 12,000 feet and then limit the offering to loops less than 12,000 feet. This would have restricted CLPs from a large number of potential unbundled copper loop customers.

Scenario #4 – BST2001ISDN – Used for ISDN stand-alone unbundled loops.

Initially, BellSouth based ISDN unbundled loop costs on existing ISDN customer locations. However, some BellSouth wire centers have few, if any, existing ISDN customers. Developing wire center specific costs based on such limited demand for ISDN unbundled loops would not have been appropriate. Therefore, BellSouth assumed that all POTS customer locations were potential ISDN unbundled loop customers and based the costs for these unbundled loops on all ISDN and POTS locations. To do this, all POTS customers were converted to ISDN by using an ISDN card rather than a POTS card in the cost model.

Scenario #5 – COMBOISDN – Used for ISDN UNE-P loops.

The UNE-P scenario for the 2-wire analog UNE-P loop (Scenario #1) was modified by replacing the POTS card at the DLC with an ISDN card to get an ISDN UNE-P loop based on all POTS and ISDN customer locations.

Witness Caldwell argued that BellSouth's use of multiple scenarios is consistent with the FCC's TELRIC pricing rules. Witness Caldwell asserted that the multiple scenarios approach fulfills the FCC's directive that a reasonable projection of the sum of the total number of units be considered. Witness Caldwell maintained that this methodology is appropriate since BellSouth cannot anticipate the ultimate use for any particular loop. Witness Caldwell stated that a loop delivering voice-grade service today potentially can be utilized to provide digital service tomorrow. Witness Caldwell asserted that if the existing loop to the end-user has the technical specifications such that it can provide the loop under consideration, then it is considered to be part of the universe.

Witness Caldwell asserted that BellSouth does not possess any CLP marketing plans. Witness Caldwell maintained that BellSouth cannot anticipate where CLP customers will be located and what types of loops they will purchase. Witness Caldwell stated that the use of one-scenario that CLPs have advocated in prior proceedings adds no accuracy to the model's results since BellSouth cannot project where the particular loop will be located. Witness Caldwell noted that any attempt to assign a loop type to a specific customer location would be an exercise based on unsupportable and arbitrary assumptions. Witness Caldwell commented that by assuming all customer locations are potential candidates for a particular unbundled loop, BellSouth has eliminated the random assignment process. Further, witness Caldwell noted, the assumption that all customers can be converted to unbundled loops or combinations allows BellSouth to reflect economies of scale and scope. Witness Caldwell maintained that the universe is larger in BellSouth's proposal, thus, larger cables can be considered and more efficient network configurations can be established, which results in lower costs.

Witness Caldwell argued that in responding to criticism concerning the use of multiple scenarios, every state commission that ruled on this issue accepted BellSouth's methodology. Witness Caldwell maintained that the Mississippi Public Service Commission (PSC), Kentucky PSC, the PSC of South Carolina, the Alabama PSC, the Florida PSC, and the Louisiana PSC all adopted the multiple scenario methodology proposed by BellSouth.

Witness Caldwell also noted that the FCC, in its approval of BellSouth's GA/LA Section 271 Application, stated in Paragraph 41 of its *Order*:

We reject commenters' criticism that the multiple scenario approach means that BellSouth's cost model does not capture economies of scope inherent in the network. We agree with BellSouth that because it considers the entire quantity of lines in each scenario, its methodology reflects economy of scope.

In rebuttal testimony, witness Caldwell asserted that witness Darnell is incorrect in his contention that BellSouth's multiple scenario methodology is inappropriate and that only the combo scenario should be used. Witness Caldwell argued that the combo

scenario cannot be used exclusively for two reasons. First, witness Caldwell noted, the combo scenario cannot be used to accurately determine the cost of an unbundled loop. Witness Caldwell stated that the combo scenario is based on loops being provided on fiber-based DLC systems directly integrated into the switch at the central office. Witness Caldwell maintained that stand-alone unbundled loops do not terminate in BellSouth switches and, therefore, cannot be terminated at a DS1 level directly into the switch. Witness Caldwell noted that BellSouth studied the cost of network elements that were unbundled in compliance with the FCC's definition of an unbundled local loop released as part of its *UNE Remand Order*. Second, witness Caldwell stated, the combo scenario cannot be used to accurately determine the costs of xDSL-compatible copper loops. Witness Caldwell noted that this scenario assumes all loops greater than 12,000 feet from the wire center are served on fiber-fed DLC systems. Therefore, witness Caldwell remarked, the only copper loops in the combo scenario are loops less than 12,000 feet. Witness Caldwell asserted that if one were to accept the AT&T/WorldCom argument that the combo scenario should be used for all unbundled loops, the average cost of all copper-only loops would be based only on those loops less than 12,000 feet in length. Witness Caldwell maintained that since the CLPs request copper-only loops of all lengths, this approach is unreasonable and understates the cost.

Witness Caldwell maintained that the CLPs' argument for use of the combo scenario was made in every state where the BSTLM has been filed and before the FCC in response to BellSouth's Five-State and Georgia/Louisiana Section 271 applications. Witness Caldwell noted that every state commission that has used the BSTLM to calculate UNE costs has used the multiple scenarios filed by BellSouth. Witness Caldwell stated that in addition, in the FCC's approval of BellSouth's Five-State Section 271 Application, the FCC rejected the single-scenario argument argued by witness Darnell and stated in Paragraph 61 of its *Order*:

A proper costing methodology must reflect that some customers purchase stand-alone loops, and BellSouth is entitled to recover the forward-looking costs associated with provisioning those loops that may differ from costs associated with provisioning a loop/switch combination (UNE-platform). WorldCom does not explain how exclusive use of the Combo scenario would provide for recovery of those costs.

Witness Caldwell maintained that it is inappropriate to utilize only one scenario to develop loop investments. Witness Caldwell argued that use of one scenario would result in an under-recovery of BellSouth's costs, because all possible uses for a loop to a specific customer location are not considered with a single scenario. Witness Caldwell provided an example wherein a customer is located 17,000 feet from the central office and is served by copper. Witness Caldwell asserted that if the combo scenario was used exclusively, this customer would never be considered for an unbundled copper loop since, in the combo run, all loops over 12,000 feet are served via DLC on fiber. However, witness Caldwell maintained, CLPs request loops in excess of 12,000 feet to provide xDSL service.

Witness Caldwell noted that if this combo-based loop was used to calculate the costs associated with a stand-alone unbundled loop, the cost is understated. Witness Caldwell maintained that an unbundled loop cannot be directly integrated into BellSouth's switch. Therefore, witness Caldwell noted, before a voice-grade circuit can go to a CLP switch, this loop must be removed from the DLC digital DS1, converted to voice grade, and terminated on the Main Distribution Frame (MDF). Witness Caldwell stated that the costs for this conversion and the MDF termination are not included in the combo scenario. Witness Caldwell argued that multiple scenarios are the only way to ensure that all costs of the various types of loops are properly identified.

Witness Caldwell asserted that even though individual digital signal zeros (DSOs) can be groomed using Next Generation DLC (NGDLC) systems, it is not the most economical means of delivering an unbundled loop to a CLP's collocation space. In fact, witness Caldwell stated, the FCC has reviewed each of the methods required to use integrated DLC in the unbundling of loops and has noted the limitations of each.

Witness Caldwell maintained that as the FCC recognized, all of the integrated digital loop carrier (IDLC) unbundling methods suggested by AT&T/WorldCom have cost implications, yet CLPs have never presented any evidence to quantify those incremental costs so that such costs would be reflected in the unbundled loop rates. Additionally, witness Caldwell noted, these alternative arrangements consume switch or DCS resources that would need to be considered in any cost analysis.

Witness Caldwell also addressed witness Darnell's contention that the use of multiple scenarios ignores economies of scope. Witness Caldwell maintained that contrary to witness Darnell's assertion, the opposite is true. Witness Caldwell noted that multiple scenarios will optimize the utilization of the network equipment since in each scenario the entire quantity of lines is considered in providing a specific loop type. Witness Caldwell stated that in each of the scenarios BellSouth built, the total quantity of facilities was considered, and thus, this modeling technique fulfills the FCC's directive that a reasonable projection of the sum of the total number of units be considered.

Witness Caldwell also addressed witness Darnell's contention that this modeling technique results in a loss of efficiencies caused by creating networks designed to provide only one type of service. Witness Caldwell argued that witness Darnell is incorrect, and in each of the scenarios, the BSTLM builds a network to serve 2-wire analog loops, 4-wire analog loops, DS1 loops, etc. Therefore, witness Caldwell asserted, witness Darnell's implication that each scenario only models a particular type of loop is not true.

Witness Caldwell further explained why a multiple scenario approach is necessary. Witness Caldwell noted that to accurately capture the costs associated with BellSouth's different loop types – SL1, SL2, ISDN, ADSL, HDSL, UCL-Short, UCL-Long, UCL-ND, UNE-P, etc.- loops which CLPs request, the multiple scenarios approach should be used.

Witness Caldwell stated that there are two main reasons why multiple scenarios should be used in the BSTLM instead of just one scenario.

First, witness Caldwell argued that insufficient demand for many types of unbundled loops precluded BellSouth from using existing UNE customer locations as the basis for cost studies of unbundled loops. Witness Caldwell maintained that using only existing UNE customer locations would have resulted in costs that were not representative of future UNE customer locations. Further, witness Caldwell asserted, BellSouth does not possess the CLPs' marketing plans that would allow an accurate projection of loop types by customer location; thus, any such attempt would be arbitrary. Witness Caldwell also noted that there are many types of unbundled loops offered by BellSouth that are not presently ordered in many wire centers.

Second, witness Caldwell asserted, loop deployment guidelines are inconsistent with the network from which CLPs order UNEs. As an example, witness Caldwell noted, network guidelines and the BSTLM state that all loops greater than 12,000 feet from the central office can be most efficiently served using fiber feeder and DLC systems. But in reality, witness Caldwell maintained, a CLP may order an unbundled copper loop of any length – and BellSouth has very long copper loops in its network today. Witness Caldwell maintained that this created an inconsistency between what a CLP might order as a copper loop and what would have been modeled if only one scenario was used. Witness Caldwell stated that a copper loop greater than 12,000 feet ordered by a CLP would never be reflected in a cost study that assumed that no copper loop exceeded 12,000 feet; resulting in an understatement of unbundled copper loop costs/rates.

Witness Caldwell commented that to overcome these problems, BellSouth created five scenarios, each of which contains the same total demand (number of loops, customer locations, etc.) to accurately capture the costs of all types of unbundled loops offered by BellSouth.

Witness Caldwell maintained that all five scenarios use the same total demand from BellSouth's billing systems' extracts such that all economies of scale and scope are reflected in all scenarios. Witness Caldwell explained that because the scenarios are often based on an "all or none" type network some false economies of scale are actually introduced into the cost results.

Witness Caldwell also asserted that the copper-only scenario produces false economies of scale since all loops are served on copper, resulting in larger copper cables and lower per unit costs, than would result from some mix of copper and fiber cables. Witness Caldwell stated that BellSouth's approach is the only method that would capture copper loops in excess of 12,000 feet and also produce a copper loop of unspecified length, as the CLPs have requested.

Witness Caldwell disagreed with witness Darnell's statement that the copper scenario overstates cost. Witness Caldwell noted that even though the copper limit is set at one million feet in BellSouth's BSTLM copper-only scenario, the individual loop types have specific length limits that are taken into consideration when developing costs. Witness Caldwell asserted that from the entire universe of copper loops considered in the copper-only scenario, only loops that meet these length limitations are included when the costs are calculated and there is no overstatement of costs from loops in excess of these limitations, other than the false economies of scale.

Witness Caldwell also disagreed with witness Darnell's claim that BellSouth's methodology never attempts to determine the cost of the forward-looking loop, but rather attempts to determine the cost of a technology. Witness Caldwell asserted that apparently, since witness Darnell proposes the use of the combo scenario, he would agree that the combo scenario does indeed assume the correct technologies for each type of loop based on distance from the central office, type and number of services at a given customer location, and other engineering guidelines. Witness Caldwell stated that given that, the scenario used by BellSouth to determine the costs of stand-alone unbundled loops is identical to the combo scenario with one exception – switched retail services have been converted to stand-alone UNE loops. Witness Caldwell maintained that the only change in the network between these two scenarios occurs in the central office. Witness Caldwell stated that switched retail services can terminate directly into the BellSouth switch while nonswitched stand-alone UNE loops, by definition, cannot terminate into the BellSouth switch. Witness Caldwell noted that other than that one change, the scenarios are identical. Witness Caldwell commented that when witness Darnell states that the combo scenario rather than the scenario for stand-alone loops should be used, he is really arguing that the Commission should assume that stand-alone unbundled loops can be directly integrated into a BellSouth switch. Witness Caldwell maintained that as the Commission and all other state commissions in BellSouth's territory have realized, this is not technically possible and is not the appropriate network design for unbundled loops. Witness Caldwell argued that realizing this, the only alternative approach available in the BSTLM would be to base the cost of the stand-alone UNE loops on existing customer locations that currently have unbundled loops. It is inappropriate, witness Caldwell asserted, to attempt to base a rate on such a limited number of customer locations.

Witness Caldwell stated that as to the ISDN scenarios, BellSouth originally computed ISDN loops based only on existing ISDN customer locations. Witness Caldwell noted that after receiving criticism that the universe of ISDN customers in some wire centers was not adequate as the basis for a forward-looking cost, BellSouth converted to the two ISDN scenarios (i.e., BST2001ISDN and ComboISDN) in which all POTS customer locations are also considered to be potential ISDN locations.

Witness Caldwell stated that every state in which BellSouth has filed the BSTLM – Alabama, Florida, Kentucky, Louisiana, Mississippi, and South Carolina – has adopted the use of the multiple scenarios in determining the recurring costs of loops in their recent

generic cost proceedings. Witness Caldwell noted that every state commission that has considered this issue has rejected the same arguments made in this docket by AT&T/WorldCom and has used multiple scenarios to establish UNE rates.

Witness Caldwell stated in her summary at the hearing

. . . AT&T and WorldCom also argue that one scenario should be used in the BSTLM to model all types of UNE loops rather than the five scenarios proposed by BellSouth. BellSouth would have used one scenario if that one scenario could accurately develop costs for all unbundled loop types, but it can't. For example, when Mr. Pitkin uses his one scenario, what is called the Combo scenario, to develop costs for all unbundled loop types, the resulting ISDN loops are predominately based on DLC-based loops that use a regular POTS, or plain old telephone service, card rather than the proper ISDN card. The result is significantly understated ISDN loop cost. That's why we had to create the ISDN scenario for the BSTLM. When Mr. Pitkin uses his one Combo scenario for all loop types, the result is an understated copper-only long (loop). And a long loop is a loop that is composed of copper of 18,000 feet or greater – or actually, greater than 18,000 feet. In fact, his cost is based - - instead of loops with 18,000 feet of copper at a minimum, they only have 12,000 feet in the length due to the cross over from copper feeder to fiber feeder. That's why BellSouth developed a specific copper-only scenario. While BellSouth uses multiple scenarios in the BSTLM, the total demand for services, each of the scenarios guarantees the optimum efficiencies. Every State Commission that has used the BSTLM has used multiple scenarios to calculate UNE costs and has rejected the one scenario approach proposed by AT&T and WorldCom. The FCC confirmed that multiple scenarios are appropriate and rejected the same arguments the CLPs make in this case. . .

During cross-examination, witness Caldwell noted that the Florida Commission adopted the three-scenario version of the BSTLM as opposed to the five-scenario version proposed in North Carolina. Witness Caldwell explained that Florida was the first State that BellSouth filed the BSTLM and at that point, BellSouth had not developed the ISDN scenarios. Witness Caldwell stated that every State Commission that has considered the BSTLM since then, including Alabama, South Carolina, Mississippi, and Kentucky, has adopted the five-scenario approach. Witness Caldwell noted that the BSTLM has not been filed in Tennessee yet and that, at the time of the hearing, the Georgia Commission had not yet made its decision in its generic costing docket. The Commission notes that on March 18, 2003, the Georgia Commission made its decision in its generic UNE docket and released its Order on June 24, 2003. The Georgia Commission stated in its Order:

Another important capability of the BSTLM is the ability to use multiple scenarios to set UNE rates. Although most of the CLECs objected to use of

multiple scenarios based on 47 C.F.R. §51.511(a), this multiple scenario methodology accounts for the 'total number of units of the element' by incorporating the same overall line count in each scenario. Therefore, the Commission finds that BellSouth's use of multiple scenarios in its BSTLM is consistent with FCC rules. The use of one scenario as advocated by various parties is not appropriate in all instances. Although AT&T/WorldCom indicate that such a loop could be 'groomed' without any additional costs, the evidence reflects that that [sic] the use of one scenario would result in an under-recovery of BellSouth's costs. (Tr. 606). The Federal Act provides that just and reasonable rates for network elements shall be based on the cost of providing the network element. 47 U.S.C. § 252(d)(1)(A)(i). As the single scenario would not allow for recovery of the cost of providing the network elements, the Commission agrees with BellSouth that UNE loop and loop combinations rates shall be set using multiple scenarios of the BSTLM.

BellSouth witness Milner agreed on cross-examination that the UNE-combo scenario looks most like what BellSouth would consider to be a forward-looking network. Witness Milner also agreed that the copper scenario basically assumes an all-copper network, a network with no DLC. Witness Milner also agreed that the all-copper scenario does not look anything like BellSouth's current network, from the 50,000 foot level. Witness Milner asserted that a good portion of BellSouth's customers are served only on all-copper loops today.

BellSouth witness Stegeman argued in rebuttal testimony that it depends whether one run of the BSTLM can capture the forward-looking costs of all UNEs. Witness Stegeman noted that from a modeler's perspective, there are a number of issues that limit the ability of the user to use one run, or scenario, of the BSTLM to accurately model all types of unbundled loops offered by BellSouth. Witness Stegeman asserted that to use only one scenario may require the user to accurately predict how the customer mix would change over the study period given the existing customer locations and the types and quantities of each service at each location.

Witness Stegeman continued to explain that if the user attempts to use only one scenario for all UNEs offered by BellSouth, the engineering constraints of a number of the UNEs may be in contrast to each other. Witness Stegeman stated that as an example, in modeling a least-cost forward-looking network, the user may set the limits for copper loops to a user-defined length. In reality, witness Stegeman noted, copper loops beyond that length may exist in BellSouth's current network and may be ordered by CLPs. Witness Stegeman maintained that yet, if only one scenario in BSTLM were used as recommended by witness Darnell and witness Pitkin, no copper loops would exist beyond the model's user-defined copper limit so the costs for BellSouth's unbundled copper loops would not be reflective of any current copper loops beyond that limit that the CLP would like to order. Witness Stegeman asserted that such an approach could seriously understate the cost of unbundled copper loops. In addition, witness Stegeman noted, by using only the combo

scenario, the ISDN costs assume that service can be provided by POTS plug-in cards unless service locations are restricted to only existing ISDN customers.

Witness Stegeman asserted that to work around these issues, multiple scenarios may help the user frame the possible future costs based upon the particular cost question being asked. For example, witness Stegeman noted, the user, as BellSouth has done, may wish to use a current set of customers as surrogate locations of where a UNE may be sold. As such, witness Stegeman commented, the user of the BSTLM selects inputs for a scenario run that will design a forward-looking network that assumes that all of these surrogate customers are engineered in one manner for a particular UNE. However, witness Stegeman stated, such specific engineering may not be appropriate for all UNEs. Therefore, witness Stegeman commented, if the same set of current customers are used as possible surrogate locations for multiple future UNE customers and the different UNEs sold require different engineering, then multiple runs of the BSTLM may be required due to the current structure and data of the BSTLM.

BellSouth explained in its Brief that to run the BSTLM, one must establish the defining attributes of the loops and local channels under study. BellSouth noted that to develop the costs of the various unbundled loops and loop combinations, BellSouth ran the BSTLM under five-different (multiple) network scenarios. BellSouth noted that Exhibit DDC-6 to BellSouth witness Caldwell's direct testimony illustrates the physical loop make-up assumed under each scenario.

BellSouth commented that AT&T/WorldCom witness Darnell conceded on cross-examination that the use of multiple scenarios in establishing BellSouth's rates for loops and loop combinations has been accepted by every state in BellSouth's region to consider the issue, including Alabama, Florida, Kentucky, Louisiana, Mississippi, and South Carolina. BellSouth also asserted that the use of the multiple scenarios in establishing BellSouth's rates for loops and loop combinations also has been endorsed by the FCC in both its *GA/LA 271 Order* and its *Five-State 271 Order*.

BellSouth noted that AT&T/WorldCom witness Pitkin used only the combo scenario to calculate the CLPs' proposed rates for all unbundled loops and loop combinations. BellSouth asserted that calculating rates in this manner leads to an under-recovery of BellSouth's costs, because the combo scenario does not accurately reflect the costs associated with unbundled stand-alone loops, unbundled ISDN loops, or copper-only loops.

BellSouth maintained that the combo scenario assumes that loops can be provided on fiber-based DLC systems directly integrated into BellSouth's switch at the central office. BellSouth asserted that as witness Caldwell observed, this is an utterly unrealistic assumption in developing the cost of a voice-grade unbundled loop, because voice-grade unbundled loops, by definition, must terminate on the MDF and cannot be directly integrated into BellSouth's switch. BellSouth argued that before a voice-grade unbundled

loop can be provisioned to a CLP collocation space, the loop must be removed from the DLC digital DS1, converted to voice grade, and terminated on the MDF. BellSouth maintained that the costs associated with this conversion, and the MDF termination of the voice-grade circuit, are not included in the combo runs.

BellSouth noted that unbundled ISDN loops served over fiber-fed DLC systems require a special, more expensive, ISDN plug-in rather than the standard POTS plug-in. BellSouth stated that in its ISDN scenarios, all POTS customers are assumed to have been converted to ISDN service by replacing the POTS cards in the DLC systems with ISDN cards. BellSouth argued that this accurately develops the costs of providing unbundled ISDN loops. BellSouth stated that on the other hand, the CLPs simply used the combo scenario to determine their ISDN loop proposals. BellSouth asserted that by using the combo scenario, the CLPs incorrectly assume that a POTS card can be used to provide ISDN service for the vast majority of the ISDN DLC-served loops. BellSouth argued that this significantly understates the cost of ISDN unbundled loops, both standalone ISDN loops and ISDN-combo loops.

BellSouth asserted that the CLPs' contention that the use of multiple scenarios violates FCC Rule 51.505(b) is without merit. BellSouth stated that the total quantity of facilities was considered in each scenario because BellSouth used the same overall line count in each scenario. BellSouth argued that the multiple scenario approach also captures economies of scale and scope, as required by FCC Rule 51.505(b). BellSouth maintained that its scenarios appropriately account for the differences in the manner in which BellSouth provisions different loops and reflects the cost differences in each. BellSouth argued that because BellSouth cannot know today how a loop may be used by a CLP in the future, its use of multiple scenarios is appropriate and, in fact, necessary to accurately calculate BellSouth's costs.

The Public Staff stated in its Proposed Order that assuming that all customer locations are candidates for a particular unbundled loop, BellSouth's use of multiple scenarios eliminates the random assignment process and allows larger and more efficient network configurations to be established. Therefore, the Public Staff opined, the Commission should agree that BellSouth's method of utilizing the entire quantity of its lines and customer locations captures economies of scope.

The Public Staff further maintained that given the varying requirements for provisioning the different UNE loop types, it would be inappropriate to utilize just one of BellSouth's scenarios as proposed by AT&T/WorldCom witness Darnell. The Public Staff stated that as the FCC pointed out in its *Five-State 271 Order* in Paragraph 61, BellSouth is entitled to recover the forward-looking costs associated with the provision of standalone loops, as well as the costs associated with provisioning loop-switch combinations. The Public Staff asserted that witness Darnell's proposal to use only the combo scenario would not accomplish such cost recovery. The Public Staff recommended that the Commission

conclude that it is appropriate for BellSouth to use multiple scenarios in determining the loop investment amounts.

The Commission notes that all of the other BellSouth States that have considered BellSouth's multiple-scenario methodology have adopted BellSouth's position on this issue. Further, the Commission notes that the FCC has endorsed a multiple-scenario approach, and the Public Staff has recommended that the Commission adopt BellSouth's multiple scenario approach in this docket. The Commission believes that BellSouth's evidence presented on this issue is more persuasive and that BellSouth has effectively refuted the arguments raised by the CLPs in opposition to the use of the multiple scenario methodology.

Further, the Commission believes that the use of BellSouth's multiple-scenario methodology ensures that all costs of the various types of loops are properly identified. The Commission believes that BellSouth's methodology is generally more appropriate for many reasons, such as: (1) insufficient demand for many types of unbundled loops, for example unbundled ISDN loops, precludes BellSouth from using existing UNE customer locations as the basis for cost studies of unbundled loops; (2) copper loops greater than 12,000 feet ordered by a CLP would never be reflected in a cost study that assumed that no copper loop exceeded 12,000 feet – BellSouth's approach captures copper loops in excess of 12,000 feet and also produces a copper loop of unspecified length, as the CLPs have requested; and (3) nonswitched stand-alone UNE loops, by definition, cannot terminate into the BellSouth switch.

Based upon the foregoing, the Commission finds it appropriate to adopt BellSouth's proposed five-scenario methodology for use in the BSTLM to determine BellSouth's UNE loop rates.

CONCLUSIONS

The Commission finds it appropriate to adopt BellSouth's proposed five-scenario methodology for use in the BSTLM to determine BellSouth's UNE loop rates.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 5

ISSUE NO. 5: How should shared DLC equipment costs be allocated in the BSTLM?

POSITIONS OF PARTIES

BELLSOUTH: Each BellSouth state commission that has considered this issue has ruled that it is appropriate to allocate investments on a per DS0 equivalent basis. BellSouth's methodology represents the most reasonable approach because DLC common equipment in most cases is actually sized-based on DS0 equivalents.

AT&T/WORLDCOM: Based on the “cost causation” principles of the FCC’s Pricing rules, shared DLC equipment costs should be allocated in the BSTLM based on “slots” or “space” used in the equipment to provide particular services, and not allocated based on “DS0 equivalents”.

COVAD: Covad did not address this issue in its Post-Hearing Brief.

DEPARTMENT OF DEFENSE: The Department of Defense did not address this issue in its Post-Hearing Brief.

PUBLIC STAFF: DLC equipment should be allocated on a capacity basis (i.e., to allocate investments on a per DS0 equivalent basis).

DISCUSSION

BellSouth asserted in its Brief that shared DLC equipment should be allocated based on “DS0 equivalents”. According to BellSouth, every state commission that has considered this issue, including Alabama, Florida, Kentucky, Louisiana, Mississippi and South Carolina, has ruled that it is appropriate to allocate investments on a per DS0 equivalent basis.

BellSouth commented that the only component of a DLC system that is limited by physical size is the channel bank shelf, which is only a minor portion of the total DLC system investment. The majority of investment in a DLC system is made up of equipment, such as common equipment, line cards, and multiplexing equipment which are dependent on, and consumed by, the number of DS0s. That is, when providing a DS1 service, the DLC equipment and transport bandwidth are used at a greater capacity than when used to provide voice grade service.

BellSouth witness Stegeman testified that the BSTLM was designed to use DS0 equivalents not only to assign “fixed” investments among services, but also to size the equipment. Therefore, if common equipment is sized and assigned “based on the space each service requires in the DLC equipment,” the capacity requirements of the DLC optical equipment would be inappropriately reduced. Without a corresponding change in the way in which the model develops equipment requirements, AT&T/WorldCom’s changes inappropriately understate the amount of DLC system equipment generated by the BSTLM and assigned to UNEs, and therefore, understates the costs.

Finally, in opposition to AT&T/WorldCom’s allegation that the cost studies filed in this proceeding are inconsistent with BellSouth’s prior practices and methodologies, BellSouth maintained that it has consistently used a cost-causative approach to allocate common equipment in total compliance with the FCC’s pricing rules. Thus, in the case of common DLC carrier equipment, the use of DS0 equivalents is the correct cost driver and this approach has been maintained in all of BellSouth’s cost filings in North Carolina.

BellSouth witness Caldwell explained that the architecture used in this proceeding differs from the manner in which the costs for the DS1 loop were developed in the earlier phase of this docket. Additionally, the BSTLM's algorithms recognize the most forward-looking equipment currently available, including HDSL cards, which were not considered in the earlier study. Also, the earlier studies inadvertently failed to include equipment that was required in the central office and at the customer's premises when the DS1 was provisioned on copper. Therefore, BellSouth claimed that the prior filed costs were, in fact, understated.

AT&T/WorldCom stated in their Proposed Order that based on the "cost causation" principles of the FCC's Pricing rules, shared digital DLC equipment costs should be allocated in the BSTLM based on "slots" or "space" used in the equipment to provide particular services, and not allocated based on "DS0 equivalents."

AT&T/WorldCom claimed that the amount of shared equipment needed is not based on DS0 equivalents. Rather, costs should be assigned based on what drives the number of DLC systems in the network. In virtually every situation, an additional DLC system will be needed because the channel banks or "slots" in the digital carrier loop system are filled up, not because there is no more capacity available in the system's multiplexing equipment.

AT&T/WorldCom argued that there is a significant impact which BellSouth's DS0 equivalents allocation method has in improperly shifting costs of plain-old telephone "POTS" service to higher bandwidth or advanced services. Although investments can be allocated a variety of ways, the FCC has determined that these investments should be allocated based on "cost causative" principles. AT&T/WorldCom stated that BellSouth's DS0 equivalents allocation approach violates the FCC's rules. For example, if a DLC system provides access to 88 POTS lines and two DS1 channels (the digital bandwidth equivalent of 48 POTS lines), then BellSouth would allocate 35.3% of the system common equipment cost to DS1 services and the remaining 64.7% to the POTS lines. AT&T/WorldCom claimed that from an engineering perspective, this allocation scheme is wrong because it fails to capture accurately the way in which DLC common equipment capacity is actually used.

AT&T/WorldCom stated that specifically, NGDLC equipment, the forward-looking technology properly applicable to the determination of loop-related UNE prices, consists of channel bank assemblies that are basically empty line card slots. Each card slot in a channel bank assembly can accommodate either a single POTS card or a single DS1 card. Each POTS card provides the capacity for four DS0s, with each DS0 constituting the digital equivalent of a single voice-grade access line; each DS1 card provides the capacity for one DS1 channel.

AT&T/WorldCom explained that because channel bank assemblies represent capacity that is shared by several different types of line cards, for forward looking cost

study purposes, the assembly is considered to be shared equipment, the cost of which must be allocated to services actually provided by the cards that occupy the assembly. Each line card, regardless of the type of service(s) it provides, occupies the same amount of space in the channel bank assembly. Thus, AT&T/WorldCom argued that the cost of the assembly should be allocated to the different services on the basis of the number of individual card types that occupy the assembly and that are served by it.

In the real world network, AT&T/WorldCom commented that channel bank assemblies are occupied by a mixture of POTS and DS1 cards (providing different types of services), and that tends to alter the allocation of shared equipment costs. For example, if the assembly were occupied with a mixture of two DS1 cards and 22 POTS cards, then the one-twelfth (two divided by 24, or 8.33%) of the channel bank capacity would be occupied by DS1 cards with the remaining eleven-twelfths (22 divided by 24, or 91.67%) occupied by POTS cards. Thus, 8.33% of the channel bank assembly cost should be allocated to DS1 services with remaining 91.67% of the cost to POTS services. Based on actual engineering considerations, AT&T/WorldCom stated that this allocation outcome differs significantly from the arbitrary 35/65 DS1/POTS “DS0 equivalent” allocation that results from BellSouth’s improper allocation approach.

Furthermore, AT&T/WorldCom claimed that BellSouth’s approach is inconsistent with BellSouth’s prior practices and the methodology BellSouth used in the prior UNE proceeding. AT&T/WorldCom stated that they were concerned that BellSouth’s DS0 equivalents allocation method seems to improperly charge more costs to high capacity loops and related services. In this respect, AT&T/WorldCom noted that this new method of allocation was not considered by the Commission in its prior UNE order. With BellSouth proposing UNE prices for high capacity loops at dramatically increased rates than currently exist, AT&T/WorldCom claimed that BellSouth’s new allocation method works to disadvantage CLP’s which have just begun to compete with BellSouth for high capacity services. Additionally, AT&T/WorldCom stated that they heard no testimony from BellSouth as to why this new allocation is better or is needed over the allocation method currently in place in North Carolina. AT&T/WorldCom remarked that it is not enough to say that the BSTLM was designed to allocate DLC shared expenses on a DS0 equivalents basis.

The Public Staff stated in its Proposed Order that it concurs with AT&T/WorldCom witness Pitkin, allocation of costs should be based upon cost causation factors. The Public Staff stated that BellSouth’s method of allocating DLC equipment based upon equivalent DS0s meets this requirement. The Public Staff agreed that while this methodology allocates a greater amount of DLC equipment to broadband services, the allocation method proposed by witness Pitkin appears to be based upon one small component of DLC equipment. Therefore, the Public Staff concluded that since the majority of the investment in DLC equipment is dependent upon DS0 equivalents, space considerations are not a more appropriate basis for allocating DLC investment.

The Commission notes that with regard to the allocation of DLC equipment, witness Pitkin testified that this investment is dependent upon the number of card slots required, rather than upon the capacity of the service. He stated that an allocation based upon space requirements would comply with the FCC's cost causation principles. He further stated that the proposal of BellSouth to allocate DLC investment based upon capacity shifts the costs from POTS service to higher-bandwidth services and therefore increases the costs that CLPs pay for these advanced services. Witness Pitkin recommended that the Commission allocate DLC investment based upon the space each service requires in the DLC equipment. In the alternative, he recommended that the Commission adjust the service capacity in the BSTLM to reflect the space required by each service.

Witness Caldwell argued that AT&T/WorldCom's proposal to allocate shared DLC investment is a methodology issue, not an input issue, and thus falls outside the scope of this proceeding. Further, she disputed the intervenors' testimony that DLC equipment should be sized based upon the number of card slots required. According to witness Caldwell, the only component of DLC equipment limited by physical size is the channel bank shelf, a minor portion of the total DLC system investment. The majority of investment in DLC equipment is made up of equipment such as common equipment, line cards, and multiplexing equipment, which are dependent on the number of DS0s. Thus, more of the capacity of DLC equipment and transport bandwidth is used to provide DS1 service than to provide POTS or voice grade service.

Based on the evidence presented, the Commission agrees with the Public Staff and accepts BellSouth's methodology. The Commission finds it appropriate to reject the intervenors' proposal to allocate DLC equipment based on space considerations instead of DS0 equivalents. As stated by witness Pitkin, allocation of costs should be based upon cost causation factors. The Commission is convinced that BellSouth's method of allocating DLC equipment based upon equivalent DS0s meets this requirement. While this methodology allocates a greater amount of DLC equipment to broadband services, the allocation method proposed by witness Pitkin appears to be based upon one small component of DLC equipment. According to BellSouth, since the majority of the investment in DLC equipment is dependent upon DS0 equivalents, the Commission agrees that the BSTLM method of allocating shared investments based on DS0 equivalents appears reasonable and should be accepted.

CONCLUSIONS

The Commission concludes that it is appropriate to allocate investments on a per DS0 equivalent basis.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 6

ISSUE NO. 6: Is BellSouth's use of a melded value based on the costs of its two vendors' prices for DLC equipment appropriate?

POSITIONS OF PARTIES

BELLSOUTH: Issue No. 6 in BellSouth's Issues Matrix refers to the melding of new and growth discounts for switching. The melding of new and growth discounts for switching is actually discussed in Issue No. 13 concerning switching. BellSouth does not address this issue on melding in pricing DLC equipment in its Post-Hearing Brief.

AT&T/WORLDCOM: BellSouth's "two vendor" melded value for developing costs for DLC equipment should not be used because it is inconsistent with BellSouth's actual network which utilizes only one vendor per site (for technological and efficiency purposes) depending on the size of the central office or the remote terminal being served. Because larger DLC's cost more, but are not used at every site, they should not be included in a "two vendor" melded value. Rather, BellSouth should use the cost of the specific vendor's DLC which would be used at each site, or at a minimum, its "Vendor A" cost.

COVAD: Covad did not address this issue in its Post-Hearing Brief.

DEPARTMENT OF DEFENSE: The Department of Defense did not address this issue in its Post-Hearing Brief.

PUBLIC STAFF: BellSouth's use of a melded value based on the costs of its two vendors' prices for DLC equipment is appropriate.

DISCUSSION

BellSouth witness Stegeman explained in direct testimony that the BSTLM models a complete Vendor A and Vendor B at each DLC site. The model then estimates the cost of the site based on a melded percentage. The melding percentage estimates the probability of occurrence for a particular vendor's equipment. It does not mean that equipment is mixed at a site. Rather, it estimates what the average costs are at any site in North Carolina that has the characteristics of that location.

Additionally, witness Stegeman was questioned about his Georgia testimony filed on April 29, 2002, in Docket No. 14361-U, regarding the least cost vendor approach. Witness Stegeman stated that he supported BellSouth's vendor mix approach as reasonable and accurate. Witness Stegeman acknowledged that in that testimony he stated the following:

... actual installation decision is based, not only on costs, but also on engineering rationale beyond cost. For example, DLC vendor selection, as I understand, is not only a function of material cost, but also a function of installation costs, maintenance costs, and efficient deployment criteria. By simply assuming that the material cost at each DLC site is the sole criteria, Mr. Donavon and Mr. Pitkin ignore BellSouth's experience and knowledge of the total cost of ownership of the vendor equipment for each DLC site.

Therefore, the depiction does not necessarily support their position that one vendor is higher or lower at a particular site based on how BSTLM works and the equipment is actually deployed.

In their Proposed Order, AT&T/WorldCom argued that BellSouth's use of a meld of equipment costs from Vendor A and Vendor B is not appropriate because BellSouth does not use a mixture of Vendor A and Vendor B equipment at central offices and remote terminals. Rather, because of technology and efficiency concerns, BellSouth uses either Vendor A or Vendor B. AT&T/WorldCom contended that there is a difference in the costs of these systems and using a melded value always produces a higher costs than the cost of equipment actually deployed in BellSouth's network. AT&T/WorldCom alleged that BellSouth uses this melded discount because of an admitted flaw in BellSouth's BSTLM which cannot model costs for the equipment which are actually used at sites. AT&T/WorldCom stated that the Commission should require BellSouth to either change its model so that it can determine the cost of equipment actually used at sites or use only Vendor A equipment costs.

AT&T/WorldCom argued in their Post-Hearing Brief that BellSouth's BSTLM overstates DLC costs by using a melded value for DLC inputs. In any given situation, either Vendor A or Vendor B will be the more efficient equipment to install. AT&T/WorldCom alleged that BellSouth's use of a melded value fails to account for the installation of the more efficient equipment and, therefore, always uses equipment that is too expensive.

AT&T/WorldCom stated that in the "bottoms-up" version of the BSTLM filed by BellSouth, relative to BellSouth's use of a melded "Vendor A and Vendor B" equipment costs, this is the same overstatement discussed earlier relative to BellSouth's development of DLC costs in its "tops-down" version of the BSTLM.

In its Issues Matrix, the Public Staff stated that BellSouth's use of a melded value based on the costs of its two vendors' prices for DLC equipment is appropriate.

The Commission agrees with the Public Staff and is persuaded by BellSouth's position that using BellSouth's methodology, the average cost of the equipment at any site represents the actual BellSouth deployment of various vendors. Thus, on average, the costs would accurately reflect the cost BellSouth is expected to incur on a going-forward

basis. Therefore, the Commission believes that BellSouth's use of a melded value based on the costs of its two vendors' prices for DLC equipment is appropriate.

CONCLUSIONS

Based on the evidence presented, the Commission concludes that BellSouth's use of a melded value based on the costs of its two vendors' prices for DLC equipment is appropriate.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 7

ISSUE NO. 7: What fill factors should be used in BellSouth's cost model?

POSITIONS OF PARTIES

BELLSOUTH: BellSouth asserted that its proposed fill factors should be used in its cost model. For distribution cables, BellSouth noted that the average effective fill is 43.76%. However, BellSouth noted that utilization for distribution is not entered as a percentage in the BSTLM. Instead, BellSouth sized its distribution plant assuming the placement of 2.0 pairs per residential location and used only the existing number of pairs per business location. For feeder cables, BellSouth stated that the model uses the cable sizing factor and standard size cables to determine the required cables to be placed. For copper feeder cables, BellSouth contended that the average effective fill is 73.79%. BellSouth maintained that its proposed fill factors reflect a projection of sustainable actual utilization.

AT&T/WORLDCOM: AT&T/WorldCom argued that BellSouth's cost model should place 1.25 pairs to existing customers' residential locations; utilize an 87% fill factor for metallic feeder cable, optical fiber feeder cable, digital loop carrier, and interoffice transport equipment; a 90% utilization factor for interoffice transport; and a 75% utilization or 27 centum call seconds (CCS) for the common transport portion of the cost study.

COVAD: Covad did not explicitly address the issue of fill factors. However, with regard to recurring UNE rates for DSL-critical network elements, Covad asserted that the Commission should accept the recurring rates set forth in BellSouth's Ruscilli Revised Exhibit JAR-3, upon modification to reflect the cost of capital revisions proposed by the Public Staff.

DEPARTMENT OF DEFENSE: The Department of Defense stated that a fill factor of 65% should be used for distribution cable, rather than the 44% fill factor proposed by BellSouth.

PUBLIC STAFF: The Public Staff asserted that BellSouth should use a factor of 1.4 pairs per household in determining its distribution plant investment and the fill factors used in the FCC's Synthesis Model for its feeder and interoffice transport.

DISCUSSION

BellSouth witness Caldwell testified that utilization or fill factors play an important role in the calculation of loop costs. Witness Caldwell explained that the FCC's TELRIC methodology allows for a reasonable projection of actual utilization to be incorporated into the equation.

In their Proposed Order, AT&T/WorldCom observed that a fill factor is the term used to convey how much installed equipment actually is being used to provide services and in BellSouth's BSTLM, fill factors apply to all types of plant and equipment. Thus, AT&T/WorldCom noted that the fill factors have a significant impact on the forward-looking economic costs that are the basis of the recurring loop-related UNE prices that are at issue in this proceeding. AT&T/WorldCom contended that fill factors are important to the process of establishing forward-looking incremental costs because they are used to spread the cost of spare equipment capacity over the units of demand that are actually used to provide service. According to AT&T/WorldCom, the capacity of telephone network equipment is provided at a level that recognizes four basic factors: (1) the projected growth in demand for circuits that actually carry messages; (2) an allowance for uncertainty in demand forecasts; (3) an allowance to account for the modular character of telephone plant; and (4) a reasonable allowance for unforeseen equipment failures and/or other unforeseen network problems. Further, AT&T/WorldCom explained that the engineers design and size the capacity of the network to recognize these factors; thus, the network always contains some amount of capacity in excess of that required to reach current customers and to switch and transport their messages and other traffic. As a result, as observed by AT&T/WorldCom, the cost of that spare capacity generally is loaded into the incremental costs of the services offered by the network through the application of fill factors.

Covad did not explicitly address the issue of fill factors. However, with regard to recurring UNE rates for DSL-critical network elements, Covad asserted that the Commission should accept the recurring rates set forth in BellSouth's Revised Exhibit JAR-3 upon modification to reflect the cost of capital revisions proposed by the Public Staff. Covad's Exhibit A attached to its Post-Hearing Brief provides Covad's specific list of DSL-critical elements. The elements referenced by Covad are found in the following general UNE rate categories: line sharing splitter in the central office, 2-wire integrated services digital network (ISDN) digital grade loop, 2-wire asymmetrical digital subscriber line (ADSL) compatible loop, 4-wire DS1 digital loop, 2-wire copper loop, loop conditioning, interoffice transport dedicated DS1, interoffice transport dedicated DS3, collocation charges for power and cross-connects, collocation application fees, loop make-up, and service order charges. Accordingly, the Commission believes that Covad agreed with BellSouth's fill factors, to the extent that the rates for the DSL-critical elements referenced by Covad incorporate BellSouth's fill factors.

The Department of Defense explained that the fill factor for a facility is the proportion of the facility actually used to provide services. The Department of Defense stated that the fill is important because all costs, including those of unused facilities, are allocated over the revenue-producing units of service to determine the total costs and hence the proposed charges for UNEs.

In this proceeding, the Parties have partially disagreed on some of the fill factor inputs to use in BellSouth's cost model. These disputed inputs will be discussed under four categories as follows:

- Issue 7(a) Distribution
- Issue 7(b) Feeder
- Issue 7(c) Interoffice Transport – SONET Model
- Issue 7(d) Common Transport

7(a). Distribution – BellSouth assumed 2.0 pairs to existing residential locations, an average effective fill of 43.67%; AT&T/WorldCom proposed 1.25 pairs to existing residential locations; the Department of Defense proposed a distribution cable fill factor of 65%; and the Public Staff proposed 1.4 pairs to existing residential locations.

Similar to other models, such as the FCC Synthesis Model and the Benchmark Cost Proxy Model (BCPM), BellSouth noted that utilization is not entered as a percentage in the BSTLM. Instead, according to BellSouth, for distribution plant, the distribution cables are sized based upon the appropriate standard size cables and the number of pairs provisioned to each living unit. BellSouth assumed 2.0 pairs per existing residential customer location and used only the existing number of pairs per business location. BellSouth contended that this is a very conservative assumption since no distribution cable pairs are placed by the BSTLM for households without telephone service or housing units not occupied as of the snapshot of BellSouth's billing records. Furthermore, BellSouth represented that only enough distribution pairs are placed to serve the snapshot of current business services. According to BellSouth, no additional pairs are placed to provide any spare pairs for business line growth, maintenance, or administration.

Further, BellSouth witness Caldwell explained that even though it is not an input, the effective distribution utilization can be calculated from the BSTLM. Witness Caldwell noted that the average effective fill for distribution cable in BellSouth's study for North Carolina is 43.76%.¹⁹ According to BellSouth, this result is reflective of BellSouth's anticipated future fill in the distribution route.

AT&T/WorldCom maintained that the BSTLM should place 1.25 pairs to existing customer residential locations. AT&T/WorldCom asserted that BellSouth's assumption of

¹⁹ Witness Caldwell testified that in the previous phases of this docket, the Commission set the utilization rate at 44.6% for distribution.

2.0 pairs to existing residential locations is based on nothing more than BellSouth's continuance of its existing obsolete practices relative to building facilities to residential customers. According to AT&T/WorldCom, BellSouth's position does not take into consideration the capabilities of modern telecommunications equipment which BellSouth has recently deployed in North Carolina which were discussed at length during the cross-examination of BellSouth witness Ruscilli.

AT&T/WorldCom observed that the basic approach to determining how many pairs to install per residential location was developed in the former Bell System in the 1970s; it was formalized in the early 1980s when the Regional Bell Operating Companies (RBOCs) adopted specific policies to deploy early digital loop carrier systems. Further, AT&T/WorldCom stated that in the early 1990s, the Internet was commercialized and access to it was most usually via a voice-grade modem operating over a separate access line in the range of from 4 kilobits per second (Kbps) to 56 Kbps; basic switched access line demand increased briefly in response to broader access to the Internet. However, by the early 1990s, AT&T/WorldCom pointed out that it became both technically and economically feasible to carry voice and lower speed (4 Kbps to 56 Kbps) data simultaneously over the same loop. Thus, AT&T/WorldCom noted that since the mid to late 1990s, it has become common to transport both a voice-grade signal and a separate high-speed data signal (1.544 megabits per second (Mbps) and higher) simultaneously over the same 2-wire loop, thus reducing the demand for a second additional access line. AT&T/WorldCom maintained that because the price of this technology has declined steadily and demand for it has steadily increased (along with the impact of other factors, such as growth in the demand for wireless access), the deployment of this new technology, generally, has reduced the demand for multiple telephone lines in order to receive both voice service and access to the Internet. Consequently, AT&T/WorldCom asserted that the obvious result is that a significant amount of existing plant (that was installed before it became common to transport both a voice-grade signal and a separate high-speed data signal, simultaneously over the same two-wire loop) now is unused and will remain so in a forward-looking environment. Accordingly, AT&T/WorldCom opined that the amount of embedded extra plant capacity has been steadily increasing.

AT&T/WorldCom contended that in response to this trend, throughout the industry, local exchange carriers have been adopting policies that limit the number of distribution pairs deployed to a range of from 1.0 to 1.5 pairs per new residential location. Consistent with this trend, AT&T/WorldCom reported that BellSouth itself has begun to limit its deployment of new distribution capacity to 1.0 pair per residential location. In particular, AT&T/WorldCom asserted that with respect to North Carolina, because BellSouth recently has accelerated and completed its deployment of digital facilities in North Carolina, the vast majority of its residential customers no longer require two or more telephone lines in order to meet their advanced telecommunications needs. Instead, AT&T/WorldCom observed that most North Carolinians can now obtain access to the Internet as well as receive POTS over a single telephone line. Accordingly, AT&T/WorldCom argued that the Commission should reject BellSouth's outdated practice relative to assuming 2.0 pairs to

existing residential locations and should instead adopt AT&T/WorldCom's recommendation that BellSouth's loop-related prices should assume, on average, the installation of 1.25 pairs per existing residential location.

The Department of Defense witness Gildea stated that the testimony of BellSouth witness Caldwell may give the impression that cable utilization is a factor outside the company's control, but that is not the case. Witness Gildea explained that by changing assumptions in the cable sizing process, BellSouth can alter the effective fill. The Department of Defense urged the Commission to reject BellSouth's approach that yields such a low fill (44%) for distribution cable.

Witness Gildea pointed out that in this docket in the Commission's December 10, 1998 *Order Adopting Permanent Prices for Unbundled Network Elements*, at Page 66, the Commission stated that the parameters related to fills for BellSouth's distribution plant should be consistent with those set in the *Forward-Looking Economic Cost (FLEC) Order*.²⁰ However, witness Gildea noted that the Commission issued an *Order on Reconsideration*, in that docket on July 2, 1998, addressing a Motion for Reconsideration submitted by Carolina Telephone and Telegraph Company/Central Telephone Company (Carolina/Central) that sizing parameters should be set such that distribution fills for all the carriers under investigation at that time would be comparable. According to witness Gildea, the modification resulted in a fill factor of 52% for BellSouth's distribution cable. Witness Gildea contended that if 52% was the appropriate fill for distribution cable four years ago then the 44% fill factor proposed by BellSouth is far too low at this time because cable fills should increase over time. Witness Gildea testified that the primary reason that fills should increase is that the number of revenue producing lines for the average residential living unit should be increasing. Witness Gildea explained that distribution cable fills should be increasing over time for the following reasons:

The number of revenue-producing lines in a living unit may increase when residents order a second line for a computer or as a 'separate line' for additional family members.

With additional carrier participants in the market competitive LECs that will acquire UNEs if the price is reasonable there will be additional opportunities for BellSouth to obtain revenue from plant that might otherwise be idle.

Planning activities should become more accurate so it will be possible to employ a smaller safety margin in allowing for future growth.

Witness Gildea asserted in his revised direct testimony that a distribution cable fill of 52% should be used by BellSouth for determining UNE costs and charges. However, in

²⁰ The *FLEC Order* was issued in Docket No. P-100, Sub 133b, on April 20, 1998.

its Post-Hearing Brief, the Department of Defense pointed out that AT&T/WorldCom witness Pitkin supported a distribution fill of as great as 65% for the purpose of establishing UNE costs. Consequently, the Department of Defense urged the Commission to require that UNE charges reflect an effective fill for distribution cable in this range, rather than the fill of 44% reflected in BellSouth's cost models. Further, in its "Proposed Findings", the Department of Defense recommended that a fill factor of 65% should be used for distribution cable.

In its Proposed Order, the Public Staff explained that BellSouth witness Caldwell testified that the BSTLM contains input variables that would allow the user to enter a cable sizing factor for sizing the distribution cables in the loop model or, alternatively, the user may enter the number of pairs to be placed to each customer location, as BellSouth has done. The Public Staff noted that BellSouth sized its distribution plant assuming the placement of 2.0 pairs per residential location. The Public Staff acknowledged that witness Caldwell testified that this approach is conservative since only locations that actually have service were considered, when in fact, plant must also be placed to nonrevenue generating locations as well. The Public Staff commented that witness Caldwell also testified that BellSouth's approach is more accurate than the use of a cable sizing factor. Further, the Public Staff noted that witness Caldwell had also stated that even when BellSouth's records indicated a location had more than 2.0 pairs, the model still only places 2.0 distribution pairs.

The Public Staff observed that AT&T/WorldCom witness Weiss contended that BellSouth's use of 2.0 pairs per living unit was obsolete in today's market. The Public Staff stated that witness Weiss had pointed out that carriers have been adopting policies limiting the number of distribution pairs in new areas to a range of 1.0 to 1.5 per living unit. Witness Weiss recommended that BellSouth revise its design guideline downward to 1.25 pairs per residential living unit for purposes of developing UNE loop prices.

Further, the Public Staff commented that in the *FLEC Order*, the Commission found that the appropriate input value for distribution pairs per residential household for use in the FLEC studies was 1.4.²¹ The Public Staff stated that the *FLEC Order* indicated that BellSouth had a ratio of approximately 1.12 residential lines in service per household, substantially below the factor of 2.0 it proposes in this case. Furthermore, the Public Staff noted that according to the testimony of witness Caldwell, BellSouth's network guidelines initially establish the number of pairs per household at a base level lower than 1.4. To that base level, according to witness Caldwell, BellSouth adds an amount for anticipated secondary line growth. Further, the Public Staff commented that although witness Caldwell addressed the amounts of potential growth for certain specific individual households, there is no information in the record regarding the current statewide average distribution pairs per residential household. The Public Staff concluded that 1.4 pairs per

²¹ The Commission's *FLEC Order*, in Docket No. P-100, Sub 133b, Finding of Fact No. 12, Page 7 and Part 3 - Input 3(i), Page 36.

household was forward-looking and reasonable for the calculation of BellSouth's UNE rates.

The Commission understands that in the BSTLM, the distribution cables are sized based upon the appropriate standard size cables and the number of pairs per residential customer location and the actual existing number of pairs per business location. As noted above, the Parties disagree on the number of pairs per residential customer location, with the proposals ranging from 1.25 pairs to 2.0 pairs.

In regard to the capabilities of modern telecommunications equipment which BellSouth has recently deployed in North Carolina, counsel for AT&T/WorldCom questioned BellSouth witness Ruscilli on certain sections from BellSouth's 2001 Stockholders' Annual Report. Witness Ruscilli agreed that in a passage from Chairman Duane Ackerman's Letter to Shareholders, that the Chairman stated that "to meet the converging needs of customers, we are transforming the technology in our core wire-line from voice to digital data." Witness Ruscilli read the following statement from the 2001 Report:

In the consumer market, DSL gives us another fast-growing data revenue stream. DSL revenues of \$254 million in 2001 were nearly five times higher than the previous year. We are serving well over 600,000 BellSouth FastAccess customers, and we have extended broadband coverage to more than 70 percent of our DSL base. We have led the industry in percentage subscriber line growth in six quarters in a row.

In addition, witness Ruscilli agreed on cross-examination that the Report stated that we "now have one of the most advanced optical networks on the planet." Further, witness Ruscilli agreed that the Report stated that "being able to talk on the same telephone line you are using to surf the Internet certainly is a great feature."

Further, during cross-examination, witness Ruscilli was questioned concerning an April 2, 2002 BellSouth press release which was titled "BellSouth Completes NC Central Office Deployment of Advanced Data Technology". Witness Ruscilli agreed that the document stated that BellSouth has now equipped 136 of its North Carolina central offices with the capability to provide high-speed data technology to its customers. The Commission also notes that the press release stated the following: BellSouth had reached its pledge to equip 136 of its 140 central offices seven months ahead of schedule; BellSouth had deployed 1,500 remote DSL terminals; and BellSouth planned to have a total of 2,100 remote terminals installed by the end of 2002, thereby pushing the technology further out into the distribution network.

Additionally, witness Ruscilli was questioned about his testimony filed on July 16, 2002, in Docket No. P-55, Sub 1013, regarding the five-year review of BellSouth's

Price Regulation Plan. Witness Ruscilli acknowledged that in that testimony he stated the following:

. . . the plan has provided incentives for BellSouth to become more efficient when deploying the most modern technology in North Carolina.

Deployment of digital switching, digital subscriber line equipment, and advanced services technology has provided North Carolinians with access to the most current telecommunications technology available.

The Commission also notes that BellSouth's 2002 Stockholders' Annual Report, as provided on BellSouth's website, contains a "DSL High-Speed Internet" Section, wherein the following question and statement of Jeanette Anderson, Manager, Internet Services appears:

Is customer growth on target? A little ahead, actually. We were shooting for 1 million broadband customers by the end of 2002, and we finished with over 21,000 more than that. In a tough economy that saw a weak technology sector overall and relatively flat sales of personal computers, this 64 percent annual gain was one of the best growth rates for any tech-related service last year. Analysts are beginning to recognize something we've known all along – speed itself may be the "killer application" everyone talks about. If you're going to be on the Internet, you're going to want broadband speed. With DSL, customers avoid the hassles of dial-up, and they love that they can talk on the same telephone line they're using to surf the Web at high speeds.

The Commission has not found any information in the record which would establish, definitively, BellSouth's current statewide average distribution pairs per residential household. Even BellSouth's own deposed witness, Michael K. Zitzmann, representing BellSouth's engineering staff was unable to provide this when explicitly questioned in this regard.

The Commission agrees with AT&T/WorldCom that BellSouth's position in support of 2.0 pairs does not recognize the capabilities of modern telecommunications equipment which BellSouth has recently deployed in North Carolina, especially considering that BellSouth is now able to provide the transport of both voice and data simultaneously over the same line from virtually all of its wire centers. Additionally, the Commission observes that, pursuant to FCC Rule 51.505(b)(1), TELRIC "should be measured based on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing location of the incumbent LEC's wire centers."

Based upon the evidence presented, the Commission is persuaded by AT&T/WorldCom's assertion that the trend in the local exchange carrier industry is toward

a policy that limits the number of distribution pairs deployed to a range of 1.0 to 1.5 pairs per new residential location. Furthermore, since the 1998 time frame, when the Commission issued its *FLEC Order* and adopted a factor of 1.4 pairs per household, BellSouth has accelerated and completed its deployment of digital facilities in North Carolina. In recognition of what appears to be a very significant advancement toward a much more efficient network, i.e., 136 of BellSouth's 140 central offices are now equipped with the capability to provide high-speed data technology to its customers, the Commission believes it would be appropriate and consistent with TELRIC principles for the Commission to adopt an input of 1.25 pairs per existing residential housing unit as recommended by AT&T/WorldCom.

COMMISSION CONCLUSION: The Commission concludes that an input value higher than 1.25 pairs is not justified for residential locations and that BellSouth should adjust its input values accordingly in its cost study.

7(b). Feeder – BellSouth used an average effective fill of 73.79% and the Public Staff supported BellSouth's use of the FCC's inputs from its Synthesis Model; whereas, AT&T/WorldCom proposed a fill factor of 87%.

For feeder cable, BellSouth witness Caldwell observed that the model uses the cable sizing factor and standard size cables to determine the required cables to be placed. As stated by witness Caldwell, the average effective fill of the copper feeder cable in BellSouth's filing is 73.79%.²² According to BellSouth, this result is reflective of BellSouth's anticipated future fill in the feeder route.

BellSouth noted that AT&T/WorldCom witness Weiss proposed an 87% fill factor for feeder cable (both fiber and metallic) and the associated electronics.²³ BellSouth argued that witness Weiss's analysis, as demonstrated by witness Caldwell, is comprised of purely imaginary numbers with unrealistic assumptions. Essentially, according to BellSouth, witness Weiss assumed a demand each year that allowed him to grow to a 95% end-of-period utilization each year. Witness Caldwell commented that, of course, witness Weiss never highlighted this 95% end-of-period utilization, which is the true driver of his results.

Furthermore, witness Caldwell maintained that while witness Weiss's discussion of just-in-time procurement practices (which he used in support of his 95% end-of-period utilization) may be partially correct for provisioning additional services via plug-in electronics, this argument still ignores the fact that the electronic equipment must be

²² Witness Caldwell testified that in the previous phases of this docket, the Commission set utilization rates at 66% for copper feeder and 74% for fiber feeder.

²³ On cross-examination, witness Weiss admitted that he proposed the same fill factor in a Qwest UNE proceeding in Washington State and that the Washington Commission rejected that proposed factor.

installed and tested prior to service. Additionally, witness Caldwell noted that feeder and interoffice cable cannot be engineered, purchased, installed, and spliced just-in-time. Witness Caldwell explained that substantial lag time between the initial engineering of the cable project and ready-for-service status is normal in constructing telecommunications plant.

Contrary to witness Weiss's assessment, witness Caldwell pointed out that BellSouth's fill factors are not "based on historical practices." Witness Caldwell commented that since BellSouth does not have utilizations by density, the FCC's inputs from the Synthesis Model were used. Witness Caldwell testified that these values were reviewed and approved by BellSouth's network personnel who found them to be reasonable. Additionally, witness Caldwell reported that the results from the BSTLM align themselves with utilizations this Commission previously approved. Consequently, BellSouth asserted that these fill factors reflect a projection of sustainable actual utilization, as outlined in the FCC's *Interconnection Order*.²⁴

AT&T/WorldCom contended that BellSouth's assumed fill factors are based on BellSouth's historical practices and not based on a forward-looking environment. AT&T/WorldCom argued that the BSTLM should utilize a forward-looking fill factor of 87% for metallic feeder cable, optical fiber feeder cable, digital loop carrier, and the plant that is used to provide interoffice transport facilities.

AT&T/WorldCom maintained that their proposed 87% fill factor is appropriate for several reasons. AT&T/WorldCom stated that today's market for telecommunications services demands deployment of optical/digital facilities because of the value and efficiency offered to carriers by such facilities. Thus, AT&T/WorldCom contended that even those services that have been, and might currently be provided, over metallic copper equipment now are migrating quickly toward optical digital technology. AT&T/WorldCom asserted that it is economically rational for BellSouth to deploy lower cost current optical and digital technology at all levels of the network from the loop to and including interoffice facilities. Additionally, AT&T/WorldCom stated that ILECs also have developed a highly efficient means of shortening the time between the receipt of a telephone company's order and delivery of the ordered equipment. AT&T/WorldCom witness Weiss testified that BellSouth can engage in just-in-time plant provisioning practices which will allow BellSouth to delay bringing new cable and optical and digital plant capacity on line until existing capacity is nearly 100% exhausted, that is, until the fill factor for existing plant approaches 100%. However, AT&T/WorldCom stated that their witness Weiss did not propose a purely just-in-time-based objective fill factor be used (approaching 95% or higher), rather, witness Weiss recommended use of an 87% fill factor as a reasonably achievable fill factor in order to give BellSouth the benefit of the doubt with regard to its own conservative plant provisioning practices and their effect on fill factors.

²⁴ FCC's *First Report and Order* in CC Dockets 96-98 and 95-185 (*Interconnection Order*), issued August 8, 1996, at Paragraph 682.

Furthermore, AT&T/WorldCom explained that an 87% fill factor is even more liberal when one considers that there are two different types of fill factors. AT&T/WorldCom noted that the first type is generally referred to as an objective fill, which is based on an engineer's judgment of how to design the plant. AT&T/WorldCom stated that objective fill factors are used by BellSouth within the BSTLM to help estimate the size of equipment that needs to be installed. For example, AT&T/WorldCom noted that if an engineer determines that it is necessary to have 5% fill to account for future growth, 5% for uncertainty in demand, and 3% for administrative spare, then the engineer would design facilities based on a 13% objective fill; then if current demand is 100 lines, the install capacity would need to be at least 113 lines.

Further, AT&T/WorldCom stated that the second type of fill factor is generally referred to as the effective fill. AT&T/WorldCom explained that the effective fill factor includes the objective fill factor described above, plus any additional spare capacity based on the fact that cable vendors manufacture cables to certain industry standard sizes. In this respect, AT&T/WorldCom noted that cable sizes are not customized as to size; rather they are off-the-shelf commodities with standard cable sizes. For example, AT&T/WorldCom observed that the smallest copper cable manufactured by any cable vendor capable of accommodating 113 lines is a 200-pair cable. AT&T/WorldCom explained that the additional extra capacity of 87 lines in this example (200 minus 113) results from what is referred to in the industry as breakage, or the lumpiness in available equipment sizes. According to AT&T/WorldCom, based on their examples, the effective fill factor therefore represents the total extra capacity of both objective fill (13 lines) plus lumpiness (87 lines). Thus, AT&T/WorldCom observed that the effective fill factor reflects the ratio of working lines to total capacity (in the above example, 100 lines divided by 200 lines or 50%).

Moreover, AT&T/WorldCom stated that it is important to understand that the objective fill factors used by BellSouth in its BSTLM result in greater spare capacity than just what the objective fill factors create because, in addition to the objective fill factors, there is also additional spare capacity created by the lumpiness or effective fill factor. As a result, AT&T/WorldCom argued that the Commission should not be concerned, in adopting AT&T/WorldCom's recommended fill factor of 87%, that it may be unreasonably constraining BellSouth's ability to recover its modeled costs.

In its Proposed Order, the Public Staff pointed out that BellSouth witness Caldwell testified that BellSouth did not use historical fill factors for feeder plant and the plant that is used to provide interoffice transport facilities. Instead, according to witness Caldwell, BellSouth utilized the FCC's inputs from its Synthesis Model. The Public Staff noted that witness Caldwell pointed out that although just-in-time procurement practices may be partially appropriate for electronics, the electronic equipment must still be installed and tested prior to service. Further, witness Caldwell testified that feeder and interoffice cable cannot be engineered, purchased, installed, and spliced just-in-time.

Next, the Public Staff observed that AT&T/WorldCom witness Weiss testified that BellSouth's fill factors for metallic feeder cable plant, digital loop carrier equipment, optical fiber feeder cables, and the plant that is used to provide interoffice transport facilities were understated. The Public Staff stated that witness Weiss explained that telecommunications facilities are not always used to full capacity so as to reflect projected growth in demand, allow for uncertainty in demand forecasts, account for the modular character of the telephone network, and allow for unforeseen equipment failures or other network problems. In particular, witness Weiss stated that the modularity of the network is exemplified by the fact that cables are manufactured in standard, but uneven, increments.²⁵ However, the Public Staff noted that witness Weiss contended that BellSouth's fill factors include more capacity than is appropriate for a forward-looking cost analysis and reflect historical practices. Witness Weiss recommended a factor of 87% for metallic feeder cable plant, digital loop carrier equipment, optical fiber feeder cables, and the plant that is used to provide interoffice transport facilities.

The Public Staff noted that the purpose of BellSouth's cost studies is to obtain the forward-looking economic cost of providing various elements of its telephone network. In so doing, the Public Staff remarked that BellSouth's BSTLM takes a snapshot of its customers and their associated locations at a point in time and then develops a network designed to serve these customers. For the reasons provided, subsequently, in this Order, in the discussion of AT&T/WorldCom witness Pitkin's proposed growth adjustment under Issue No. 11, the Public Staff contended that it cannot accept the fill factors proposed by witness Weiss. Essentially, in regard to the intervenors' growth adjustment, the Public Staff stated that the intervenors' adjustments to reflect line growth are arbitrary. The Public Staff believes that neither future customers nor the facilities to serve them should be reflected in BellSouth's cost study. The Public Staff contended that BellSouth's proposed fill factors are forward-looking and will result in proper cost recovery of BellSouth's investment in feeder plant and interoffice transport facilities. Accordingly, the Public Staff asserted that it is appropriate for BellSouth to base these factors on FCC inputs to its Synthesis Model. Thus, the Public Staff maintained that the fill factors proposed by BellSouth for feeder plant and interoffice transport facilities are appropriate.

The Commission understands that, as testified by witness Caldwell, for feeder cable BellSouth does not have utilizations by density so BellSouth used inputs from the FCC Synthesis Model. That being the case, BellSouth's fill factors were not based on BellSouth's historical practices as alleged by AT&T/WorldCom witness Weiss.

As noted above, witness Caldwell disagreed with witness Weiss' analysis on the basis that it was "comprised of purely imaginary numbers with unrealistic assumptions."

²⁵ For example, metallic cables are manufactured in standard but uneven increments 12, 25, 50, 100, 200, 300, 400, 600, 900, 1200, 1500, 1800 pairs, etc.; transmission plant common equipment is sized to accommodate discrete increments of bandwidth such as 45 Mbps for DS3 systems, 622 Mbps for OC12 systems, etc. This modular characteristic of telephone plant has also been referred to as lumpiness or breakage. (Witness Weiss rebuttal testimony, Page 20, Footnote 13.)

Based on the testimony of witness Caldwell, the Commission believes that just-in-time provisioning practices which were used to support witness Weiss' end-of-period utilization of 95%, are inappropriate as feeder and interoffice cable cannot be engineered, purchased, installed, and spliced just-in-time since the norm in the industry is that considerable lag time exists between the initial time when the cable project is engineered/created and the point in time when it is ready to be placed into service.

Furthermore, as observed by the Public Staff, the purpose of BellSouth's cost studies is to obtain the forward-looking economic cost of providing various network elements; and in doing this, BellSouth takes a snapshot of its customers and their locations and develops a network to serve these customers. Accordingly, the Commission agrees with the Public Staff, as discussed subsequently in Finding of Fact No. 11, that future customers and their associated requirements for facilities should not be reflected in BellSouth's cost study.

Based upon the foregoing the Commission agrees with BellSouth and the Public Staff that it is appropriate for BellSouth to base its factors for feeder facilities on the FCC's inputs from the Synthesis Model. The Commission accepts BellSouth's position that these fill factors reflect a projection of sustainable actual utilization. Accordingly, the Commission agrees that such factors are consistent with the FCC's *Interconnection Order*, at Paragraph 682, which states, in part, that

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

COMMISSION CONCLUSION: The Commission concludes that it is appropriate for BellSouth to base its factors for feeder facilities on the FCC's inputs from the Synthesis Model, since BellSouth does not have utilizations by density.

7(c). Interoffice Transport – SONET Model – BellSouth used North Carolina-specific inputs to develop these costs; whereas, AT&T/WorldCom proposed a utilization factor of 90% for interoffice transport terminal equipment.

In their Proposed Order, AT&T/WorldCom stated that BellSouth's low fill factors improperly increase the price for interoffice transport. AT&T/WorldCom stated that BellSouth claims that it is inappropriate to use universal service inputs for a UNE cost case. However, AT&T/WorldCom observed that this Commission has previously found it reasonable and appropriate to require BellSouth to use loading factors from the Commission's universal service proceeding in developing UNE prices. Thus, AT&T/WorldCom argued that the Commission should reject BellSouth's criticism on this issue.

Furthermore, AT&T/WorldCom noted that BellSouth failed to rebut the overwhelming evidence that other ILECs in various regions across of the country use considerably higher fill factors for transport. According to AT&T/WorldCom, BellSouth merely indicates that its SONET model calculates costs from a more granular level than proxy models used by these other companies. However, AT&T/WorldCom pointed out that BellSouth never indicated why a granular view would result in a lower utilization level and increased interoffice transport costs. AT&T/WorldCom witness Turner contended that the BSTLM should utilize a 90% fill factor for interoffice transport, as recommended by the FCC and approved by the Georgia Public Service Commission in its universal service support proceedings.

BellSouth did not explicitly address this issue in its Proposed Order, however, witness Caldwell filed rebuttal testimony in opposition to AT&T/WorldCom witness Turner's recommendation in this regard. First, witness Caldwell stated that witness Turner's reliance on a Georgia Public Service Commission decision in its Universal Access Fund, Transition to Phase II Pursuant to O.C.G.A. §46-5-167,²⁶ proceeding (Docket No. 5825-U) is inappropriate. Witness Caldwell stated that the FCC has cautioned against any attempt to support UNE inputs with universal service fund decisions.

Second, witness Caldwell observed that in the Commission's December 31, 2001 *Order Addressing Exceptions on Recommended Order Concerning all Phase I and Phase II Issues Excluding Geographic Deaveraging* in this docket, at Pages 63 and 64, the Commission required that BellSouth reflect North Carolina-specific inputs when developing costs associated with high-capacity elements. Witness Caldwell asserted that is what BellSouth has done in the SONET model – the utilizations are North Carolina-specific.

Third, witness Caldwell testified that witness Turner's proposal belies his lack of understanding with respect to the SONET model utilizations he criticizes in his rebuttal testimony. In this regard, witness Caldwell asserted that the range witness Turner presented is not totally accurate, for in fact, some pieces of equipment reflect 100% utilization. Witness Caldwell also stated that other proxy models supposedly begin with a fully-equipped terminal and then the model applies a utilization factor against the total investment. Witness Caldwell explained that BellSouth's SONET model, on the other hand, determines prices for individual components of the SONET network. According to witness Caldwell, the prices for the components are expressed at various transmission levels, such as DS0, DS1, DS3, STS1, OC3, OC12, and OC48. Witness Caldwell explained that the cost studies for UNEs, which require SONET equipment, are linked to the appropriate transmission rate output from the SONET model. Further, witness Caldwell pointed out that the model reflects the probabilities of the various designs deployed in BellSouth's network. In other words, according to witness Caldwell, BellSouth's approach is different from and much more granular than the other proxy

²⁶ O.C.G.A. § 46-5-167 provides the legal framework for the establishment of a fund to reimburse providers of basic local exchange services upon an application and demonstration of need for universal service support.

models referenced by witness Turner. For these reasons, witness Caldwell asserted that the Commission should not adopt witness Turner's recommendations.

The Commission notes that witness Caldwell testified that the FCC in the *UNE Remand Order* required that BellSouth provide interoffice facilities at higher transmission rates. In this regard, witness Caldwell explained that the Commission has previously considered costs and established rates for both dedicated and shared interoffice facilities at DS3, OC3, OC12, OC48, and STS1 transmission rates and ordered that the design probabilities reflect North Carolina-specific data. The Commission understands that BellSouth has updated those costs in this current proceeding and has employed North Carolina-specific utilizations consistent with the Commission's prior decision. Furthermore, the Commission understands that BellSouth's SONET model determines prices for individual components of the SONET network with the prices being expressed at varying transmission levels and that the cost studies for UNEs requiring SONET equipment are linked to the appropriate transmission rate outputs from the SONET model. Based upon the foregoing, the Commission is unconvinced that AT&T/WorldCom's position that a single 90% utilization factor would be appropriate as it seems more reasonable to have factors that track the individual pieces of SONET equipment and the associated specific transmission rate outputs. Accordingly, the Commission believes that BellSouth's proposed interoffice transport factors and methodology are appropriate.

COMMISSION CONCLUSION: The Commission concludes that BellSouth's proposed interoffice transport factors and methodology are appropriate for use in this proceeding.

7(d). Common Transport – BellSouth reflected 18.7 CCS for common transport; whereas, AT&T/WorldCom proposed 27 CCS.

As to the calculation of the common transport element, AT&T/WorldCom stated that BellSouth used an average busy season busy hour CCS per circuit that results in an unreasonably low utilization level for its trunks. AT&T/WorldCom witness Turner testified that this CCS per circuit value, in essence, provides an indication of the utilization BellSouth expects on its trunks (the circuits connecting its switches together). According to witness Turner, the total value of CCS available on any trunk is 36.²⁷ Witness Turner stated that BellSouth's assertion that during the busy hour that its average usage on a trunk is 18.7 CCS indicates that BellSouth only expects 52% utilization in the busiest hour of the busiest season of the year. Witness Turner stated that this utilization is unreasonably low based upon his experience working in engineering and in reviewing common transport cost studies across the country. Witness Turner contended that a more reasonable utilization percentage during the busy season, busy hour is 75% which equates to a measure of 27 CCS. Accordingly, AT&T/WorldCom asserted that an input of 27 CCS for the common transport portion of BellSouth's cost study was appropriate.

²⁷ Witness Turner testified that 36 CCS is the same as saying that there are 3,600 seconds in one hour. Thus, a measure of 10 CCS on a trunk would indicate that 1,000 of the 3,600 seconds of use were occupied.

BellSouth did not explicitly address this issue in its Proposed Order, however, witness Caldwell filed rebuttal testimony in opposition to AT&T/WorldCom witness Turner's recommendation in this regard. Witness Caldwell testified that witness Turner's proposed input of 27 CCS was unrealistic. Witness Caldwell stated that BellSouth proposed a transport study input for busy hour CCS per circuit of 18.7 CCS.

Witness Caldwell pointed out that witness Turner ignored the fact that BellSouth's network is comprised of varying sizes of trunk groups, as it is more efficient to deploy only the amount of trunks necessary to handle anticipated trunk busy hour load. Witness Caldwell noted that under the FCC's TELRIC principles, the existing wire center locations are maintained. Thus, as explained by witness Caldwell, the expected busy load and the subsequent trunk group sizing can be determined based upon BellSouth's actual busy hour usage. Furthermore, witness Caldwell testified that witness Turner has ignored the interrelationship between the trunk group size and the busy hour CCS that can be handled by that trunk group (assuming an objective blocking rate). Witness Caldwell explained that using a Neal-Wilkinson Trunk Capacity Table, a standard tool used to size trunk groups, a trunk group comprised of two trunks can handle only 8 busy hour CCS or a utilization of 11% [$8 \div (2 \times 36)$]. On the other hand, witness Caldwell stated that a trunk group comprised of 50 trunks handles 1,367 busy hour CCS or a utilization of 76% [$1,367 \div (50 \times 36)$]. Based on these facts, witness Caldwell asserted that the Commission should ignore witness Turner's proposed input.

Based upon the evidence presented on this issue, the Commission believes that it would be more appropriate to accept BellSouth's proposed input of 18.7 CCS. The Commission understands that the value of this input should take into consideration the expected trunk busy load and the fact that the network consists of various trunk group sizes and that there is an interrelationship between the trunk group size and the busy hour CCS that can be handled by that trunk group (assuming an objective blocking rate). Based upon our review, it does not appear that witness Turner considered this significant interrelationship in making his proposal of 27 CCS.

COMMISSION CONCLUSION: The Commission concludes that the appropriate transport study input for busy hour CCS per circuit is 18.7 CCS as proposed by BellSouth.

SUMMARY OF CONCLUSIONS

7(a). Distribution – The Commission concludes that an input value higher than 1.25 pairs is not justified for residential locations and that BellSouth should adjust its input values accordingly in its cost study.

7(b). Feeder – The Commission concludes that it is appropriate for BellSouth to base its factors for feeder facilities on the FCC's inputs from the Synthesis Model, since BellSouth does not have utilizations by density.

7(c). Interoffice Transport – SONET Model – The Commission concludes that BellSouth’s proposed interoffice transport factors and methodology are appropriate for use in this proceeding.

7(d). Common Transport – The Commission concludes that BellSouth’s proposed transport study input for busy hour CCS per circuit of 18.7 CCS is appropriate.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 8

ISSUE NO. 8: What is the appropriate cost of capital to use in calculating BellSouth’s UNE rates?

POSITIONS OF PARTIES

BELLSOUTH: BellSouth asserted that the Commission should use BellSouth’s cost of capital inputs. In light of the capital market data analyzed by BellSouth witness Billingsley, the use of an 11.25% forward-looking, overall weighted cost of capital input is reasonable and, in fact, conservative.

AT&T/WORLDCOM: AT&T/WorldCom argued there has been little change to the cost of capital since the Commission’s *December 10, 1998 Order*, and, if anything, the cost of capital has decreased since then. The Commission should select a cost of capital input in the 9.79% to 9.96% range.

COVAD: In its Post-Hearing Brief, Covad stated that it has no objection to the recurring UNE rates for DSL-critical network element set forth in Revised JAR-3, subject to the cost of capital revisions proposed by Public Staff witness John Robert Hinton.

DEPARTMENT OF DEFENSE: The Department of Defense took the position that the Commission should use the cost of capital adopted in the previous UNE case. However, if the Commission believes it is appropriate to take a more conservative approach, the maximum excursion from that last prescription by the Commission is a capital structure with 40% debt and 60% equity as discussed in the testimony of witness Gildea.

PUBLIC STAFF: The Public Staff recommended an overall weighted cost of capital of 9.79% based upon a capital structure consisting of 40% debt at a cost rate of 7.23% and 60% common equity at a cost rate of 11.5%.

DISCUSSION

Section 252(d)(1) of the Act allows rates for interconnection and access to UNEs to include a “reasonable profit.” To determine a reasonable profit, the cost study or model must incorporate a forward-looking cost of capital for network elements. The forward-looking cost of capital must be based on forward-looking estimations of capital

structure, cost of debt, and cost of equity. Because the Local Competition First Report and Order provides no guidelines on the meaning of a forward-looking and risk-adjusted economic cost of capital, the principles set forth by the United States Supreme Court in *Bluefield Water Works & Improvement Co. v. Public Service Commission*, 262 U.S. 679 (1923), and *F.P.C. v. Hope Natural Gas Co.*, 320 U.S. 602 (1944), should continue to guide the Commission. Essentially, these cases require that the return on common equity set by the Commission be commensurate with returns on investments in enterprises with similar risks, adequate to ensure the confidence of the financial markets, and sufficient to allow the utility to maintain its creditworthiness and attract capital as required on reasonable terms.

Capital Structure

BellSouth witness Billingsley recommended that the Commission adopt a capital structure consisting of 84.92% common equity and 15.08% debt. Department of Defense witness Gildea and Public Staff witness Hinton recommended a capital structure containing 60% common equity and 40% debt.

In his direct testimony, BellSouth witness Billingsley testified that the appropriate capital structure should be based on market valuations of common equity and debt for his comparable group of 20 unregulated companies. He argued that capital structures based on book value do not recognize the reality of obtaining capital in today's financial marketplace. Instead, witness Billingsley advocated the use of market valuations because they are dynamically determined in the marketplace by investors, while book values result from historical accounting practices.

The Department of Defense witness Gildea recommended a forward-looking capital structure of 60% equity and 40% debt. He stated that witness Billingsley's proposed market value-based capital structure of 85% equity and 15% debt was based on fictional target ratios. Witness Gildea noted that his recommended capital structure contained a higher equity ratio and a lower debt ratio than BellSouth's actual 2001 capital structure which consisted of 55% equity and 45% debt. Further, he testified that the Florida Public Service Commission had adopted a capital structure of 60% equity and 40% debt and that BellSouth itself proposed this capital structure in a recent UNE case in Louisiana.

Public Staff witness Hinton recommended a capital structure of 60% equity and 40% debt, derived by averaging *Value Line Investment Survey's* projected percentages of common equity for a comparable group of seven publicly traded telephone companies involved in providing local exchange telecommunications services. Witness Hinton testified that BellSouth's financial planning incorporates a target capital structure containing 35% to 45% debt capital and the Company has stated that a target debt ratio of 35% to 45% allows it to maintain financial flexibility and access to capital. Further, witness Hinton pointed out that even BellSouth used a capital structure consisting of 60% equity and 40% debt in its UNE cost model.

In his rebuttal testimony, BellSouth witness Billingsley disagreed with witness Hinton's proposed capital structure. Witness Billingsley argued that witness Hinton apparently relied upon book values in his capital structure recommendations. For the reasons set forth in his direct testimony, witness Billingsley restated his preference for the use of market valuations in determining capital structure. Witness Billingsley also rebutted witness Hinton's selection of seven telecommunications companies, characterizing that selection as arbitrary.

COMMISSION CONCLUSIONS: The Commission believes that a forward-looking capital structure associated with the provision of UNEs is better determined by analysts' forecasts of telecommunications companies as advocated by witness Hinton rather than basing such a capital structure on market valuations of equity and debt for unregulated companies as advocated by witness Billingsley. Based on the foregoing and all of the evidence presented, the Commission finds and concludes that the capital structure proposed by witnesses Hinton and Gildea, consisting of 60% common equity and 40% long-term debt, is forward-looking and should be used in determining the cost of capital associated with the provision of UNEs.

Cost of Debt

Because the amount of BellSouth's debt leverage impacts its creditworthiness, the cost of debt should be consistent with the capital structure. Further, the cost of debt should reflect forward-looking costs. In estimating the forward-looking cost of debt, BellSouth witness Billingsley used a spread approach that calculated the difference between the yields on an index of Moody's Public Utility Bonds and the yields on 10-year treasury notes and added this difference to the yields on 10-year treasury notes. Public Staff witness Hinton based his recommendation on the yields to maturity of BellSouth's outstanding issues of long-term debt.

In his rebuttal testimony, witness Billingsley updated his direct testimony on the cost of debt. He added a 2.81% spread to the 10-year treasury yield of 4.26% to determine his recommended cost of debt of 7.07%. His spread calculation was based on a three-month average differential from July 2002 through September 2002. Public Staff witness Hinton recommended a cost of debt of 7.23%, derived using a weighted average of the published yields to maturity for specific BellSouth long-term debt issues. Witness Hinton's recommendation was based on data reported in the July 2002 through September 2002, monthly editions of the *Standard & Poor (S&P) Bond Guide*.

COMMISSION CONCLUSIONS: The Commission recognizes that both witnesses have incorporated current debt costs as opposed to embedded debt costs. The Moody's Public Utility Bonds Index employed by witness Billingsley in his spread analysis included the interest rates on the debt of gas and electric companies. The Commission believes that the interest rates on the debt of nontelephone companies are inferior as an indicator of

BellSouth's cost of debt versus the interest rates for specific BellSouth long-term debt issues. Therefore, the Commission finds that the market-based cost rate of 7.23% recommended by witness Hinton is reflective of the current and prospective cost of long-term debt associated with the provision of UNEs by BellSouth.

Cost of Common Equity

In his direct and in his updated rebuttal testimony, BellSouth witness Billingsley stated that he used three approaches to determine the cost of equity. In his first approach, he applied a quarterly Discounted Cash Flow (DCF) model, which included an adjustment to account for flotation costs, to a group of 20 comparable risk companies. He used a cluster analysis based on BellSouth's financial and operating risks to identify a group of comparable risk companies outside of the telecommunications industry. Based on his DCF analysis, witness Billingsley determined a cost of equity range of 13.45% to 13.85%. In his second approach, he used the Capital Asset Pricing Model (CAPM) applied to the same group of non-regulated companies. Using an average beta coefficient of 0.72 for his comparable group and expected returns on the S&P 500 in the range of 15.26% to 15.35%, his CAPM indicated a cost of equity for BellSouth between 12.21% and 12.28%. His third approach included a risk premium analysis based on the 1987-2002 spread between Moody's "A" rated public utility bond yields and the expected return on the S&P 500. Witness Billingsley increased the risk premium to account for the negative relationship between risk premiums and interest rates. The risk premium analysis indicated a cost of equity range of 15.49% to 16.63%. From these three approaches, witness Billingsley concluded that the cost of equity should be between 12.21% and 13.85%.

As discussed in his rebuttal testimony, witness Billingsley objected to Public Staff witness Hinton's use of the annual DCF model. He also objected to the lack of an adjustment for flotation costs in witness Hinton's use of the DCF model. Witness Billingsley argued that witness Hinton's failure to make these adjustments explicitly could lead to a downward bias in his cost of equity estimates.

The Commission has rejected the quarterly DCF model in several telephone cases, including *Citizens Telephone Co.*, 81 N.C.U.C. 635, 662 (1991). In reviewing the quarterly DCF model, the Commission has consistently rejected the argument that a quarterly payment of dividends warrants an upward adjustment to results yielded by the annual DCF model. In the *Citizens Telephone* decision, the Commission found that it was unnecessary for ratepayers to provide the added or incremental return associated with the quarterly payment of dividends, because shareholders can obtain this increment to the return simply by investing the dividends they receive.²⁸ In the *First UNE Order*, the Commission also

²⁸ *Citizens Telephone Co.*, 81 N.C.U.C. at 662 - (citing *Carolina Power and Light Co.*, 78 N.C.U.C. 238, 413-14 (1988)).

adopted the annual DCF model recommended by Public Staff witness Hinton.²⁹ Witness Billingsley has provided no justification for the Commission to depart from its prior holdings and the Commission concludes that its reasoning on this issue in the *Citizens Telephone* decision still stands. The Commission agrees with witness Hinton's recommendation that the annual DCF model is appropriate.

Witness Billingsley included a flotation cost adjustment in his quarterly DCF model to account for the presumed 5% downward pressure on stock prices associated with the issuance of new common stock. Witness Hinton disagreed with this adjustment, and testified that since there was no evidence in the record that BellSouth expected a common stock issuance in the future, there was no basis for a flotation cost adjustment.

This Commission has previously concluded that without evidence in the record of plans to issue new common stock in the near term, an allowance for flotation costs is not justified.³⁰ Additionally, in *State ex rel. Utilities Commission v. Public Staff*, 331 N.C. 215, 415 S.E.2d 354 (1992), the North Carolina Supreme Court reversed a Commission decision that included an increment for purported future financing costs for Duke Power on the grounds that the record contained no evidence that the company intended to issue stock in the immediate future. For this same reason, the Commission did not accept witness Billingsley's recommended flotation cost adjustment in the *First UNE Order*.³¹

Based on the foregoing and all of the evidence presented, the Commission rejects witness Billingsley's 5% adjustment for flotation costs as being unsupported by the evidence. None of the witnesses for BellSouth indicated that a common stock issuance is expected in the immediate future. Rather, AT&T's cross-examination of BellSouth witness Ruscilli indicated that BellSouth had enough available cash to reduce its debt outstanding and repurchase shares of its common stock to bolster its earnings per share. Therefore, the Commission is not persuaded to accept any adjustments for flotation costs in this proceeding.

Public Staff witness Hinton applied the annual DCF model to his comparable group of seven telecommunications companies that provide local exchange services and to another group of 38 companies outside the regulated utility industry that exhibit risk measures similar to the group of seven telecommunications companies. To determine comparability of the group, witness Hinton reviewed published risk measures available to investors through *Value Line* and S&P. Based on his DCF analysis, witness Hinton recommended a cost of equity of 11.50%, which was the center of his range of 11.00% to 12.00%. He used the CAPM as a check on his DCF study. His CAPM analysis indicated

²⁹ 88 N.C.U.C. at 170.

³⁰ *Citizens Telephone Co.*, 81 N.C.U.C. at 663.

³¹ 88 N.C.U.C. at 170.

costs of equity of 9.96%, 11.68%, and 11.92%, which supported his recommended 11.50% cost of equity.

BellSouth witness Billingsley testified that competition in the telephone industry has increased dramatically in recent years, and that rapidly changing technology, increased mergers, bypass, and regulatory constraints have increased risks for ILECs. Department of Defense witness Gildea testified, however, that BellSouth has a virtual monopoly in the wholesale market for UNEs. Witness Hinton testified that providing UNEs is less risky than BellSouth Corporation's³² overall operations. His Exhibits JRH-5 and JRH-9 contain various investor-related risk measures from *Value Line* and S&P credit rating reports that indicate investors are mindful of the competitive risks facing BellSouth Corporation, including risks with its international businesses and ventures into wireless communications.

In his rebuttal testimony, BellSouth witness Billingsley stated that witness Hinton did not conduct a systematic, empirical analysis before he selected his group of seven telecommunications companies to estimate the cost of equity associated in the provision of UNEs. He contended that it was inappropriate to simply assume BellSouth's comparability with other telecommunications companies that provide local service.

The Commission notes that witness Billingsley used risk measures in his cluster analysis that are not as readily observable to investors as witness Hinton's risk measures. Second, in the *First UNE Order*, the Commission accepted witness Hinton's application of the annual DCF model to comparable groups of telecommunications companies and other companies that exhibit similar risk measures.³³ Thus, the Commission is not persuaded that the cluster analysis advocated by witness Billingsley is appropriate in this proceeding.

As in the first UNE proceeding, the Commission is persuaded that the evidence contained in witness Hinton's testimony in this proceeding is the most credible. The Commission believes that the CAPM and the risk premium models involve a sufficiently high level of subjectivity with regard to the beta coefficient, the expected return on the equity market, and the risk-free rate of return to render these methods unpersuasive. As with the other cost of capital models, there are differences of opinion associated with the DCF methodology, usually with regard to the expected growth rate in dividends. Nonetheless, none of the other approaches are generally more reliable and persuasive than the market-based methods embodied in the DCF. In determining the expected dividend growth rate, the Commission notes that witness Billingsley gave exclusive weight to security analysts' earnings per share forecasts compiled by Zacks Investment Research (*Zacks*) and The Institutional Brokers Estimate System. In contrast, Public Staff witness Hinton considered the historical per share growth rates of earnings, dividends, and book

³² BellSouth Corporation is the parent company of BellSouth Telecommunications, Inc.

³³ 88 N.C.U.C. at 169-70.

value, with an emphasis on the forecasted growth rates by *Value Line* and *Zacks*. The Commission is persuaded that investors consider a company's historical performance along with its forecasts when assessing its long-run growth potential. Based upon the evidence, the Commission believes that the annual DCF, as proposed by witness Hinton, should be given the greatest weight for purposes of determining the cost of equity capital, and that only minimal weight should be given to the CAPM and risk premium models.

COMMISSION CONCLUSIONS: Based on the foregoing and all of the evidence presented, the Commission adopts the 11.50% cost of common equity recommended by Public Staff witness Hinton. The Commission finds and concludes that the 11.50% return on equity capital is appropriate, reflects a forward-looking approach, and will allow BellSouth the opportunity to earn a fair and reasonable return on equity.

Overall Cost of Capital

Based on his cost of capital study, witness Billingsley testified on the reasonableness of an overall 11.25% cost of capital. Witness Hinton testified that the 11.25% cost of capital was not forward-looking and thus was inappropriate. Witness Hinton noted that witness Billingsley advocated this same cost of capital in the first UNE proceeding. As noted in the Commission's *First UNE Order*, the FCC had prescribed an 11.25% overall rate of return in 1990, in connection with interstate access charges. Nevertheless, the Commission rejected witness Billingsley's proposed cost of capital in the *First UNE Order*.³⁴

Witness Hinton argued in this proceeding that economic conditions are significantly different today than in 1990, and there is no economic reason for concluding that the forward-looking cost of capital is higher today than at the time of the first UNE proceeding. As demonstrated in Exhibit JRH-1, current inflation and interest rates are comparable to those in 1998 and are at significantly lower levels than in 1990.

The Commission agrees with witness Hinton's testimony regarding current economic conditions. Also, for similar reasons expressed in the *First UNE Order* and in the *FLEC Order*,³⁵ the Commission concludes that the FCC's prescribed interstate overall rate of return of 11.25% is not a forward-looking cost of capital and is inappropriate in determining the cost of capital for the provision of UNEs in this proceeding.

Based upon his recommended capital structure, cost of debt, and cost of equity, witness Hinton determined an overall cost of capital of 9.79%. He testified that his recommendation supported an "A" debt rating, which should allow BellSouth to maintain its

³⁴ *Id.*

³⁵ *Establishment of Universal Service Support Mechanisms Pursuant to Section 254 of the 1996 Telecommunications Act*, Docket No. P-100, Sub 133b, Order Adopting Forward-Looking Economic Cost Model and Inputs, 88 N.C.U.C. 58 (1998) (FLEC Order).

creditworthiness and an opportunity to earn its required return on its investments. The Commission finds and concludes that the forward-looking capital structure and cost rates for debt and common equity recommended by Public Staff witness Hinton should be adopted for purposes of this proceeding.

COMMISSION CONCLUSIONS: Based on the foregoing, and after careful consideration of the entire record of evidence, the Commission finds and concludes that BellSouth's overall weighted cost of capital associated with the provision of UNEs is 9.79% based upon a capital structure consisting of 40% debt at a cost rate of 7.23% and 60% common equity at a cost rate of 11.5%.

Further, the Commission recognizes that on August 21, 2003, the FCC released its TRO. The FCC stated

[w]e conclude that it is necessary to clarify the application of two components of TELRIC that have a major impact on UNE prices – cost of capital and depreciation. These two components of TELRIC are the primary vehicles by which any risks associated with the new facilities and new services may be reflected in UNE prices, and therefore it is appropriate to consider these issues in response to the question presented in the *Triennial Review NPRM*. We believe the guidance we provide below is responsive to the concerns raised by the parties and will assist states in their efforts to establish UNE prices that appropriately reflect these risks. (Paragraph 675)

The FCC specifically addresses the cost of capital in paragraphs 677 through 684 of the TRO.

The Commission recognizes that the issuance of the TRO may impact the decision on the cost of capital in this instant proceeding. Therefore, the Commission finds that it is appropriate to seek comments on the impact of the TRO on the cost of capital as reflected in the UNE rates for BellSouth, Carolina, Central, and Verizon. By separate Order the Commission will solicit comments on the impact of the TRO in this regard.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 9

ISSUE NO. 9: What depreciation rates/economic lives should be used in calculating BellSouth's UNE rates?

POSITIONS OF PARTIES

BELLSOUTH: BellSouth asserted that the Commission should use BellSouth's depreciation rates/economic lives. BellSouth maintained that the forward-looking economic lives used in BellSouth's cost studies are consistent with the economic lives

used to determine the depreciation rates booked in North Carolina for intrastate and for external reporting purposes.

AT&T/WORLDCOM: AT&T/WorldCom argued that the Commission's *First UNE Order* in this docket directed that the lives and future net salvage values within the FCC's ranges be used in BellSouth's cost studies. AT&T/WorldCom asserted that there is no reason why the Commission should change this input to BellSouth's cost model.

COVAD: Covad did not take a specific position on this issue.

DEPARTMENT OF DEFENSE: The Department of Defense did not take a specific position on this issue.

PUBLIC STAFF: The Public Staff maintained that BellSouth should continue to use the economic lives and net salvage values found appropriate in the Commission's *First UNE Order* in this docket, except that the economic life for digital switching should be 12 years. The Public Staff further recommended that the software assets in Account 2690 should reflect the same economic lives as their associated capital assets.

DISCUSSION

The Commission notes that in the *First UNE Order*, the Commission found that then current FCC-authorized ranges of economic lives and future net salvage values were forward-looking and appropriate for use as inputs to the TELRIC cost studies. In this proceeding, BellSouth witness Cunningham recommended economic lives and salvage values from BellSouth's 2001 North Carolina Depreciation Study, while AT&T/WorldCom witness Pitkin recommended that the Commission continue to utilize the depreciation inputs it adopted in the *First UNE Order*. Because the economic lives recommended by witness Cunningham are generally shorter than those previously adopted by the Commission, his recommendation would result in higher depreciation costs being included in the determination of UNE rates.

According to witness Cunningham, BellSouth analyzed its planning data, conducted a mortality analysis, and used life analysis techniques that take into account technological substitution in determining the asset lives appropriate for use in the cost studies. He stated that BellSouth used economic lives in its cost studies consistent with those used to determine the depreciation rates currently being booked in North Carolina for intrastate and external reporting purposes. BellSouth also compared its proposed lives to the lives prescribed by the FCC for AT&T in 1994.

Witness Cunningham testified that using lives and future net salvage values within the FCC's ranges is not appropriate because the lives are too long and that most of the ranges were based on 1990-992 data that have not been updated. He opined that the "old regulatory paradigm" lengthened plant lives beyond their economic lives because an ILEC

would recover the investments over a longer period of time. According to witness Cunningham, rapid technology changes shorten asset lives and BellSouth does not believe that looking at the past can indicate what will happen in the future with equipment that is sensitive to rapid changes in technology.

In its Proposed Order, the Public Staff stated that the FCC conducts periodic reviews of the economic lives and salvage values applicable to ILECs. The most recent review was conducted in 1999 and the conclusions of the FCC are set forth in its December 17, 1999 order. In this order, the FCC modified the economic life range for digital switching equipment; dropping the current 16-year minimum to 12 years. The FCC commented that, with the exception of digital switching equipment, the recent ILEC retirement rates had either dropped or remained constant in recent years.

The Public Staff also stated that an FCC report on the depreciation reserves of ILECs, issued in October 2002, which found the January 1, 2002, BellSouth North Carolina book reserve to be 56.3% as compared with a theoretical reserve of 49.3%. The Public Staff commented that, for a capital intensive company experiencing “rapid technology changes,” these data contradict BellSouth’s position that economic lives used in determining depreciation rates are too long. The FCC also reaffirmed its conclusion that its authorized economic lives and salvage values are forward-looking and appropriate for use in UNE cost studies.

The Public Staff proposed that the reasonable and appropriate economic lives and future net salvage values for calculating depreciation rates for use in the cost studies continue to be those within the FCC-authorized ranges and approved by the Commission in the *First UNE Order* with the exception of digital switching, which should have a life of 12 that the economic lives and future net salvage values found appropriate in the *First UNE Order* continue, with one exception, to be reasonable and appropriate for determining the cost of providing UNEs and interconnection. As in the *First UNE Order*, the Public Staff believed that the FCC-authorized lives are sufficiently forward-looking and should enable BellSouth to recover the cost of its assets.

Further, the Public Staff noted that BellSouth’s Capital Cost Calculator model reflects economic lives for several software related intangible assets in Account 2690. The assets include General Purpose Software RTU, Network Circuit Software RTU, Network Software Other RTU, Network Switch Software RTU, and Operator Services Software RTU, all of which are software associated with various switching and circuit equipment that BellSouth is required to capitalize. BellSouth’s study reflects economic lives ranging from three to five years for these intangible assets. However, witness Cunningham proposed economic lives for the associated capital assets ranging from 4.5 to ten years. (Exhibit GDC-1) For example, the cost study reflects an economic life for Operator Service Software RTU of three years, while Operator Systems (Account 2220) has an economic life of ten years. The Public Staff suggested that one can find nothing in the testimony of witness Cunningham or BellSouth’s cost studies to explain or support its proposed

economic lives for these intangible assets.

The Public Staff stated that according to BellSouth witness Reid, BellSouth began booking Software Right-To-Use (RTU) as an intangible asset in 1999 to be amortized over a period of years instead of as an expense item. This change was in response to Statement of Position 98-1, Accounting for the Costs of Computer Software Developed or Obtained for Internal Use (SOP 98-1). It appears that in the cost study, BellSouth selected economic lives for Software Right-To-Use from three to five years. This issue is addressed neither in the testimony nor exhibits.

The Commission concurs with the Public Staff's position that one cannot from the evidence presented, determine that the economic lives used by BellSouth for Account 2690 in its cost study are cost-based and TELRIC-compliant. Accordingly, the Commission believes that the reasonable and appropriate economic lives and future net salvage values for calculating depreciation rates for use in the cost studies continue to be those within the FCC-authorized ranges and approved by the Commission in the *First UNE Order*. Additionally, because the FCC has altered the range of economic lives for digital switching since the *First UNE Order* and the Commission agrees that digital switching is subject to rapid technological change, the Commission believes it is appropriate to reduce the economic life for digital switching to 12 years.

Finally, the Commission recognizes that on August 21, 2003, the FCC released its TRO. The FCC stated

[w]e conclude that it is necessary to clarify the application of two components of TELRIC that have a major impact on UNE prices – cost of capital and depreciation. These two components of TELRIC are the primary vehicles by which any risks associated with the new facilities and new services may be reflected in UNE prices, and therefore it is appropriate to consider these issues in response to the question presented in the *Triennial Review NPRM*. We believe the guidance we provide below is responsive to the concerns raised by the parties and will assist states in their efforts to establish UNE prices that appropriately reflect these risks. (Paragraph 675)

The FCC specifically addresses depreciation in paragraphs 685 through 691 of the TRO.

The Commission recognizes that the issuance of the TRO may impact the decision on depreciation in this instant proceeding. Therefore, the Commission finds that it is appropriate to seek comments on the impact of the TRO on depreciation as reflected in the UNE rates for BellSouth, Carolina, Central, and Verizon. By separate Order the Commission will solicit comments on the impact of the TRO in this regard.

CONCLUSIONS

The Commission concludes that the reasonable and appropriate economic lives and future net salvage values for calculating depreciation rates for use in the cost studies continue to be those within the FCC-authorized ranges and approved by the Commission in the *First UNE Order* with the exception of digital switching, which should have a life of 12 years and that the software assets in Account 2690 should reflect the same economic lives as their associated capital assets.

The Commission will consider the potential impact of the FCC's TRO on depreciation as reflected in the UNE rates for BellSouth, Carolina, Central, and Verizon by soliciting comments in this regard by separate order.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 10

ISSUE NO. 10: What are the appropriate shared and common cost factors to use in calculating BellSouth's UNE rates?

POSITIONS OF PARTIES

BELLSOUTH: BellSouth's shared and common cost factors are reasonable and forward-looking, and should be adopted by the Commission.

AT&T/WORLDCOM: AT&T/WorldCom take no position regarding the appropriate shared and common cost factors to be applied. However, without taking a position, they did state in their brief that BellSouth's shared and common cost factors are acceptable.

PUBLIC STAFF: BellSouth's proposed shared and common cost factors, adjusted for the effects of changes to the annual cost factors, cost of capital, capital structure, depreciation rates, and effective tax rates, are reasonable and appropriate.

COVAD: Covad took no position on BellSouth's shared and common cost factors.

DEPARTMENT OF DEFENSE: The Department of Defense took no position on BellSouth's shared and common cost factors.

DISCUSSION

The Commission notes that shared costs are those costs specific to a service or product, but that are unaffected by change in demand or volume of any one service or the addition or removal of any service. Common costs are those that are incurred for the benefit of the entire firm, but not for the benefit of any individual product or family of products, such that they do not change when there is a change in the firm's product mix or volume of output. Previously, both the FCC and the Commission have recognized that an

ILEC's prices for interconnection and UNEs may include recovery for reasonable forward-looking common costs and incremental shared costs for facilities and operation. (*FCC Local Competition First Report and Order*, ¶ 682; *First UNE Order*.)

With regard to cost development for a UNE, shared and common cost factors are applied based on the amount and type of forward-looking investment required to provision the UNE. BellSouth witness Reid explained the shared and common cost model used by BellSouth to calculate the shared and common features applicable to the development of TELRIC economic costs for UNE. He stated that shared cost factors reflect the relationships of shared costs that have been attributed to an investment category to the related investment in that category. They are calculated "by determining the relationship, by investment type, between wholesale shared costs related to investment accounts and the associated network investment." Witness Reid stated that the common cost factor represents the relationship of wholesale common costs (excluding all retail-related common costs) to total direct and shared wholesale costs.

BellSouth's proposed cost factors result in an approximate 1% decrease in total wholesale shared and common costs since the UNE rates were first set by the Commission. No party other than BellSouth presented testimony on the appropriateness of BellSouth's proposed shared and common cost factors, and AT&T/WorldCom stated in their Brief that the cost factors are acceptable.

CONCLUSIONS

The Commission concludes that BellSouth's proposed shared and common cost factors, adjusted for the effects of changes to the annual cost factors, cost of capital, capital structure, depreciation rates, and effective tax rates, are reasonable and appropriate. The Commission further concludes that BellSouth should revise its shared and common cost factors to the extent necessary to reflect any modifications ordered herein regarding the underlying factors included in the calculations of the shared and common cost factors.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 11

ISSUE NO. 11: Is it appropriate to decrease UNE rates based on AT&T's/WorldCom's forecasted "growth" adjustment?

POSITIONS OF PARTIES

BELLSOUTH: No. BSTLM's use of current customer base, services sold and roads provides the best and most accurate basis to estimate the forward-looking costs of BellSouth's UNEs and complies with all FCC rules regarding TELRIC development. No BellSouth state has adjusted the BSTLM for growth.

AT&T/WORLDCOM: UNE rates should be decreased to account for BellSouth's failure to appropriately account for growth in its cost models.

COVAD: Covad did not address this issue in its Post-Hearing Brief.

DEPARTMENT OF DEFENSE: The Department of Defense did not address this issue in its Post-Hearing Brief.

PUBLIC STAFF: It is not appropriate to decrease UNE rates based on AT&T/WorldCom's forecasted "growth" adjustment.

DISCUSSION

BellSouth stated in its Brief that the BSTLM constructs a forward-looking, optimal network to meet current demand and the resulting network investment is then "unitized" based on that same demand. This is logical and consistent with the FCC's TELRIC pricing rules. However, the resulting network has capacity only guaranteed to meet the demand of today. What witness Pitkin fails to admit is that as growth and demand occurs, the network investment will grow. BellSouth noted that as witness Stegeman demonstrated when updated line data (with increased demand) was used in the forward-looking BSTLM with the corresponding updated customer locations and roads, the per line cost did not change, since there was a corresponding increase in the network routing and plant requirements as a result of the demand growth.

BellSouth commented that witness Pitkin erroneously asserted that the network built by the BSTLM to meet the demand requirements reflected in the June 2000 BellSouth customer file has "sufficient capacity to accommodate a certain amount of customer growth" and therefore the cost of the BSTLM's network should be divided by future demand. As witness Stegeman noted, the BSTLM, like all forward-looking models, builds a network optimized to meet the demand of the customer base taken as a snapshot in time. The network is sized appropriately and optimally to provide service to these customers with the assumption that the network was built today to meet this demand. BSTLM does not guarantee that facilities will exist for future demand. While there may be spare distribution pairs or feeder distribution interface connectors, there are no algorithms in the model that build fully functioning circuits for an unknown growth in the customer base. The model does not build down roads that are to be newly-built three years from now. It does not place drops to and network interface devices on yet-to-be-constructed homes. BellSouth asserted that to assume that BSTLM's network is not only built to meet current demand, but also has all the facilities to serve the future is simply incorrect.

BellSouth stated that the use of future line counts is not required or even beneficial in developing TELRIC-compliant UNE rates. Neither the Act nor the FCC's pricing rules lay out a clear definition of what line counts or customer locations should be used in a forward-looking model. Section 51.505 of the FCC's rules sets forth the rules to calculate

the costs of a network element. This section states that the cost should be derived using the “total quantity of facilities” considering the “provision of other elements.” BellSouth argued that is exactly what the BSTLM constructed and costed out based on the filed customer data. BellSouth stated that the FCC’s rule does not state that projected future demand should be used in the development of costs.

BellSouth noted that witness Pitkin cited paragraph 682 of the FCC’s *First Report and Order* as support for his position that projected demand be considered in the cost development of loops. That paragraph describes how fill factors should be considered in a TELRIC analysis and does not speak to or even imply that projected demand must be entered into the proxy model that is used to develop loop costs. Additionally, BellSouth stated that its use of multiple scenarios and resulting costs considers all of the potential demand of each type of unbundled loop element. Thus, the full hypothetical economic efficiency of the network is realized, which results in a conservative estimate of UNE costs.

BellSouth stated that section 51.511 of the FCC’s rules refers to the calculation of per unit costs, including the use of a “reasonable projection” of the units likely to be used “during a reasonable measuring period”. As witness Stegeman stated, the reasonable development of costs should synchronize the demand with the locations, roads, and network requirements so that the forward-looking costs are accurate. Given that the only synchronized data set in this proceeding is the BellSouth-provided BSTLM input data, the FCC’s standard has been met, because this is the data from a “reasonable measuring period”. As far as including a “reasonable projection” of competitive use of BellSouth’s facilities, BellSouth, in its runs of BSTLM, assumes that all lines will be used as UNEs. BellSouth pointed out that this assumption, in fact, assumes greater UNE utilization than will occur in the near future and effectively reduces the unit cost since it assumes full efficiency.

In summary, BellSouth stated that the use of the current customer base, services sold, and roads provides the best and most accurate basis to estimate the forward-looking costs of BellSouth’s UNEs and is compliant with all FCC rules regarding TELRIC development. Furthermore, BellSouth commented that in the six states where the BSTLM has been filed to support UNE rates and the state commission has issued an order, none of those states adjusted the BSTLM output to account for “growth.”

AT&T/WorldCom stated in their Proposed Order that BellSouth’s cost methodology allows it to over-recover its costs on every single loop-related UNE. This is because BellSouth’s so-called “current” per-line loop costs are based on BellSouth’s second quarter 2000 line count data, which substantially understates the number of BellSouth lines as of today. Logically, understated line counts understate the economies of scale by failing to recover the cost of the telecommunications network from all of the customer demand on that network. AT&T/WorldCom argued that because line counts are understated, loop costs are overstated.

AT&T/WorldCom commented that in many other industries, greater economies of scale and scope are experienced by sheer volume. Large companies experience two forms of economies of scale that allow them to sell products at much lower per-unit costs. First, they have significant purchasing power because they are able to purchase products in large quantities (such as BellSouth's purchasing power for telecommunications equipment). Second, they have very high sales volume and thus, each piece of merchandise pays a much smaller portion of the fixed costs (such as land and buildings). AT&T/WorldCom stated that by failing to reflect the full amount of demand currently for its network, BellSouth vastly overstates its per-unit cost of loops.

AT&T/WorldCom stated that forward-looking projections are part and parcel of establishing forward-looking economic costs as required by the FCC. Moreover, investments generated by BellSouth's model include sufficient capacity to accommodate a certain amount of customer growth. AT&T/WorldCom alleged that the model assumes a three year planning horizon from 2002–2004 and provides sufficient capacity to meet increases in demand. Accordingly, AT&T/WorldCom argued that BellSouth's model should reflect the recovery of these investments from all customers using the network during this time, not just the lower number of customers at the beginning of the planning horizon. Otherwise, in determining cost per line, there is a significant mismatch between the numerator of the cost per line (which reflects investment large enough to accommodate line growth) and the denominator (which ignores line growth). AT&T/WorldCom alleged that the resulting cost per line is too high for today's customers because it includes more investment than is necessary to serve today's customers and it is too high for customers in years two and three because it fails to take into account the higher number of customers that will be served by this investment in years two and three.

In its Proposed Order, the Public Staff stated that it agrees with witness Caldwell that AT&T/WorldCom's adjustments to reflect line growth are arbitrary. Rather, the Public Staff commented that it believes neither future customers nor the facilities intended to serve them should be reflected in BellSouth's cost study. The Public Staff stated that it is satisfied that BellSouth's model, with the inputs recommended by the Public Staff, adequately captures economies of scale in the network and will result in appropriate cost recovery.

Based on the evidence presented, the Commission finds it appropriate to reject AT&T/WorldCom's adjustments to reflect line growth. The Commission agrees with BellSouth and the Public Staff that such adjustments are arbitrary. The Commission notes that witness Caldwell contended that additional costs are required to support additional demand. Thus, she maintained that witness Pitkin's growth adjustment is inappropriate absent a further adjustment for the added costs associated with the growth.

Additionally, the Commission notes that witness Stegeman demonstrated, when updated line data (with increased demand) was used in the forward-looking BSTLM with the corresponding updated customer locations and roads, the per line cost did not change,

since there was a corresponding increase in the network routing and plant requirements as a result of the demand growth. Further, BellSouth noted that in the six states where the BSTLM has been filed to support UNE rates and the state commission has issued an order, none of those states adjusted the BSTLM output to account for “growth”.

CONCLUSIONS

The Commission concludes that it is not appropriate to decrease UNE rates based on AT&T/WorldCom’s forecasted “growth” adjustment.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 12

ISSUE NO. 12: What is the appropriate application of the Commission’s previously ordered geographic deaveraging methodology to the UNE loop costs produced by the BSTLM?

POSITIONS OF PARTIES

BELLSOUTH: BellSouth maintained that the Commission should approve BellSouth’s application of the deaveraging methodology adopted by the Commission in its *December 11, 2001 Order*³⁶ in this docket.

AT&T/WORLDCOM: AT&T/WorldCom stated that they take no position regarding the appropriate application of the Commission’s previously ordered geographic deaveraging methodology.

COVAD: Covad did not take a specific position on this issue.

DEPARTMENT OF DEFENSE: The Department of Defense maintained that UNE charges for each of the three pricing zones should be determined by ranking the costs for wire centers from lowest to highest cost. The Department of Defense asserted that rankings should be based on total recurring costs, i.e., monthly costs, and not investment costs. The Department of Defense asserted that wire centers with total recurring costs less than 115% of the statewide average should be included in Zone 1; wire centers with total recurring costs between 115% and 160% of the statewide average should be included in Zone 2; and wire centers with total recurring costs greater than 160% of the statewide average should be included in Zone 3. The Department of Defense asserted that this procedure should enable UNE charges to track geographical cost variations for local loops quite well. The Department of Defense also stated that the procedure appears to follow generally the method prescribed by the Commission in its March 2001 Notice concerning UNEs. The Department of Defense noted that while adhering closely to the disaggregation

³⁶ *Order Finalizing Deaveraged UNE Rates and Denying ALLTEL’s Motion to Deaverage Nonrecurring Rates* issued on December 11, 2001 (*December 11, 2001 Order*).

methodology prescribed previously, BellSouth has made some improvements. The Department of Defense urged the Commission to adopt the approach that most accurately portrays cost variations among the different types of areas in North Carolina. The Department of Defense maintained that if charges do not match the extent of cost variations, either subscribers in urban areas or subscribers in rural areas will be penalized.

PUBLIC STAFF: The Public Staff asserted that BellSouth should continue to group its wire centers and calculate the rates for the geographic zones as determined in the Commission's *December 11, 2001 Order* in this docket.

DISCUSSION

BellSouth witness Ruscilli stated in direct testimony that the deaveraging methodology used by BellSouth follows the methodology adopted by the Commission in its *December 11, 2001 Order* in this docket. Witness Ruscilli explained that the *December 11, 2001 Order* determined that wire centers should be grouped into zones as follows:

Zone 1 – All wire centers with loop investment of up to 115% of the statewide average.

Zone 2 – All wire centers with loop investment above 115% and up to 160% of the statewide average.

Zone 3 – All wire centers with loop investment above 160% of the statewide average.

Witness Ruscilli stated that in order to develop the geographically deaveraged loop rates proposed by BellSouth in this proceeding, BellSouth considered the percentages as outlined above to establish which wire centers belong in each of the three zones. However, witness Ruscilli noted, the percentages were based on loop cost by wire center rather than being based on loop investment by wire center.

Witness Ruscilli maintained that the Commission's *Recommended Order Concerning Geographic Deaveraging* issued on March 15, 2001 required that the percentages be based on UNE costs. Witness Ruscilli noted that in its Exceptions to the Commission's *Order*, BellSouth explained that it was not able, at that time, to develop the deaveraging factors based on loop costs, because the BCPM produced investments at the wire center level. Witness Ruscilli noted that BellSouth's current model, the BSTLM-CP, is able to develop monthly costs at the wire center level. Witness Ruscilli stated that this method of developing the deaveraged costs is consistent with what other state commissions in BellSouth's region have ordered when deaveraging by wire center and using the BSTLM-CP, and prior versions of the model, to develop the loop costs. Witness Ruscilli noted that witness Caldwell's Exhibit DDC-4 illustrates the results for a Service

Level (SL) 1 loop and displays the mapping of the wire center into the three zones that BellSouth proposes.

Witness Ruscilli noted that his Exhibit JAR-2 provides a list of the wire centers in each UNE zone resulting from BellSouth's application of the Commission's geographic deaveraging methodology. Witness Ruscilli stated that in the cases where a wire center has moved into a different zone, that change is indicated on the exhibit. Witness Ruscilli remarked that when such a change occurred, in all but two cases, the wire centers moved from a higher cost zone to a lower cost zone.

In his supplemental direct testimony, witness Ruscilli stated that to develop the deaveraged rates shown on Exhibit JAR-3, BellSouth started with the statewide average loop costs and applied the deaveraging factors that resulted from the Commission's approval of BellSouth's deaveraged rates in its *April 5, 2002 Order*. Witness Ruscilli noted that those deaveraging factors are as follows:

Zone 1 – 75.81%
Zone 2 – 134.37%
Zone 3 – 213.90%

Witness Ruscilli argued that BellSouth believes that the methodology used to develop the deaveraged rates as shown on Exhibit JAR-1 is more appropriate and comports with the Commission's previous orders establishing the geographic deaveraging methodology. Witness Ruscilli explained that to develop the deaveraged rates on Exhibit JAR-1, the wire centers were ranked from lowest cost to highest cost, and the Commission-ordered break-points were applied to determine which wire centers would be in each of the zones. Witness Ruscilli stated that this application of the Commission's geographic deaveraging methodology resulted in 30 wire centers changing zones when compared to the current wire center designations. Witness Ruscilli noted that 28 of those moves were from a higher priced zone to a lower priced zone.

Witness Ruscilli stated that BellSouth considers the Commission's establishment of specific break-points to be the ultimate guide in deaveraging costs. Witness Ruscilli noted that obviously, if the Commission had chosen different break-points, the deaveraging factors would be different. Witness Ruscilli commented that given the Commission's prior decision to begin its deaveraging methodology by ranking the wire centers from the lowest cost to the highest cost, BellSouth contends that the more appropriate way to deaverage the statewide costs is as proposed in BellSouth's June 10, 2002 filing of witness Ruscilli's direct testimony in which wire center costs are ranked from lowest to highest, the Commission-ordered break-points are applied, and zone-specific rates are calculated.

On July 31, 2002, the Commission issued its *Order Granting, in Part, the Public Staff's Motion to Require BellSouth to Re-File Cost Study and Proposed Rates*. In the *Order*, the Commission required BellSouth to file a cost study and resulting rates to reflect

the Commission's previous decisions on geographic deaveraging, among other issues. The Public Staff had noted in its Motion that BellSouth did not reflect the geographic deaveraging methodology approved by the Commission and that BellSouth's changes substantially altered the assignment of wire centers to geographic zones as adopted by the Commission in its *April 5, 2002 Order*.

In response to the *July 31, 2002 Order*, witness Ruscilli filed Supplemental Direct Testimony on August 12, 2002 to reflect the changes introduced by witness Caldwell in BellSouth's proposed deaveraging methodology. Revised Exhibit JAR-3 was filed to reflect the changes in the cost study supported by witness Caldwell.

In rebuttal testimony, witness Ruscilli commented that BellSouth's application of the deaveraging methodology differs from the Public Staff's proposal. Witness Ruscilli stated that none of the CLP witnesses stated an opinion or a preference for how the statewide average loop costs should be deaveraged. Witness Ruscilli maintained that, although it is clear that witness Pitkin did not develop his proposed deaveraged costs by applying the current deaveraging factors to the statewide average costs, BellSouth has not been able to determine exactly how witness Pitkin developed the deaveraged costs he proposed.

Witness Ruscilli stated that BellSouth urges the Commission to approve BellSouth's application of the deaveraging methodology previously approved by the Commission in its *December 11, 2001 Order*. Witness Ruscilli noted that the actual deaveraging should be dependent on the break-points that the Commission established, because the break-points ultimately determine to which zone each wire center is mapped. Witness Ruscilli argued that there is nothing magic about the deaveraging factors that resulted from the mapping that was done in Phase I of this proceeding.

Witness Ruscilli commented that it is reasonable to assume that, when a new cost study is done, some wire centers will move from one zone to another. Witness Ruscilli argued that as shown on Revised Exhibit JAR-2, BellSouth's application of the Commission's deaveraging methodology to the new cost study results in 32 wire centers moving to a different zone; however, all but two of the moves were from a higher cost zone to a lower cost zone.

Witness Ruscilli maintained that if the current wire center to zone designations were maintained and applied to the new cost study, the SL1 loop costs by wire center in Zone 1 as expressed as a percent of the statewide average cost would range from 64.7% to 194.2%, the costs in Zone 2 would range from 124.9% to 245.2%, and the costs in Zone 3 would range from 189.3% to 484.3%. Witness Ruscilli stated that this result obviously does not comport with the zone grouping break-points established by the Commission in Phase I of this docket.

Witness Ruscilli stated that given the Commission's prior decision to begin its deaveraging methodology by ranking the wire centers from lowest cost to highest cost, the

more appropriate way to deaverage the state-wide costs is to rank the wire center costs from lowest to highest, apply the Commission-ordered break-points, and calculate the zone-specific rates.

BellSouth witness Caldwell stated in direct testimony that BellSouth followed the wire center based methodology previously ordered by the Commission. Witness Caldwell maintained that as the Commission determined, only loops and local channels possess attributes that reflect geographic cost differences and, thus only loops and local channels below DS3 transmission rates should be deaveraged. Witness Caldwell asserted that other UNEs either do not display the same level of cost variation by geographic location or have price structures that already account for geographic cost differences. Witness Caldwell noted that subloops and combinations that have a loop as a component also should be deaveraged since they also reflect cost variations by geographic area.

Witness Caldwell asserted that the same basic geographic deaveraging process the Commission used previously was employed to calculate zone rates. However, witness Caldwell explained that there are a few differences. Witness Caldwell stated that use of an external model is no longer required for deaveraging because BellSouth can now determine loop costs at the wire center level using the BSTLM-CP. Another difference witness Caldwell noted was the BSTLM-CP cannot currently produce per loop investments at the wire center level; therefore, rankings are based upon costs rather than on investments. Witness Caldwell stated that BellSouth ranked the BSTLM-CP's wire center level results and compared them to the statewide average costs. Witness Caldwell noted that if the wire center level cost is less than 115% of the statewide average then it is placed in Zone 1; 115%-160% in Zone 2; and greater than 160% in Zone 3. Witness Caldwell commented that her Exhibit DDC-4 illustrates this exercise for a SL1 loop and displays the mapping of the wire centers into the three zones that BellSouth proposes. Witness Caldwell noted that the results are reflected in the rate sheet attached to witness Ruscilli's testimony.

BellSouth urged in its Brief that the Commission approve BellSouth's application of the deaveraging methodology the Commission has previously approved in its *December 11, 2001 Order*. BellSouth argued that none of the CLP witnesses stated an opinion or a preference for how the statewide average loop cost should be deaveraged. BellSouth noted that as witness Ruscilli described in his prefiled testimony, the Commission's establishment of specific break-points should be the ultimate guide in deaveraging costs.

BellSouth maintained that it is reasonable to assume that when a new cost study is performed some wire centers will move from one zone to another. BellSouth stated that as shown on revised Exhibit JAR-2 attached to witness Ruscilli's October 1, 2002 prefiled testimony, BellSouth's application of the Commission's deaveraging methodology to the new cost study resulted in 32 wire centers moving to a different zone; however, all but two

of the moves were from the higher cost zone to a lower cost zone – a development that benefits the CLPs.

BellSouth asserted that if the current wire center-to-zone designations were maintained and applied to the new cost study, the SL1 loop costs by wire center in Zone 1 expressed as a percentage of the statewide average cost would range from 39.5% to 118.6%; the costs in Zone 2 would range from 76.3% to 149.7%; and the costs in Zone 3 would range from 115.6% to 295.7%. BellSouth argued that this result obviously does not comport with the zone grouping break-points established by the Commission in phase one of this docket.

BellSouth stated that given the Commission's prior decision to begin its deaveraging methodology by ranking the wire centers from lowest cost to highest cost, the more appropriate way to deaverage the statewide costs is to rank the wire center costs from lowest to highest, apply the Commission-ordered break-points, and calculate the zone-specific rates. BellSouth noted that the deaveraged rates that result from BellSouth's proposal are shown in Revised Exhibit JAR-1, attached to witness Ruscilli's October 1, 2002 testimony.

The Department of Defense witness Gildea stated in direct testimony that he believes that BellSouth's disaggregation procedure should be adopted. Witness Gildea noted that the procedure should enable UNE charges to track geographical cost variations for local loops reasonably well. Moreover, witness Gildea asserted, the procedure appears to follow generally the method prescribed by the Commission in its March 15, 2001 *Recommended Order Concerning Geographic Deaveraging* in this docket concerning UNEs. Witness Gildea commented that while adhering closely to the disaggregation methodology prescribed previously, BellSouth has made some improvements. Witness Gildea stated that, for example, BellSouth no longer relies on a cost proxy approach, but determines loop costs at the wire center level through a more direct method. Also, witness Gildea stated, BellSouth is basing the disaggregation on loop costs rather than loop investments. Witness Gildea stated that rankings by cost may be different from rankings by investment, since the former may also reflect costs that are not investment sensitive. Therefore, witness Gildea concluded, incremental costs are more appropriate than incremental investments as a basis for recurring UNE charges.

The Public Staff noted in its Proposed Order that according to BellSouth witness Ruscilli, BellSouth used the deaveraging methodology adopted by the Commission in its *December 11, 2001 Order* in this docket. The Public Staff noted that witness Ruscilli stated that in BellSouth's original filing in this proceeding, BellSouth grouped wire centers based on loop cost by wire center rather than on loop investment by wire center. The Public Staff stated that witness Ruscilli explained that at the time of the initial deaveraging order, BellSouth's loop model was able to produce investment but not costs at the wire center level, whereas BellSouth's new loop model can now develop costs at the wire center level.

The Public Staff maintained that when the Commission initiated this proceeding, it stated that nonrelevant policy issues would not be considered. The Public Staff argued that whether to group wire centers based on loop investment or loop cost is such an issue. Further, the Public Staff opined, if the Commission were to approve BellSouth's methodology for deaveraging, other companies not party to this proceeding could also be affected. The Public Staff asserted that the Commission has already conducted extensive proceedings on deaveraging, and the Public Staff believes that it is neither necessary nor appropriate to revisit this issue in this proceeding. The Public Staff recommended that the Commission conclude that BellSouth should continue to group its wire centers and calculate the rates for the geographic zones as determined in the *December 11, 2001 Order* in this docket.

The Commission believes it is helpful to fully outline the background on geographic deaveraging. On March 15, 2001, the Commission issued its *Recommended Order Concerning Geographic Deaveraging*. In its *Order*, the Commission found that the State should be broken up into geographic zones which should be established at the wire center level by grouping wire centers. The Commission further found that each ILEC should divide up its service territory into Zones based on the following bands:

Zone 1 – All wire centers with **UNE costs** of 115% or less of the statewide average for that UNE.

Zone 2 – All wire centers with **UNE costs** of 115% to 160% of the statewide average for that UNE.

Zone 3 – All wire centers with **UNE costs** of 160% or greater of the statewide average for that UNE.

Parties filed Motions for Reconsideration of the March 15, 2001 *Recommended Order* and on August 7, 2001, the Commission issued its *Order Addressing Exceptions Filed to Recommended Order Concerning Geographic Deaveraging*. In the *August 7, 2001 Order*, the Commission found it appropriate to alter its *Recommended Order* to recognize the limitations of the ILECs' cost models by allowing BellSouth, Carolina, Central, and Verizon to assign wire centers to rate zones based on **loop investment** instead of cost at the wire center level, creating a single set of three rate zones. Further, the Commission clarified the break point for zones in order to correct the overlap. Therefore, the following Zones were established:

Zone 1 – All wire centers with **loop investment** of up to 115% of the statewide average.

Zone 2 – All wire centers with **loop investment** above 115% and up to 160% of the statewide average.

Zone 3 – All wire centers with loop investment above 160% of the statewide average.

On December 11, 2001, the Commission issued its *Order Finalizing Deaveraged UNE Rates and Denying ALLTEL's Motion to Deaverage Nonrecurring Rates*. The Commission instructed the Companies to make various revisions to their cost studies in order for them to be in compliance with the Commission's *March 15, 2001 Order* and *August 7, 2001 Order*. By Order dated April 5, 2002, the Commission found that:

- (1) the deaveraged UNE rates produced from the cost study filed on December 14, 2001 by BellSouth are the final, permanent deaveraged UNE rates for BellSouth;
- (2) the deaveraged UNE rates produced from the cost study filed on February 26, 2002 by Sprint are the final, permanent deaveraged UNE rates for Sprint;
- (3) the deaveraged UNE rates produced from the cost study filed on March 5, 2002 by Verizon are the final, permanent deaveraged UNE rates for Verizon; and
- (4) the effective date of the deaveraged UNE rates was December 11, 2001.

The Commission notes that the *March 15, 2001 Recommended Order* was subsequently altered based on representations made by BellSouth that its then-current cost model could not determine UNE cost by wire center. Therefore, the Commission's *August 7, 2001 Order Addressing Exceptions Filed to Recommended Order Concerning Geographic Deaveraging* required BellSouth, Carolina, Central, and Verizon to assign wire centers to rate zones based on loop investment instead of cost at the wire center level. In this proceeding, BellSouth now states that its BSTLM can determine UNE cost at the wire center level, as originally ordered by the Commission.

The Commission finds it appropriate to require BellSouth to reflect the Commission's original decision on the appropriate geographic deaveraging methodology as expressed in the Commission's *March 15, 2001 Recommended Order Concerning Geographic Deaveraging*. The only reason the Commission altered its original decision on this issue was due to the fact that BellSouth's previous cost models could not deaverage based on cost at the wire center level. Since BellSouth's new model, the BSTLM-CP, can deaverage based on cost at the wire center level, the Commission finds it appropriate to require BellSouth to deaverage based on cost. The Commission notes that it will explore and address this issue as it relates to Sprint's and Verizon's deaveraging methodology by separate order.

CONCLUSIONS

The Commission concludes that BellSouth should reflect the Commission's original decision on the appropriate geographic deaveraging methodology based on cost at the wire center level as expressed in the Commission's March 15, 2001 *Recommended Order Concerning Geographic Deaveraging*. The Commission will explore and address this issue as it relates to Sprint's and Verizon's deaveraging methodology by separate order.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 13

ISSUE NO. 13: Are AT&T/WorldCom's proposed adjustments to BellSouth's switching cost study appropriate?

POSITIONS OF PARTIES

BELLSOUTH: BellSouth asserted that its switching cost studies accurately calculated the cost of unbundled local switching and its "features per port" cost element, among other things.

AT&T/WORLDCOM: AT&T/WorldCom argued that the appropriate new switch discount for input into the Switching Cost Information System/Model Office (SCIS/MO) should be computed based upon comparing BellSouth's manufacturer billed data for its switch material, vendor engineering, and installation costs to the SCIS/MO output for vendor engineered, furnished and installed switch prices. The melded discount should include a greater amount of the new discount than what BellSouth used in its cost study. The getting started cost and Equivalent POTS Half Calls (EPHC) investment should be assigned to the ports. The feature rate should be zero because the composite feature cost study BellSouth relies upon is fatally flawed and all of the additional costs unique to features have been or are recovered in other switch rate elements.

COVAD: Covad did not specifically address this issue in its Post-Hearing Brief.

DEPARTMENT OF DEFENSE: The Department of Defense stated that BellSouth's proposed pricing plan for switch features is anticompetitive. A bundled structure is not efficient because competitors would be forced to pay for extra services. The Department of Defense urged the Commission to rule consistently with prior findings on this issue and establish individual rates for each feature.

PUBLIC STAFF: The Public Staff took the position that the switching costs proposed by BellSouth, subject to certain modifications and adjustments, are reasonable and appropriate for determining the rates associated with providing unbundled switching. Vertical features should be unbundled and priced separately from the local switch. However, BellSouth may also offer combined vertical features in a bundled package.

DISCUSSION

BellSouth witness Shell and AT&T/WorldCom witness Pitts testified on the inputs and cost study methodology used to develop investment or costs associated with unbundled switch-related elements. BellSouth witness Ruscilli and Department of Defense witness Gildea testified on the vertical feature issue.

BellSouth witness Shell testified that BellSouth developed switching material prices in a two step process. In the first step, BellSouth used Telecordia's SCIS/MO model to determine fundamental switching investments, just as it did in the previous UNE proceeding. Witness Shell stated that because switches perform a number of functions, a sophisticated model like SCIS/MO is required to determine the fundamental unit switch investments associated with each function. According to his testimony, an important aspect of SCIS/MO is that it used a "bottoms-up" approach to costing and is based on vendor engineering specifications and vendor pricing. BellSouth noted that although Telecordia works with the switch vendors to incorporate the correct engineering algorithms and appropriate list prices for switching equipment into the model, BellSouth is responsible for populating the model with the correct inputs.

In order to develop the switching costs using the SCIS/MO, witness Shell explained that input information is entered for each digital switch in North Carolina. He testified that SCIS/MO contains a material price table that includes the switch vendor's list price for various switch equipment items. For each item, witness Shell explained that SCIS/MO allows the user to input one discount off the list price. According to witness Shell, switches are normally purchased with sufficient capacity to serve the current demand plus two years of growth. This initial purchase is considered "new" or "replacement". Equipment purchased to serve additional demand is considered "growth". Since switch vendors typically establish higher discounts on new/replacement switching equipment and lower discounts on growth equipment, witness Shell testified that BellSouth used the new/replacement discount for the initial purchase items and used a melded new/replacement and growth discount for items that could be purchased both initially and to serve additional demand in existing switches. To determine the initial discount, BellSouth used actual new/replacement switch orders placed under BellSouth's current switch contracts. To determine the melded new/replacement and growth discount, BellSouth used percentages based on the number of lines projected to be purchased at the new/replacement discount rate and the growth discount rate to meld a discount rate for each switch type. Witness Shell testified that it is appropriate to use a melded new/replacement and growth discount to calculate switching investment costs. He stated that the FCC clearly intended for ILECs to use the costs that they may reasonably expect to incur on a going-forward basis. Because BellSouth expects to add capacity to existing switches, witness Shell believed it was appropriate to reflect the lower discount for growth investment in the price for switching, which he also contended is consistent with real-world concepts. Witness Shell testified that the basic material prices from the SCIS/MO determined by BellSouth in this proceeding are lower than the material prices in the last

UNE proceeding, because the discount BellSouth has negotiated with its switch vendors has increased. He believed the downward trend in switching cost is reasonable and appropriate given the change in switching architecture and price levels over the past several years.

In step two of the process to develop switching investment or costs, witness Shell testified that BellSouth employed a new, internally developed cost model. This new model, named the Simplified Switching Tool (SST), identifies which of the basic switching functions are used or required by each switch-related network element and any additional investment unique to each such element. BellSouth used the SST model to determine the investment cost or UNE material prices for individual exchange ports, local usage elements, and the composite vertical features. Witness Shell testified that the SST replaced Telecordia's Switching Cost Information System/Intelligent Network (SCIS/IN) and BellSouth's Switched Network Calculator (SNC) models used in the previous UNE study. According to his testimony, BellSouth had developed the SST model as an outgrowth of its desire to improve its cost modeling in terms of methodology and operational efficiency. Unlike the SCIS/IN, the SST model is inherently open, available for public inspection and use, and also provides the flexibility to add or change elements in a matter of hours.

In his testimony, witness Shell also described how BellSouth used the SST model to determine the investment or UNE material price for the composite vertical features. In this proceeding, BellSouth proposed a composite features per port rate of \$2.33 for access to all available vertical features. He explained that because BellSouth has no way of knowing exactly how many or which features a CLP's customers will use, BellSouth developed a composite vertical feature, or "feature per port" cost by projecting an average amount of feature usage. According to witness Shell, in order to obtain average busy hour usage data, a representative group consisting of 56 features was analyzed to enable BellSouth to determine which switch resources are required to process the feature calls. The next step was to consider that the typical end user customer utilizes a certain number of features. Multiplying the average busy hour demand by the number of features per average user yielded the average busy hour features calls per line for input to the SST. A feature specific hardware study was performed to provide input values to the SST, which requires the average busy hour investment in feature specific hardware per CCS (hundred call seconds) of use. Witness Shell testified that the objective was to produce a single cost number, for pricing purposes, which is representative of all major types of switch hardware used for features.

The Commission notes that BellSouth made a supplemental filing on August 12, 2002 that contained proposed rates for individual vertical features, pursuant to the Commission Order dated July 31, 2002 in this docket. The individual vertical feature rates were developed by BellSouth using the SCIS/IN model to calculate the investments of individual features, since the SST is evidently not currently capable of calculating individual vertical feature costs.

AT&T/WorldCom witness Pitts raised several issues to dispute BellSouth's determination of switch-related investments or costs. In general, witness Pitts testified that BellSouth used cost methodologies that overstate the price BellSouth pays for switching equipment, improperly attributed fixed and port-related costs to minute of use and feature rate elements, and relied on unsupported or illogical assumptions. Witness Pitts recommended changes to switch investment, which in conjunction with other changes regarding loading factors, expense factors, and annual cost factors, were used to calculate AT&T/WorldCom's proposed UNE switch rates presented by witness Pitkin. Witness Pitts also recommended that the composite feature cost element, as well as any vertical feature element, should be zero.

Witness Pitts testified that there are two major errors in BellSouth's determination of switch prices. First, she stated that BellSouth used incorrect new switch prices that do not reflect the prices BellSouth claims it pays for new switches. According to her testimony, when the discount that BellSouth calculated for new switch purchases is used as an input in SCIS/MO, the model calculates total switch investments much higher than the actual purchase prices BellSouth paid according to the same workpapers BellSouth used to derive the discount. In rebuttal, BellSouth witness Shell testified that witness Pitts was wrong because witness Pitts used the wrong data in BellSouth's workpapers. According to witness Shell, the purpose of BellSouth's calculation was to determine the discount for the material, not the total engineered, furnished, and installed (EF&I) investment. Nevertheless, witness Shell testified that the total switch investments calculated by the model for all the new or replacement jobs is actually less than the actual purchase price BellSouth paid for the same switch jobs as shown on the same workpapers used by witness Pitts. In addition, witness Shell stated that the engineering and installation investments used in the investment tables in SCIS/MO came from the vendors. Therefore, witness Shell contended that BellSouth's derivation of the new switch discount should be accepted as the appropriate methodology.

Second, witness Pitts testified that BellSouth also erred in its determination of switch prices because the melded price is composed of mostly growth equipment which has a lower discount and thus a higher price, rather than new/replacement switch equipment. According to her testimony, BellSouth only looked at a snapshot of switch purchases over three particular years which caused it to be an embedded analysis, as opposed to forward-looking. Further, she testified that BellSouth should have assumed new switches are purchased today to serve current demand and include forecasted growth based on reasonably foreseeable demand. In rebuttal, BellSouth witness Shell pointed out that melding new and growth discounts for switches was approved by this Commission in the first UNE proceeding and by the FCC in the *GA/LA II* and *Five State 271 Orders*. Moreover, witness Shell testified that BellSouth's methodology for deriving the melded discounts was based on actual switch purchases, as opposed to witness Shell's methodology of relying on projected and hypothetical assumptions, and reflects the rate that BellSouth will pay on a going-forward basis.

AT&T/WorldCom witness Pitts also contended that BellSouth improperly attributed and allocated fixed costs that are port-related to minutes of use and features rate elements. In her testimony, witness Pitts explained that “getting started” investment costs are the costs associated with the central computer processor and other start-up equipment in the switch that is purchased when the switch is first installed. She also explained that the EPHC cost category captures investment in common equipment in the switch module of the Lucent 5ESS switch. Based upon an examination of Telecordia’s User Guide and the switch processor fill factors used in BellSouth’s switch cost study, witness Pitts argued that these cost categories are fixed and incurred due to port exhaust, as opposed to processor limitations or call traffic, and should be assigned to the ports.

In rebuttal on this issue, BellSouth witness Shell testified that BellSouth appropriately assigned the SCIS/MO outputs for the getting started investment and EPHC to the minutes of use and feature elements. He argued that such investment is driven by usage volumes and the amount of lines or trunks is only relevant as it pertains to the amount of usage created. Witness Shell contended that it is not appropriate to use the process utilization factor referred to by witness Pitts to support a statement that the switch processors are underutilized because it does not represent the literal processor fill. Witness Shell also testified that allocating the getting started investment based on the machine call capacity is consistent with Telecordia’s 5ESS User Guide as well as the guide for Nortel Digital Multiplex System (DMS) switches. Witness Shell explained that the SCIS/MO produced output for the getting started investment in terms of milliseconds and for the switching module in terms of half calls, which are both usage-related items. Further, witness Shell commented that the SCIS/MO User Guide states that machine call processing capacity is normally the first to reach exhaust. Since usage and feature demand impact call processing, which drives the investments for the getting started and switching module equipment, witness Shell believed that it is only appropriate that the investments are assigned to minutes of use and feature elements.

AT&T WorldCom witness Pitts also testified that BellSouth’s vertical features cost study is flawed for several reasons. First, as discussed above, she believed that BellSouth had misallocated the getting started and EPHC costs. In addition, she testified that although BellSouth’s composite vertical feature cost purportedly represents an average of all vertical features that are provisioned on an average subscriber port that orders features, she contended that it is meaningless to attempt to derive a theoretical average feature cost for an average subscriber when none exists. She also testified that BellSouth’s theoretical average composite feature cost study made numerous incorrect estimates concerning the number, types, and usage of features on an average customer line. For example, she testified that BellSouth had admitted that most of the 56 features that it analyzed in this study had zero subscribers. Even more importantly, according to witness Pitts, BellSouth double-counted vertical feature hardware costs by including the costs of feature hardware in both the basic switch investments per line to produce the port and minutes of use rate elements, and again in the feature cost study to produce the vertical feature rate elements. Witness Shell testified that the individual feature costs

contained in the BellSouth supplemental filing also suffered from the use of inflated SCIS/MO outputs, double-counted hardware costs, and misallocated getting started costs, as discussed above. In addition, she testified that BellSouth had not appropriately substantiated feature usage estimates for the individual features' cost.

In rebuttal to the testimony of witness Pitts concerning BellSouth's feature cost study, witness Shell explained that since BellSouth does not know exactly how many or what kind of features a CLP's customers will use, it developed a composite "features per port" cost by projecting an average amount of vertical feature usage based on the average busy hour usage of a representative mix of features. Thus, the resulting composite UNE features cost assumes that the CLP customer has access to and can use every feature offered in the end office. More specifically, as described in more detail above, witness Shell testified that the getting started investment and the switching module investment per EPHC are driven by usage volume and should be included, as supported by switch vendors and Telecordia. Concerning witness Pitts' testimony that BellSouth had admitted that most of the 56 features analyzed in the study had zero subscribers, witness Shell testified that witness Pitts had misinterpreted a BellSouth response to an interrogatory and equated zero percent penetration to zero subscribers. Nonetheless, he testified that even though some of 56 features have zero subscribers, the 56 features are representative of a mix of features requiring different switch components. In response to the testimony of witness Pitts wherein she argued that BellSouth had double-counted vertical feature hardware costs, witness Shell contended that there was no double-counting of such costs because the costs of that hardware are not included in the calculation of the basic switch investment per line. He explained that although witness Pitts Exhibit CEP-5 shows a Nortel Firm Price Quote for a switch including feature hardware, BellSouth did not use this information in its development of the switch-related costs. As noted above, witness Pitts also testified that BellSouth had not appropriately substantiated feature usage estimates for the individual features' costs. However, witness Shell responded that BellSouth had used the same usage input currently being used for retail studies.

BellSouth witness Ruscilli testified that BellSouth initially proposed a bundled rate for access to all features of the switch in this docket. However, pursuant to the Commission Order dated July 31, 2002, BellSouth filed proposed rates for individual vertical features.

The Department of Defense witness Gildea urged the Commission to uphold its finding in the *First UNE Order* that vertical features should be unbundled and priced separately from the local switch. Witness Gildea pointed out that a bundled features offering is inefficient because a competitor could be forced to pay for services that were not required.

In its Proposed Order, the Public Staff recommended that the switching costs proposed by BellSouth, subject to certain modifications and adjustments to the studies concerning the various cost and capital expenses discussed on other issues, were

reasonable and appropriate. In addition, the Public Staff recommended that vertical features should be unbundled and priced separately from the local switch as required by the Commission in the previous UNE proceeding. However, the Public Staff added that BellSouth should be allowed to combine vertical features in a bundled offering.

Based upon the evidence, the Commission concludes that BellSouth's calculation of the switch-related investments using the SCIS/MO, SST, and SCIS/IN models is reasonable. The Commission believes that BellSouth has appropriately calculated the switch discounts, appropriately allocated the getting started and EPHC investment, and has not double-counted the hardware costs for vertical features. Therefore, the Commission finds that the switching investment costs proposed by BellSouth are reasonable. In addition, the Commission notes that it has given extensive consideration to the vertical features issue in prior proceedings. The Commission agrees with witness Gildea that it would be inefficient and anticompetitive to require a CLP to buy a more expensive bundled offering for all vertical features when a CLP needs only a few vertical features to serve customers. Therefore, as in the previous UNE proceeding, the Commission concluded that vertical features should be unbundled and priced separately from the local switch based on the investment costs determined by BellSouth's cost studies. Accordingly, BellSouth should continue to offer, on a "per feature" basis, each feature that it makes available to its own subscribers. However, the Commission believes that it is certainly appropriate for BellSouth to also offer vertical features on a bundled basis and recommends that BellSouth should be allowed to offer a composite "feature per port" rate, with multiple vertical features. Finally, the switching investment costs determined by BellSouth should be subject to the applicable adjustments and modifications concerning the various cost and capital expense factors discussed elsewhere herein to calculate its UNE rates.

CONCLUSIONS

The Commission concludes that the switching costs proposed by BellSouth are reasonable and appropriate subject to the applicable adjustments and modifications concerning the various cost and capital expense factors discussed elsewhere herein to calculate its UNE rates. Vertical features should be unbundled and priced separately from the local switch, i.e., BellSouth should offer rates, on a per-feature basis, for each feature that it makes available to its own subscribers. Additionally, BellSouth should also be allowed to combine vertical features in a bundled package, and thus, offer a composite features per port rate which includes all available vertical features.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 14

ISSUE NO. 14: What are the appropriate task times and other inputs to use in calculating BellSouth's nonrecurring rates?

POSITIONS OF PARTIES

BELLSOUTH: BellSouth stated that its personnel familiar with the provisioning process identified the amount of time it takes to complete the necessary tasks. These personnel considered anticipated productivity improvements and potential technological improvements. As stated by BellSouth, the Commission should conclude that BellSouth's proposed task times and the non-recurring charge inputs are appropriate.

AT&T/WORLDCOM: AT&T/WorldCom stated that BellSouth's task times must be modified significantly to reflect tasks performed in a forward-looking environment and not rely upon the Georgia flawed time and motion study. Furthermore, BellSouth's current processes do not take into account the most efficient manner in which CLPs orders should be processed during the cost study period.

COVAD: Covad commented that this Commission should set the nonrecurring rates contained in BellSouth's current SGAT as a ceiling for nonrecurring UNE rates because BellSouth has failed to prove that the prices it seeks do not exceed the forward-looking economic cost per unit of providing the element.

DEPARTMENT OF DEFENSE: The Department of Defense stated that it concurs with Covad that the Commission should reject BellSouth's proposals to increase charges above the levels claimed in obtaining Section 271 approval.

PUBLIC STAFF: The Public Staff stated that the nonrecurring charges currently filed and approved by the Commission in BellSouth's SGAT are reasonable and appropriate for recovering its nonrecurring costs associated with providing UNEs and interconnection.

DISCUSSION

BellSouth witness Raulerson testified that work time inputs used in BellSouth's nonrecurring cost study were provided by subject matter experts (SMEs) familiar with the work performed by each group described in her testimony. BellSouth asked the SMEs to provide an estimate of how long it would take to handle each task their particular center may perform regarding the ordering and provisioning of a UNE, assuming use of the most efficient technology currently available. Furthermore, the SMEs were asked to consider efficient practices that would be found in a forward-looking environment.

AT&T/WorldCom witness Turner testified that rather than obtaining nonrecurring inputs from SMEs responsible for the provisioning of the unbundled network elements,

BellSouth obtained its inputs from a time and motion study conducted at the direction of the Georgia Public Service Commission. BellSouth commented that for some work centers involved in the loop provisioning process, BellSouth performed a traditional time and motion study, and in others BellSouth used work sampling to measure the time to perform the tasks. The results of the time and motion studies were one factor considered in establishing forward-looking work times. BellSouth stated that the SMEs determined whether the work sampling or self-reported time and motion results were consistent with forward-looking estimates, while in other cases the work sampling or self-reported time and motion results were used as a data point in the development of forward-looking estimates.

As further stated by BellSouth, in either case, BellSouth provided forward-looking work times that were incorporated into the nonrecurring cost studies filed by BellSouth in Georgia, and it is these forward-looking work times that BellSouth's proposed nonrecurring rates were based. The time and motion study conducted pursuant to the Georgia Commission's order was not the ultimate source of the cost study input in North Carolina or Georgia, and BellSouth did not mislead this Commission, as AT&T/WorldCom witness Turner asserted.

BellSouth stated that AT&T/WorldCom witness Turner claimed that BellSouth inappropriately included labor time and costs that are already recovered through recurring rates for unbundled loops. As stated by BellSouth, the nonrecurring costs it incurs to provision an unbundled loop are incremental to BellSouth's capitalized costs associated with the initial installation of facilities. BellSouth commented that nonrecurring costs reflect the activities required to activate the circuit upon receipt of a service request from the CLP.

According to BellSouth, AT&T/WorldCom witness Turner further commented that installing plug-ins at the remote terminal, establishing connections at the remote terminal, or performing continuity testing on the unbundled loop are activities that take place with the initial placement of the cable, i.e., they are reflected in the recurring costs. However, BellSouth commented that witness Turner is incorrect and that none of the costs associated with the activities he described were included in BellSouth's recurring costs. Furthermore, they are specifically removed from the plant-specific expense factor. Also, witness Turner stated BellSouth always errs on the side of overstating labor requirements in its nonrecurring cost study. BellSouth commented that each SME carefully reviewed inputs across services and compared data for reasonableness. BellSouth stated that when changes were made to inputs, in most cases, conservative decisions were made that benefited the CLPs.

As stated by BellSouth, AT&T/WorldCom witness Turner also challenged the reasonableness of BellSouth's nonrecurring costs by comparing them to nonrecurring rates in nine other states outside of BellSouth's region. BellSouth commented that such a comparison proves nothing about the reasonableness of BellSouth's proposed nonrecurring rates. Furthermore, it may be imprecise to attempt to compare BellSouth's

nonrecurring costs to other ILECs' nonrecurring costs without also comparing what is actually included in the underlying service offerings and/or the recurring charges.

BellSouth commented that the work activities associated with the ordering and provisioning of unbundled network elements are complex and time-consuming and the cost of such activities can be expensive. BellSouth stated that the CLPs should not be permitted to avoid such costs by proposing adjustments based on hypothetical networks that do not exist and on unsupported theories of how long it should take BellSouth to perform various work activities.

AT&T/WorldCom commented that nonrecurring charges are the one-time costs for activities required by BellSouth to initiate or provide unbundled network elements which are necessary for establishing, disconnecting or arranging telecommunications service for a CLP customer. BellSouth developed the non-recurring cost study in this proceeding by looking at the time it takes for each discrete activity involved in completing a CLP order from start – receipt of the request to provide service to the CLP customer, to finish – when the customer's service is installed.

AT&T/WorldCom stated that BellSouth has ten work centers that are involved with ordering and provisioning UNEs for CLPs. According to BellSouth witness Raulerson, each of the SMEs assigned to those work centers developed the task times based upon their personal experience taking into account any improvements or efficiencies that would be expected in a forward-looking environment.

AT&T/WorldCom commented that the nonrecurring cost study filed by BellSouth utilized time and motion study results rather than inputs from BellSouth SMEs. BellSouth contended that the SMEs used the study merely as a data point in developing forward-looking task time estimates.

Contrary to assertions by AT&T/WorldCom, BellSouth contends that the nonrecurring charges for the OC-TS hot cuts are not recovered in the nonrecurring charges for all unbundled loops. Furthermore, AT&T/WorldCom commented that many of the task times BellSouth proposes are the exact same task times as those in the time and motion study.

AT&T/WorldCom contended that the work times should be reduced for the technicians installing jumpers and performing tests on the loops because it should take the same amount of time to install and disconnect a jumper, only one technician is needed to wire and test an SL1 loop and only a limited amount of time is required. AT&T/WorldCom stated that it also eliminated the CWINS task times for local number portability (LNP) because BellSouth has separate rate elements in the cost study to recover LNP costs. As stated by AT&T/WorldCom, the other modifications it made to the non-recurring cost study were for removal of the costs for I&M labor except for the incremental costs for travel time to install plug-ins at the remote terminal, reducing dispatch probabilities for I&M by using

the CWINS dispatch probabilities and accounting for dedicated inside plant (DIP) and dedicated outside plant (DOP), and eliminating the reliance upon work sampling data for CWINS task times.

As to the nonrecurring charges BellSouth wants to impose for hot cuts, AT&T/WorldCom stated that its main criticism is that costs are inflated because BellSouth has relied on task time data for CWINS that was a part of the time and motion study. Furthermore, according to AT&T/WorldCom, BellSouth includes task time for three managers to oversee a project that is performed by technicians in the field and includes two levels of technicians for a job that only requires one technician according to BellSouth's Florida cost study. AT&T/WorldCom also addressed the service order costs and nonrecurring UNE-P migration charges proposed by BellSouth. The service order costs which are primarily based on labor costs for the LCSC are inflated because the task times are based on the time and motion study.

AT&T/WorldCom stated that BellSouth is not entitled to rely upon a time and motion study to establish task times for nonrecurring charges. As stated by AT&T/WorldCom, FCC rules require cost based rates to be based upon the Total Element Long Term Incremental Cost of the element.

Covad commented that this Commission should set the nonrecurring rates contained in BellSouth's current SGAT as a ceiling for nonrecurring UNE rates because BellSouth has failed to prove that the prices it seeks do not exceed the forward-looking economic cost per unit of providing the element. Furthermore, if BellSouth wants rates increased as much as 200% based on a cost study filed in June 2002, BellSouth should demonstrate either what specific costs have increased or provide some other basis to allow the Commission to make that determination. Covad stated that BellSouth has done neither.

The Department of Defense stated that Covad explained that less than a week after the Commission's Order setting UNE prices, BellSouth acknowledged that some of its nonrecurring charges in North Carolina were significantly higher than the corresponding charges in other states. Furthermore, to avoid controversy during its then – current efforts to obtain Section 271 approval to offer in-region message toll services, BellSouth filed a revised SGAT adopting nonrecurring rates ordered in Louisiana that were lower than the corresponding nonrecurring rates in North Carolina. The Department of Defense commented that with the authority to provide long distance services, BellSouth seeks multi-fold increases in the SGAT rates that it claimed were cost based and appropriate only six months ago. The Department of Defense stated it concurs with Covad that the Commission should reject BellSouth's proposals to increase charges above the levels claimed in obtaining Section 271 approval.

The Public Staff commented that on May 7, 2002, BellSouth filed a revised SGAT Price List containing any nonrecurring UNE rates ordered in Louisiana that were lower

than those in North Carolina. Also, according to the cover letter accompanying the filing, the revised SGAT price rate list was cost based and appropriate at this time, based on the current market, economic and regulatory conditions in North Carolina. Furthermore, the application stated, in part, that the new SGAT prices were cost based and TELRIC compliant. On June 10, 2002, BellSouth filed its UNE cost studies for this proceeding in which a number of the nonrecurring rates were significantly higher than those reflected in the May 7, 2002, SGAT filing, with some of the rates increasing by as much as 200%.

As stated by the Public Staff, BellSouth witness Raulerson, explained the basic process used to determine nonrecurring costs begins with an analyst responsible for obtaining estimates of the activities required to provision each element under study. Personnel familiar with the provisioning process identify the work groups involved and the amount of time necessary to complete the necessary tasks. Consideration is then given to anticipated productivity improvements and potential technological advances that may impact the amount of time required for various work items.

AT&T/WorldCom witness Turner pointed out discrepancies in the sources of many inputs used by BellSouth in its nonrecurring studies. Some of these discrepancies include entries that BellSouth reflected as being provided by SMEs, but actually were hard-coded entries of defective time and motion studies performed by BellSouth in a proceeding held in Georgia. As stated by the Public Staff, other problems delineated by witness Turner include simple mathematical errors made in the work papers supporting BellSouth's studies. Furthermore, BellSouth did not accurately implement the method it attempted to use to determine the nonrecurring inputs for its study.

The Public Staff commented that in response to witness Turner's testimony regarding the time and motion studies, witness Raulerson stated that BellSouth relied on SME projections of forward-looking task times and that the Georgia time and motion study was but one piece of data considered by SMEs in developing their time inputs. However, under cross-examination, witness Raulerson admitted that some of the SME estimates match the times generated by the time and motion study in Georgia.

BellSouth witness Caldwell disputed witness Turner's contention that BellSouth's cost studies reflect a false representation of the source for the nonrecurring cost inputs. According to witness Caldwell, the inputs were provided by SMEs responsible for the provisioning of the UNEs.

The Public Staff stated that the Commission should not be inclined to believe that the rates BellSouth filed in its SGAT on May 7, 2002, are below cost, as indicated by BellSouth witness Ruscilli. As stated by the Public Staff, the Commission should accept the statements made by BellSouth in its May 7, 2002, SGAT filing and its June 20, 2002, Five State 271 filing with the FCC that the rates contained in the SGAT are cost based and TELRIC compliant. The Public Staff stated that the nonrecurring charges currently filed

and approved by the Commission in BellSouth's SGAT are reasonable and appropriate for recovering its nonrecurring costs associated with providing UNEs and interconnection.

The Commission concludes, based on the foregoing comments and all the evidence presented, that the costs contained in BellSouth's revised SGAT Price List should be adopted for use in this proceeding. As pointed out by the Public Staff, CLP witness Turner identified problems with the underlying data that support BellSouth's time estimates for its proposed nonrecurring costs. BellSouth similarly has taken issue with the assumptions in adjustments made by AT&T/WorldCom and other Parties. The Commission also believes, as stated by the Public Staff, that based on the record of evidence the nonrecurring costs proposed by BellSouth do not justify a rate revision, nor are the adjustments suggested by the intervenors definitive enough to make changes to the proposed nonrecurring charges presented by BellSouth in this proceeding. As such, the Commission finds that the nonrecurring charges currently filed and approved by the Commission in BellSouth's SGAT are reasonable and appropriate for recovering its nonrecurring costs associated with providing UNEs and interconnection.

CONCLUSIONS

The Commission concludes that the nonrecurring charges currently filed and approved by the Commission in BellSouth's SGAT are reasonable and appropriate for recovering its nonrecurring costs associated with providing UNEs and interconnection.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 15

ISSUE NO. 15: Should disconnect costs be recovered through nonrecurring charges?

POSITIONS OF PARTIES

BELLSOUTH: Yes. There are specific activities and costs incurred when facilities are disconnected. Establishment of a separate disconnect charge will ensure that CLPs pay these charges when BellSouth incurs the cost.

AT&T/WORLDCOM: BellSouth's nonrecurring charges should be reduced to reflect BellSouth's use of Dedicated Outside Plant (DOP) and Dedicated Inside Plant (DIP). DOP and DIP eliminate virtually all nonrecurring disconnect charges because orders can be fulfilled electronically. Since the nonrecurring costs are minimal, those costs for disconnection should be recovered through a recurring rate associated with loops and ports.

COVAD: Covad did not address this issue in Post-Hearing Brief.

DEPARTMENT OF DEFENSE: The Department of Defense did not address this issue in its Post-Hearing Brief.

PUBLIC STAFF: Yes. BellSouth should not be required to create a separate recurring rate to recover the costs of disconnection of loops and ports in this proceeding. Costs associated with the disconnection of loops and ports are already included in the nonrecurring rates for these UNEs and should not be added to BellSouth's recurring rates.

DISCUSSION

The Commission notes that in the *First UNE Order* the Commission directed BellSouth to identify and amortize disconnect costs associated with UNE loops and ports separately and to recover the costs in the monthly recurring rates for these elements. Pursuant to the Commission's July 31, 2002, Order in this docket, BellSouth converted its proposed nonrecurring disconnect costs for loops and ports into monthly recurring rates to comply with the previously approved methodology for recovery of these costs.

However, BellSouth witness Ruscilli proposed that nonrecurring disconnect costs be recovered at disconnection because that is when costs are incurred. He stated that, by recovering the disconnect costs as a monthly recurring charge as currently ordered by the Commission, BellSouth is required to estimate how long a UNE will remain in service, on average, and that an incorrect estimate results in an over- or under-recovery of this cost. Witness Ruscilli noted that no other state regulatory commission has ordered BellSouth to recover these costs through a recurring rate. Moreover, recovering these costs through a recurring monthly rate results in recurring rates in North Carolina that are not comparable with the rates for the same UNEs in other states. Additionally, witness Ruscilli pointed out that CLP witness Pitkin also proposed nonrecurring disconnection rates.

In the first UNE proceeding, BellSouth proposed to recover the costs of disconnection of loops and ports through a nonrecurring charge imposed at the time of installation. The CLPs opposed this proposal, arguing that such a charge would be a significant barrier to entry into the local exchange market. The Commission addressed the CLPs' concern by adopting the Public Staff's proposal that the disconnection costs be recovered as a recurring charge by spreading the discounted costs over the expected life of the installation.

While BellSouth's current proposal to impose a separate disconnect charge would not be a barrier to entry into the local market, it is possible, even probable, that this type of cost recovery would lead to CLPs charging their end user customers a disconnect fee and potentially refusing to allow customers to change carriers until they paid the fee. This would clearly impede customer choice and thwart competition.

Elsewhere in this Order, the Commission has adopted the nonrecurring rates in BellSouth's current SGAT. A review of the nonrecurring costs for loops and ports, i.e., those rate elements affected by the disconnect cost issue, shows the rates in the SGAT to be lower than those previously approved by this Commission. Thus, it appears that, for the nonrecurring costs associated with loops and ports, BellSouth's SGAT reflects the

Louisiana UNE rates. Based on the testimony of witness Ruscilli that no other state public service commission has ordered BellSouth to recover these costs through a recurring rate, the Commission concludes that costs associated with disconnection are already included in the current SGAT nonrecurring rates for loops and ports.

Unfortunately, one cannot from the evidence presented isolate the disconnect costs from other costs contained in the nonrecurring rates for loops and ports. Witness Caldwell testified that, while BellSouth could file the study it submitted in Louisiana, the rates adopted by the Louisiana commission reflect adjustments made by that commission to BellSouth's study. Thus, BellSouth would face a difficult task if it attempted to isolate the costs associated with disconnection from the rates ultimately found appropriate in Louisiana.

The SGAT rates for nonrecurring charges are significantly lower than the disconnect rates previously approved by the Commission. Therefore, any concern that the recovery of disconnect through nonrecurring charges might pose a barrier to entry should be moot.

CONCLUSIONS

The Commission concludes that BellSouth should not create a separate recurring rate to recover the costs of disconnection for loops and ports but rather finds that the costs associated with the disconnection of the various loops and ports are already included in the nonrecurring rates of those UNEs and should not be added to BellSouth's recurring rates.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 16

ISSUE NO. 16: Should the costs BellSouth incurs when CLPs access BellSouth's OSS be recovered as a nonrecurring charge on a per-local service request (LSR) basis?

POSITIONS OF PARTIES

BELLSOUTH: Yes. Applying the nonrecurring charges on a per-LSR basis is a more equitable way to recover OSS costs because the charges paid by any given CLP would correspond directly to the costs the CLP causes BellSouth to incur.

AT&T/WORLDCOM: No. Any OSS costs that BellSouth incurs are recovered in the recurring rates and a specific non-recurring OSS charge is unwarranted.

COVAD: Covad did not address this issue in its Post-Hearing Brief.

DEPARTMENT OF DEFENSE: The Department of Defense did not address this issue in its Post-Hearing Brief.

PUBLIC STAFF: Yes. Recovery of one-time development costs for new OSS and improvements to existing systems through nonrecurring charges on a per-LSR basis are appropriate. The correct nonrecurring charges for OSS costs are those in the SGAT currently approved for BellSouth.

DISCUSSION

The Commission notes that BellSouth witness Ruscilli testified that BellSouth proposes to recover its OSS costs by imposing a nonrecurring charge per LSR. This differs from the method adopted by the Commission in the *First UNE Order*. In that Order, the Commission concluded that BellSouth could recover its OSS costs for both one-time development and improvements in the existing system, but required BellSouth to amortize those costs and convert them to a monthly recurring charge that would apply to each CLP that ordered UNEs.

Witness Ruscilli argued that BellSouth's proposed method of recovering its OSS costs is consistent with cost recovery principles. He further stated that attempting to convert these costs to a "per-CLP" basis introduces a significant degree of uncertainty since the number of CLPs submitting LSRs varies widely. According to witness Ruscilli, BellSouth's cost study for OSS costs in the first proceeding contained an error in the calculation of the existing "per-CLP" rate, which significantly understated the resulting rate per CLP. Moreover, he noted that under the "per-CLP" rate structure CLPs that send BellSouth a large amount of orders each month pay far less per order than CLPs that send only a few orders.

AT&T/WorldCom witness Turner argued that BellSouth's nonrecurring charges for OSS duplicate costs already recovered through BellSouth's shared and common cost factors. However, BellSouth witness Caldwell testified that BellSouth has removed all directly identified costs from the development of shared and common costs. Therefore, BellSouth contends that it does not recover OSS costs via shared and common cost factors.

In its Proposed Order, the Public Staff agreed with BellSouth that OSS costs are not included in the shared and common costs and that recovery of OSS costs on a per-LSR basis is reflective of the manner in which the costs are incurred. The Public Staff stated that the recovery of one-time development costs for new OSS and improvements to existing systems should be accomplished through nonrecurring charges on a per-LSR basis. Further, the Public Staff asserted that the correct nonrecurring charges for OSS costs are those in BellSouth's currently-approved SGAT.

Based on a review of the evidence, the Commission believes BellSouth's assertion that OSS costs are not included in the shared and common costs should be accepted. Therefore it is appropriate to adopt UNE rates that allow BellSouth to recover its OSS costs. BellSouth's position that recovering OSS costs on a per-LSR basis is reflective of

the manner in which the costs are incurred should also be accepted. Although BellSouth also incurs these costs on a “per-CLP” basis, there is merit in BellSouth’s argument that the “per-CLP” method introduces uncertainty.

CONCLUSIONS

The Commission concludes that recovery of one-time developments costs for new OSS and improvements to existing systems through nonrecurring charges on a per-LSR basis are appropriate. The correct nonrecurring charges for OSS costs are those in the SGAT currently approved for BellSouth.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 17

ISSUE NO. 17: Are AT&T/WorldCom’s proposed adjustments to BellSouth’s DUF cost study appropriate?

POSITIONS OF PARTIES

BELLSOUTH: BellSouth stated that its DUF rates are TELRIC-compliant and should be adopted by the Commission.

AT&T/WORLDCOM: AT&T/WorldCom argued that the inputs BellSouth has used in the DUF Cost Study result in CLPs paying inflated DUF charges, and asserted that significant modifications are required for the DUF charges in North Carolina to be forward-looking cost based rates.

PUBLIC STAFF: The Public Staff stated that AT&T/WorldCom’s proposed adjustments to BellSouth’s DUF cost study are not appropriate.

COVAD: Covad took no position on the DUF cost study or the proposed DUF rates.

DEPARTMENT OF DEFENSE: The Department of Defense took no position on the DUF cost study or the proposed DUF rates.

DISCUSSION

As explained by AT&T/WorldCom in their Brief, BellSouth provides DUF files to CLPs who use the files to bill end user customers. In addition, CLPs use DUF files generally to track the usage of unbundled network elements such as switching. There are three types of DUF Files: ODUF or Optional Daily Usage Feed Files, ADUF or Access Daily Usage Files, and EODUF or Enhanced Daily Usage Files. ODUF tracks local calls made by CLP customers who are served via UNE-P or resold lines. ADUF tracks calls where access or reciprocal compensation billing is required for an originating or terminating toll or local call on a UNE-P switch port. EODUF files are usage records used

by CLPs who resell BellSouth's wholesale service. The DUF files are compiled by BellSouth Billing, Inc. (BBI) which processes messages for CLPs and BellSouth. BellSouth includes all three categories of DUF in its cost study.

AT&T/WorldCom raised several issues regarding BellSouth's DUF cost study. Each issue or item of dispute identified by AT&T/WorldCom witness Turner has been categorized and is set forth and discussed below in Sections 17(a) through 17(g).

17(a). Development of Per Message Costs

AT&T/WorldCom's witness Turner testified as follows: BellSouth did not develop "per message" DUF costs consistent with considering the total demand of messages that must be processed. According to AT&T/WorldCom, much of the cost that BellSouth developed evaluates only CLP demand even though BellSouth Billing Inc. also handles BellSouth's own generation of messages. BellSouth's cost study overstated the costs ultimately borne by CLPs on a per message basis, because it failed to evaluate costs across all of the messages processed.

BellSouth's evidence, presented through its witness Caldwell, can be summarized as follows: BellSouth's study reflected the fact that both BellSouth and CLP messages must be processed. The "per message costs" were developed by dividing the total cost of the job by the number of messages (including BellSouth message volumes, if applicable) processed by that application. If a job processed both BellSouth and CLP messages, then the BellSouth and CLP messages were added to determine the denominator (or demand) by which to divide the total cost of the job. If only CLP messages (for example, ODUF messages) were being processed by the job for which per message costs were being developed, then the denominator (demand) used in the cost calculation would be comprised only of the total number of CLP messages (ODUF messages) being processed by the job at issue. The cost study shows which jobs processed BellSouth and CLP messages and which jobs were dedicated to CLP messages. BellSouth therefore asserted that the cost of a given job in terms of both labor and computer resources was spread over the number of messages processed by that particular job. According to BellSouth, its cost study used a basic cost-causation methodology that complies with incremental cost principles. Witness Caldwell's Exhibit DDC-12 shows the different jobs used to process messages and the types of messages processed by each job.

The Public Staff generally stated that AT&T/WorldCom's proposed adjustments were not appropriate, but presented no further argument on the issue.

Based on a review of the evidence, the Commission finds as stated below. BellSouth's DUF cost study accurately reflects the appropriate mix of message types based on the application in the allocation process. BellSouth did not arbitrarily assign message types to the jobs for which costs were being developed. For purposes of the cost study, messages were assigned to the jobs that processed them. The "per job" costs are

determined first and the costs are then recovered over the appropriate number of messages that the job handles. Thus, if a job processes ODUF messages only, the cost of that job will be recovered over ODUF messages only. By way of example, it would be inappropriate to recover the cost of such a job over both BellSouth messages and ODUF messages when the job does not process or handle BellSouth messages. If cost recovery for a job is calculated considering messages not handled by the job, BellSouth's costs could be understated.

COMMISSION CONCLUSIONS: The Commission concludes that BellSouth's DUF cost study appropriately attributes costs for specific jobs to the messages being processed by those jobs, whether the messages considered are CLP messages, BellSouth messages, or a combination of both. The Commission believes AT&T/WorldCom's proposed adjustments to the per message costs are inappropriate.

17(b). Cost Recovery Periods

Witness Turner testified to AT&T/WorldCom's position as follows: BellSouth fundamentally made an arbitrary choice of the time period over which the investment in DUF system development should be averaged and thus recovered. Regarding costs for system development, BellSouth has several one-time costs to recover. In the case of ADUF, BellSouth developed its cost estimate for the system development investment and spread the cost across the anticipated demand over a 10-year period. BellSouth's cost recovery period for ADUF is the same as its 10-year study period for cost and demand. In the case of ODUF and EODUF, BellSouth developed its cost estimate for the system development investment and spread the cost across the anticipated demand over a three-year period. BellSouth's cost recovery period for ODUF and EODUF is the same as its three-year study period for cost and demand. Witness Turner concluded in his testimony that the cost recovery periods for these DUF elements should be the same, and he recommended that the Commission find 10 years to be the appropriate recovery period. He argued it was arbitrary for BellSouth to claim that a 10-year recovery period was chosen for ADUF in order to lower unreasonably high per message costs caused by high development costs, when a three-year period was chosen for ODUF, which involved greater development costs. Current ADUF developmental costs are about \$329,000, while the current ODUF developmental costs are about \$961,000 (Exhibit SET 29, Cell F14; Exhibit SET-24, Cell F13).

In her rebuttal testimony, BellSouth witness Caldwell testified to the following: BellSouth used a three-year study period, capturing three years worth of costs and three years worth of demand, to develop the average "per ODUF message" investment. This investment amount is the amount that BellSouth used for depreciation of the investment asset, and the asset is currently scheduled to be depreciated over five years. Ten-year study and recovery periods were used for ADUF because, when ADUF costs were first developed (some years ago), the projected development costs were so high and the projected demand was so low that the resulting per message cost was unreasonably high.

Thus, BellSouth made the decision to expand the study and recovery periods for ADUF to 10 years. Although BellSouth and witness Caldwell provided no evidence of the time period that resulted in the unreasonably high per message cost for ADUF, witness Caldwell testified that a 10-year period was used for ADUF due to the high initially projected developmental costs of over \$2.4 million. However, she admitted in her testimony that the current ADUF developmental costs are only about \$329,000.

Witness Caldwell testified further that BellSouth does not agree with witness Turner's recommendation that both the ODUF and ADUF studies should be based upon a 10-year study period since this would only exacerbate BellSouth's potential risk of having understated the cost, especially if the projected 10-year demand for ADUF does not materialize. She stated that the accuracy of demand projections decreases as the time period of the study is expanded.

The Public Staff took the position that AT&T/WorldCom's proposed adjustments were not appropriate, but presented no further argument on Issue No. 17(b).

Based on a review of the evidence, the Commission finds as follows. It is reasonable to conclude that BellSouth has arbitrarily chosen the periods of time over which to recover for system development of each of the different DUF elements. At best, the testimony shows that BellSouth determined the recovery periods based on achieving per message costs that it deemed reasonable, notwithstanding the fact that the ADUF per message cost was lowered by expanding the study and recovery periods. The periods chosen were not decided using objective measures. While it is perhaps not unreasonable to use differing recovery periods for different DUF elements and while BellSouth has offered explanations for its choice of different recovery periods for ADUF and ODUF, BellSouth has offered no evidence to explain why the precise period of three years was chosen for ODUF and EODUF recovery or why three years was an appropriate time period. That is to say, the record contains no evidence, such as an accounting rule or principle, explaining why a three-year recovery period is any more appropriate than recovery periods of two, four, or six years. For that matter, the record contains no similar evidence as to why 10 years, e.g., as opposed to eight or twelve years, was chosen as the cost recovery period for ADUF system development.

The DUF systems are developed to handle messages over a period of time. It is reasonable and logical that the time period for cost recovery be rationally related to the useful economic life of the systems. The strongest evidence in this docket of the systems' useful economic lives is the testimony of witness Caldwell and Exhibits SET-24 and 29 establishing DUF systems as 460C assets that are depreciated over five years. Depreciation periods are generally matched to the best estimate of the useful economic life of the asset-types being depreciated. The 10-year recovery period for ADUF is some evidence that the useful economic lives of the systems may be at least 10 years, but in accord with the above discussion regarding the arbitrary selection of this period, this evidence is weak. Furthermore, as the evidence tends to show, the accuracy of both

demand and cost projections decreases as the time period is expanded. Without stronger and reliable evidence regarding the appropriateness of a 10-year recovery period, a 10-year period may unfairly increase the amount of risk borne by BellSouth, especially given the fast pace of change in the relevant market. In any case, a three-year recovery period for DUF systems is too short and would allow for full recovery before full depreciation of the economic value.

COMMISSION CONCLUSIONS: The Commission concludes that the BellSouth DUF cost study should be adjusted to reflect a cost recovery period of five years for ODUF and EODUF, as a five-year period would match the recovery period to the useful economic life of the DUF systems. Although the Commission has concerns with BellSouth's proposed 10-year ADUF recovery period as outlined above, the Commission orders no change in this regard since BellSouth voluntarily offered and agreed to the longer period and has not requested any change. Also, AT&T/WorldCom raised no objection to the ADUF recovery period.

17(c). Capitalization of Costs Associated with System Development

AT&T/WorldCom argued through witness Turner's testimony that while BellSouth properly capitalized labor hours associated with DUF system development, it inappropriately expensed "computer resource costs" associated with DUF development. AT&T/WorldCom maintained these computer resource costs should have been capitalized with the labor hours used in development. According to witness Turner, if labor hours that are expended in the system development effort are to be capitalized, then the system resource costs should be capitalized as well. Witness Turner explained that Accounting Statement of Position (SOP) 98-1, ¶ 15 does not allow for the expensing of costs associated with development of computer software that is used by or marketed to third parties. According to witness Turner, BellSouth is marketing DUF software to CLPs as an unbundled element. Witness Turner argued that while SOP 98-1 is inapplicable to computer resource costs in this instance, Financial Accounting Statement No. 86 does apply and requires capitalization of the costs at issue. Moreover, witness Turner argued that print charges for paper should not be included in the computer resource cost as it is more efficient to use information directly from the computer screen rather than print the information on paper.

BellSouth witness Caldwell responded to AT&T/WorldCom's argument by explaining that BellSouth followed accepted accounting principles in expensing the computer resource costs. Per SOP 98-01, Accounting for the costs of Computer Software Developed or Obtained for Internal Use, actual programming costs (labor hours) are capitalized, but overhead (one-time) costs associated with development of internal software are properly expensed and recovered on a per message basis. Further, witness Caldwell stated that computer resource costs in support of development of DUF products include Central Processing Unit (CPU), Direct Access Storage Device (DASD), Tape and printing costs. She refuted witness Turner's argument to exclude printing charges. She

testified that each productive programming hour has associated with it some paper print, which allows the programmer to print memory dumps for debugging and testing operations. The input used in BellSouth's cost study for the amount of paper associated with the programming hour came directly from the Information Technology Department, which actually supports the process.

The Public Staff took the position that AT&T/WorldCom's proposed adjustments were not appropriate, but presented no further argument on this issue.

Having reviewed the evidence, the Commission finds as follows. BellSouth's decision to expense computer resource costs is reasonable and in accordance with accepted accounting principles. BellSouth does not market DUF software to the CLPs, but instead provides CLPs with DUF reports. CLPs do not acquire from BellSouth any DUF software or the future right to use it. *Five-State 271 Order*, ¶ 117, n. 398.

COMMISSION CONCLUSIONS: The Commission concludes that BellSouth's decision to expense computer resource costs is reasonable. Accordingly, BellSouth's DUF cost study shall remain unchanged with respect to the decision not to capitalize computer resource costs.

17(d). Contractor Labor Inflation Rate

AT&T/WorldCom witness Turner testified that BellSouth's assumed inflation rates for contractor labor costs are too high. Witness Turner relied on AT&T/WorldCom witness Pitkin's study of BellSouth's data which suggests that BellSouth's historical inflation rate for wages is closer to 3%.

BellSouth witness Caldwell testified in response to witness Turner's position that contractor labor rates and their related inflation rates are not associated with inflation rates which BellSouth uses for its own labor. Instead, at the time of the cost study development, contractor rates for the period from 2002-2004 were negotiated and agreed upon with the contractor-vendor. The contractual inflation rate was based on a compounded inflation factor from the Employment Cost Index (ECI) and yielded over a 7% increase per year for 2002-04. For the period 2005-2011, BellSouth estimated the contractor labor rates, which reflected a 6% year-over-year inflation rate for the same period.

The Public Staff took the position that AT&T/WorldCom's proposed adjustments were not appropriate, but presented no further argument on this issue.

Having reviewed the evidence, the Commission agrees with BellSouth that the use of the ECI to determine the appropriate labor inflation rate for the communications industry may be appropriate. However, because, based on a cursory review of current ECI data and general public knowledge that the economy is in a period of very low inflation, it appears that updated ECI data may yield a lower contractor inflation rate, the Commission

believes BellSouth should revisit the ECI to obtain current inflation data for use in its inflation rate calculations. The Commission further believes BellSouth should show all calculations that yield and support any proposed inflation rate. BellSouth should also be required to provide evidence of all applicable contract terms, if any, tending to show that it is bound to contractor labor inflation rates without the ability to adjust or re-open the relevant terms due to changes in economic and market conditions.

COMMISSION CONCLUSIONS: With regard to contractor labor inflation rates, the Commission finds it appropriate to instruct BellSouth to revisit the ECI and submit calculations based on updated ECI data. BellSouth should also submit evidence of all contract terms, if any, which tend to show BellSouth is bound to a contractual labor inflation rate that cannot be adjusted based on changes in economic and market conditions. The Commission finds that BellSouth should file the above evidence in support of its proposed contractor labor inflation rate at the time it files its new cost study and that any such proposed and properly supported rate be reflected in the new cost study.

17(e). Cost Recovery for Magnetic Tape Development

Witness Turner testified that BellSouth's DUF cost study inappropriately includes costs for magnetic tape feed in the cost of ODUF message processing generally. He further testified that such costs should not be attributed across all ODUF messages, but instead should be included in the magnetic tape cost study, i.e., the cost of provisioning magnetic tape to those CLPs who choose to receive DUF records by tape. Witness Turner stated that it is not appropriate for CLPs to be charged for the cost of tapes if they do not order tapes, but instead elect to receive DUF records electronically.

BellSouth offered the testimony of witness Caldwell to establish that its DUF cost study correctly attributes the cost of magnetic tape development, a one-time developmental cost associated with the initial production of magnetic tapes, across the projected number of ODUF messages. One-time developmental costs cannot be added to the recurring monthly charge for provisioning of the tape product. Witness Caldwell testified that in BellSouth's cost study, all developmental costs, including the developmental costs associated with creating the initial magnetic tape, are recovered over the projected number of messages.

The Public Staff took the position that AT&T/WorldCom's proposed adjustments were not appropriate, but presented no further argument on this issue.

Having considered the evidence, the Commission believes that BellSouth's DUF cost study appropriately spreads the cost of magnetic tape development over the projected number of messages in the same way that it treats all developmental costs. It would be inappropriate to attempt to recover what is essentially a "system development cost" associated with the initial production of magnetic tapes through a recurring monthly "provisioning charge" to CLPs that order tape feeds of DUF information.

COMMISSION CONCLUSIONS: The Commission concludes that AT&T/WorldCom's proposal that the cost for magnetic tape development be removed from the message processing costs for ODUF and moved into the magnetic tape provisioning costs is inappropriate.

17(f). DUF Processing Forecasts

17(f)(1). Forecast of message demand

AT&T/WorldCom presented evidence through its witness Turner that BellSouth used outdated data from 2000 and early 2001 to forecast DUF message demands through the remainder of 2001, 2002 and into the future. According to witness Turner, in 2000, UNE-P competition was in an earlier stage of development and demand was lower. More recent actual message volume data was produced by BellSouth as part of discovery in this docket. Using this actual data, witness Turner presented figures to support his conclusion that actual monthly data for ADUF message volume from June 2001 through July 2002 show that BellSouth's forecast using older data understates message volume by more than 700 million messages. Likewise, witness Turner used the actual monthly data for ODUF message volume from May 2001 through July 2002 to show that BellSouth's forecast based on older data understates ODUF message volume by more than 800 million messages.

According to AT&T/WorldCom, the understatement of DUF message demand results in the application of an understated monthly growth rate in the cost per message calculation. BellSouth's cost study based on the forecasted message volume assumed a monthly ADUF growth rate of "confidential number X" messages for 2001 and, for 2002 through 2011, assumed a growth rate much lower than confidential number X. However, using actual message volume for the 12 months from July 2001 through July 2002 (data supplied by BellSouth to AT&T/WorldCom), witness Turner calculated the average monthly ADUF growth rate to be about four times greater than confidential number X. For the ODUF 2001 monthly growth rate, the BellSouth study assumed a monthly growth rate of "confidential number Y", and, for 2002 through 2004, assumed a monthly growth rate significantly lower than confidential number Y. Using the actual data from July 2001 through July 2002, witness Turner calculated a monthly ODUF growth rate more than four times greater than confidential number Y.

BellSouth did not challenge the evidence showing that its forecasts tend to understate DUF message volume and thus lead to a significant understatement of the growth rate for DUF messages in North Carolina.

The Public Staff took the position that AT&T/WorldCom's proposed adjustments were not appropriate, but presented no further argument on this issue.

Based on a review of the evidence, the Commission makes the following findings. BellSouth's use of outdated data to forecast DUF volumes in the future has resulted in a significant understatement of the demand volumes and the projected growth rates in demand volumes used to calculate per message costs for the years stated in BellSouth's cost study. BellSouth offered no reason for its assumption that the monthly growth rates for ADUF and ODUF messages would decline from confidential number X and confidential number Y, respectively, in 2001 to lower levels for the subsequent years from 2002-2011. The problem with assuming declining rates is only magnified by the evidence showing that from July 2001 to July 2002 actual monthly growth rates for ADUF and ODUF were at least four times greater than confidential number X and confidential number Y. Understated demand volumes would tend to result in overstated per message costs.

17(f)(2). Forecast of Growth Rate for OCNs³⁷

AT&T/WorldCom witness Turner testified that BellSouth's monthly growth rate assumptions for ODUF OCNs and ADUF OCNs are overstated. Witness Turner pointed out that, based on actual data from January 2001 through April 2001, the average monthly growth rate for ODUF OCNs is significantly lower than what BellSouth forecasts. In addition, witness Turner testified that there has been a recent and significant reduction in the number of CLPs participating in the local telecommunications market, as the industry has been affected by firms filing for bankruptcy. Therefore, Turner argued that BellSouth should assume a decline of OCNs in its forecasts. Turner further testified that an overstated growth rate and total number of OCNs leads to an overstatement of costs. According to witness Turner, this overstatement is the result of BellSouth's assumption that each OCN requires "support" labor each month and the incurrence of additional development costs to implement each additional OCN in BellSouth's billing system.

At the hearing BellSouth presented no evidence in response to witness Turner's testimony, but did file a late-filed exhibit on September 2, 2003 in response to the Commission's Order seeking additional information from both BellSouth and AT&T/WorldCom. Whereas witness Turner's testimony was based on more recent data from January through April 2001, BellSouth's filing demonstrated that its forecast figures were the average of the actual monthly ODUF and ADUF counts from September 2000 through February 2001. For both ODUF and ADUF, once BellSouth calculated the average of the actual monthly counts, it was the average figure used in the cost study for OCN growth for each year forecast in the study period. The figure was not increased nor decreased for any future year.

The Public Staff took the position that AT&T/WorldCom's proposed adjustments to BellSouth's DUF cost study were not appropriate, but presented no further argument on this issue.

³⁷ OCN is the Operating Company Number that is used to track usage to a CLP for billing purposes.

After reviewing the evidence, the Commission notes that only two of the six months that BellSouth used to determine the increase in OCNs for each year forecasted were in 2001. The other four were in 2000. The actual figures over the six month period used by BellSouth clearly show a significant drop between the number of additional OCNs added each month during each of the last four months of 2000 and the number added in January 2001 and in February 2001. Moreover, the March and April 2001 cost study data, which were included in AT&T/WorldCom's analysis but not in BellSouth's, also support the continued downward trend in the OCN growth rate. The Commission is persuaded that OCN growth data from the year 2000 is a less accurate indicator of the level of future growth than the more recent 2001 data. Since the year 2000, the number of CLPs has fallen and is expected to continue falling due to economic conditions affecting the telecommunications industry. Use of older data from 2000 causes the OCN growth rate assumptions used in BellSouth's cost study to be overstated and the overstated growth rate ultimately leads to an overstatement of costs.

COMMISSION CONCLUSIONS: 17(f) (1). The Commission concludes that BellSouth's DUF cost study should be amended to reflect input of actual message volume data from October 2001 through November 2002 in the cost per message calculations and that this data should also be used to revise the levels of growth in DUF messages for future years contained in the cost study.

17(f)(2). The Commission finds it appropriate to require BellSouth to modify its cost study for monthly incremental OCNs purchasing ODUF by decreasing the average count per month for 2001 to five (5). In accordance with the conclusions for Issue 17(b) of this Order, the Commission finds it appropriate to require BellSouth to further modify its cost study for monthly incremental OCNs purchasing ODUF to four (4) per month for 2002, three (3) per month for 2003-2005 and two (2) for 2006. With respect to ADUF, the Commission finds it appropriate to require BellSouth to modify its cost study for monthly incremental OCNs purchasing ADUF to seven (7) per month for 2002, six (6) per month for 2003-2004, five (5) per month for 2005-2006, four (4) per month for 2007-2009, and three (3) per month for 2010-2011.

17(g). Recovery of Switching Investment

AT&T/WorldCom presented the testimony of witness Turner to establish that it is improper for BellSouth to recover for switching investment by including it in ODUF costs. According to witness Turner, inclusion of switching investment in ODUF costs would lead to double-recovery, because switching investment is already included in another part of BellSouth's cost study specifically addressing switching costs.

BellSouth witness Caldwell testified that BellSouth has not attempted to double-recover for switching costs. The ODUF recording rate element, which witness Turner believes improperly includes switching investment, applies only to those CLPs using their own switches and ordering BellSouth Operator Services to provide directory

assistance capabilities. BellSouth explained that the charge recovers the Automated Message Accounting (AMA) cost in the BellSouth Traffic Operator Position System switches, which is needed to develop detail recordings such that CLPs can bill their end customers. Witness Caldwell explained that while it is true that the usage elements also reflect AMA recording costs, these usage charges would not be applicable to a CLP purchasing the ODUF recording element since that CLP would have its own switch.

The Public Staff took the position that AT&T/WorldCom's proposed adjustments to BellSouth's DUF cost study were not appropriate, but presented no further argument on this issue.

Based on the evidence presented, the Commission finds as follows. A CLP using BellSouth's switching would pay AMA recording costs through a usage rate element contained in the switching portion of BellSouth's cost study. A CLP using its own switch would not incur such a usage charge, but would pay for AMA recording costs through the ODUF recording rate element, when BellSouth provides directory assistance to the CLP's customers. Accordingly, the inclusion of AMA recording costs in the ODUF recording rate element does not result in a double-recovery of switching investment.

COMMISSION CONCLUSIONS: The Commission concludes that BellSouth's cost study does not double recover for switching investment by including AMA recording cost in the ODUF recording rate element, which is charged only to CLPs that would not be charged a usage rate for switching due to the fact that they own their own switches.

SUMMARY OF CONCLUSIONS

17(a). Development of Per Message Costs. The Commission concludes that BellSouth's DUF cost study appropriately attributes costs for specific jobs to the messages being processed by those jobs, whether the messages considered are CLP messages, BellSouth messages, or a combination of both. The Commission believes AT&T/WorldCom's proposed adjustments to the per message costs are inappropriate.

17(b). Cost Recovery Periods. The Commission concluded that the BellSouth DUF cost study should be adjusted to reflect a cost recovery period of five years for ODUF and EODUF, as a five-year period would match the recovery period to the useful economic life of the DUF systems. The Commission orders no change with respect to the 10-year ADUF recovery period since BellSouth voluntarily offered and agreed to the longer period and has not requested any change. AT&T/WorldCom raised no objection to the ADUF recovery period.

17(c). Capitalization of Costs Associated with System Development. The Commission concludes that BellSouth's decision to expense computer resource costs is reasonable. Accordingly, BellSouth's DUF cost study shall remain unchanged with respect to the decision not to capitalize computer resource costs.

17(d). Contractor Labor Inflation Rate. With regard to contractor labor inflation rates, the Commission orders BellSouth to revisit the ECI and submit calculations based on updated ECI data. BellSouth should also submit evidence of all contract terms, if any, which tend to show BellSouth is bound to a contractual labor inflation rate that cannot be adjusted based on changes in economic and market conditions. The Commission finds that BellSouth should file the above evidence in support of its proposed contractor labor inflation rate at the time it files its new cost study and that any such proposed and properly supported rate be reflected in the new cost study.

17(e). Cost Recovery for Magnetic Tape Development. The Commission concludes that AT&T/WorldCom's proposal that the cost for magnetic tape development be removed from the message processing costs for ODUF and moved into the magnetic tape provisioning costs is inappropriate.

17(f). DUF Processing Forecasts

17(f)(1). Forecast of message demand. The Commission concludes that BellSouth's DUF cost study should be amended to reflect input of actual message volume data from October 2001 through November 2002 in the cost per message calculations and that this data should also be used to revise the levels of growth in DUF messages for future years contained in the cost study.

17(f)(2). Forecast of Growth Rate for OCNs. The Commission finds it appropriate to require BellSouth to modify its OCN cost study assumptions as stated hereinabove to reflect a decrease in the number of OCNs purchasing ADUF and ODUF over the respective cost study periods.

17(g). Recovery of Switching Investment. The Commission concludes that BellSouth's cost study does not double recover for switching investment by including AMA recording costs in the ODUF recording rate element, which is charged only to CLPs that would not be charged a usage rate for switching due to the fact that they own their own switches.

IT IS, THEREFORE, ORDERED as follows:

1. That no later than Thursday, January 29, 2004, BellSouth shall refile its cost studies, supporting documentation, and resulting rate schedules based on the conclusions reached in this *Order*. Further, concerning Issue No. 17(d), BellSouth shall revisit the ECI and submit calculations based on updated ECI data. BellSouth shall submit evidence of all contract terms, if any, which tend to show BellSouth is bound to a contractual labor inflation rate that cannot be adjusted based on changes in economic and market conditions. BellSouth shall file the above evidence in support of its proposed contractor labor inflation rate at the time it refiles its cost studies and any such proposed and properly supported rate shall be reflected in said cost study.

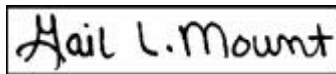
2. That no later than Monday, March 1, 2004, the Public Staff shall file comments on whether BellSouth's cost studies and resulting rate schedules are in compliance with this *Order*.

3. That, after approval by the Commission, the rates filed pursuant to this *Order* shall be deemed permanent prices pursuant to Section 252(d) of TA96 for purposes of replacing prior rates contained in existing interconnection agreements and BellSouth's SGAT.

ISSUED BY ORDER OF THE COMMISSION.

This the 30th day of December, 2003.

NORTH CAROLINA UTILITIES COMMISSION



Gail L. Mount, Deputy Clerk

bp122903.01

Glossary of Acronyms
Docket No. P-100, Sub 133d

1996 Act	Telecommunications Act of 1996
Act	Telecommunications Act of 1996
ADSL	Asymmetrical Digital Subscriber Line
ADUF	Access Daily Usage File
AMA	Automated Message Accounting
AT&T	AT&T Communications of the Southern States, Inc.
BCPM	Benchmark Cost Proxy Model
BellSouth	BellSouth Telecommunications, Inc.
BSTLM	BellSouth Telecommunications Loop Model
BSTLM-CP	BellSouth Telecommunications Loop Model – Cost Pro©
CAPM	Capital Asset Pricing Model
CCS	Centum (Hundred) Call Seconds
Carolina	Carolina Telephone and Telegraph Company
Central	Central Telephone Company
CLP	Competing Local Provider
Commission	North Carolina Utilities Commission
Covad	Dieca Communications, Inc., d/b/a Covad Communications
CPU	Central Processing Unit
CWINS	Customer Wholesale Interconnection Network Service Center
DASD	Direct Access Storage Device
DCF	Discounted Cash Flow
DCS	Digital Cross-Connect System or Data Customer Support
Department of Defense	The Department of Defense and All Other Federal Executive Agencies
DIP	Dedicated Inside Plant
DLC	Digital Loop Carrier
DMS	Digital Multiplex System
DOP	Dedicated Outside Plant
DS0	Digital Signal Zero
DS1	Digital Signal One

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DS3	Digital Signal Three
DSL	Digital Subscriber Line
DUF	Daily Usage File
ECI	Employment Cost Index
EF&I	Engineered, Furnished, and Installed
EODUF	Enhanced Optional Daily Usage File
EPHC	Equivalent POTS Half Calls
FCC	Federal Communications Commission
GA/LA	Georgia and Louisiana
HDSL	High-Bit-Rate Digital Subscriber Line
IDLC	Integrated Digital Loop Carrier
ILEC	Incumbent Local Exchange Company (Carrier)
I&M	Installation and Maintenance
ISDN	Integrated Services Digital Network
Kbps	Kilobits Per Second
LCSC	Local Carrier Service Center
LNP	Local Number Portability
LSR	Local Service Request
Mbps	Megabits Per Second
MDF	Main Distribution Frame
NGDLC	Next Generation Digital Loop Carrier
OC3	Optical Carrier Three
OC12	Optical Carrier Twelve
OC48	Optical Carrier Forty-Eight
OCN	Operating Carrier Number
ODUF	Optional Daily Usage File
OSS	Operations Support Systems
PBX	Private Branch Exchange
POTS	Plain Old Telephone Service
PSC	Public Service Commission
Public Staff	Public Staff – North Carolina Utilities Commission

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RBOCs	Regional Bell Operating Companies
RTU	Right-to-Use
SCIS/IN	Switching Cost Information System / Intelligent Network
SCIS/MO	Switching Cost Information System / Model Office
SGAT	Statement of Generally Available Terms and Conditions
SL1	Service Level 1
SL2	Service Level 2
SME	Subject Matter Expert
SNC	Switched Network Calculator
SONET	Synchronous Optical Network
SOP	Statement of Position
S&P	Standard & Poor
SST	Simplified Switching Tool©
TA96	Telecommunications Act of 1996
TELRIC	Total Element Long-Run Incremental Cost
UCL	Unbundled Copper Loop
UCL-ND	Unbundled Copper Loop – Non-Designed
UNE	Unbundled Network Element
UNE-P	Unbundled Network Element – Platform
Verizon	Verizon South, Inc. f/k/a GTE South Incorporated
WorldCom	MCIMetro Access Transmission Services, LLC, MCI WorldCom Communications, Inc., and MCI WorldCom Network Services, Inc.