BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of

Petition of Metropolitan Fiber Systems of Florida, Inc. for arbitration with BellSouth Telecommunications, Inc. concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996.	DOCKET NO. 960757-TP
Petition by AT&T Communications of the Southern States, Inc. for arbitration of certain terms and conditions of a proposed agreement with BellSouth Telecommunications, Inc. concerning interconnection and resale under the Telecommunications Act of 1996.	DOCKET NO. 960833-TP
Petition by MCI Telecommunications Corporation and MCI Metro Access Transmission Services, Inc. for arbitration of certain terms and conditions of a proposed agreement with BellSouth Telecommunications, Inc. concerning interconnection and resale under the Telecommunications Act of 1996.	DOCKET NO. 960846-TP

Volume 8
Pages 1105 - 1276

PROCEEDINGS: HEARING

BEFORE:	CHAIRMAN JULIA L. JOHNSON COMMISSIONER J. TERRY DEASON COMMISSIONER SUSAN F. CLARK COMMISSIONER JOE GARCIA COMMISSIONER E. LEON JACOBS
DATE:	January 27, 1998
TIME:	Commenced at 6:00 p.m. Concluded at 7:00 p.m.
LOCATION:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida

APPEARANCE:

(As heretofore noted.)

I N D E X

WITNESSES

EXHIBITS

VOLUME 8

P R O C E E D I N G S

(Hearing follows in sequence from Volume 7.)

Thereupon,

JOHN KLICK and RICK BISSELL

Continues his testimony under oath from Volume 7.)

CONTINUED CROSS EXAMINATION

BY MS. KEATING:

Q Good afternoon, Mr. Bissell.

A (By Mr. Bissell) Good afternoon.

Q I would like to begin by going over some statements made by BellSouth's Witness Redmond in her rebuttal testimony. On Page 14 of Ms. Redmond's rebuttal testimony --

A I have her deposition transcript, but not her rebuttal testimony.

A (By Mr. Klick) We don't have it, but if you want to read it.

Q We can make a copy available.

A (By Mr. Klick) Page 14?

Q Yes.

A (By Mr. Bissell) Go ahead.

Q On that page Ms. Redmond states that the values used by the AT&T MCI in their cost study came from a 1997 addition of R.S. Mean's (phonetic) division 17 square foot cubic foot cost, is that correct?

A Yes.

Q If you look over then on Page 15 of her rebuttal, Ms. Redmond specifically refers to a disclaimer on the cover sheet for Division 17, and that cover sheet can also be found in her Exhibit DCR-1, which is now hearing Exhibit 21.

A Yes, go ahead.

Q Ms. Redmond states that disclaimer reads, "These projects were located throughout the U.S., and reflect a tremendous variation in cubic foot, in square foot and cubic foot cost. This is due to differences not only in labor and material costs, but also in individual owner's requirements."

Based on that information, do you believe that it would be better to use state-specific data when available?

A Based on that information, first of all, I see that as a very large sample size, which is good. And as well as that state-specific information, the general averages that are used are if we would use state-specific, I believe weighted averages, average somewhere between 88 and 89 percent of the national average. So it would just make our numbers more conservative.

Q So, in other words, you would disagree that state-specific data would be better, is that what you're saying?

A State-specific data from the R.S. Means? I'm not

sure I understand your question.

Q Are you saying that you would not prefer to use state-specific data?

A I'm saying that the state-specific data contained within R.S. Means is only about 88 percent of the national averages that we have used.

Q Okay. Now I would like to go over a discussion in Ms. Redmond's deposition transcript. I do believe you have a copy of that.

A Yes.

Q This discussion is on Page 86, and it continues on to Page 87. Okay. Do you have those pages?

A We do, yes.

Q There Ms. Redmond discusses why BellSouth estimates for a one-hour fire rated gypsum wall is four times the national average used in R.S. Means. She indicates there that R.S. Means is only coding an eight foot wall, while BellSouth's central offices have a minimum ceiling height of 13 feet 6 inches. She then goes on to state that R.S. Means leaves out all the other stuff, taxes and subcontractors. Do you agree with that explanation for the variances?

A (By Mr. Klick) While he's reading, I will say that our model provides for taxes, so it wouldn't be appropriate to -- it's not a criticism of our model that

R.S. Means doesn't have taxes, because we explicitly apply them to the R.S. Means figures. So --

Q So what you are saying is that while R.S. Means doesn't include taxes, your model does, you add it after R.S. Means?

A That's right.

A (By Mr. Bissell) Yes, she's right. The average central office would likely be 13 feet and the numbers we did use was, in fact, for an eight foot.

Q But you're saying that the average should be 13?

A Only for the dust partition. Because the dust partition would have to go to the ceiling, similarly just down the hall here you see. And, basically, the dust partition looks like the one down the hall.

Q Okay. In deposition both BellSouth's Witness Redmond and Witness Baeza discuss the possibility of electrocution when wire mesh or fencing is used for a physical collocation enclosure. Are you familiar with that? Are you familiar with those statements?

A I'm familiar with the topic generally.

Q Do you believe electrocution is possible when metal cages are used for physical collocation?

A No, absolutely not. The grounding issues that BellSouth are raising are basically -- isolated grounding is not only used with switching, isolated grounding is a type

of grounding. I personally have deployed equipment using isolated grounding and I have deployed transmission equipment. Isolated grounding, a network of isolated grounding all it means is that the equipment is isolated from the floor and from the cable racks, and that there is a separate ground going from the equipment, and another ground going from the frame, the iron work, going through the battery return. That is isolated grounding.

In terms of safety, if you look at the majority of suppliers who have practices out, the safety is controlled by grounding all the iron work within the seven foot. It's called the seven-foot rule. Anything, anything which is within a seven-foot reach, i.e., someone can reach, has to be grounded. And the -- all this is grounded. For example, all the iron work is grounded, even the ventilation ducts, the cable racks, et cetera, and there just isn't any reported problems.

MS. KEATING: Thank you, Mr. Klick, Mr. Bissell.

Commissioner Deason, those are all the questions Staff has.

COMMISSIONER DEASON: Commissioners?

Redirect.

MR. HATCH: No redirect.

COMMISSIONER DEASON: Exhibits?

MR. HATCH: AT&T would move 33, 34 and 35.

COMMISSIONER DEASON: Without objection, Exhibits 33, 34 and 35 are admitted.

MS. KEATING: Staff moves Exhibits 36 and 37.

COMMISSIONER DEASON: Without objection, Exhibits 36 and 37 are admitted.

MS. WHITE: BellSouth moves Exhibits 38 and 39.

COMMISSIONER DEASON: Without objection, Exhibits 38 and 39 are admitted.

(Exhibits 33, 34, 35, 36, 37, 38 and 39 received into evidence.)

Thank you, Mr. Klick. Thank you, Mr. Bissell.

MR. BISSELL: Thank you.

COMMISSIONER DEASON: You may call your next witness.

MR. HATCH: AT&T calls Jim Wells. (Pause.)

COMMISSIONER DEASON: Please stand and raise your right hand.

(Witness sworn.)

COMMISSIONER DEASON: Thank you. Please be seated.

Thereupon,

JAMES W. WELLS

was called as a witness for AT&T Telecommunications of the Southern States, Inc., and having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HATCH:

Q Mr. Wells, could you state your name and address for the record, please.

A My name is James W. Wells, Junior. My address is 5280 Laithbank Lane, Alpharetta, Georgia 30022.

Q And by who are you employed and in what capacity?

A AT&T, District Manager, Outside Plant Engineering Costs.

Q Did you prepare and cause to be filed in this proceeding direct testimony?

A No, I did not.

Q I mean, rebuttal testimony, my apologies.

A Yes, I did.

Q And did you also prepare and cause to be filed with that direct testimony some exhibits attached, or your rebuttal testimony exhibits attached to that testimony?

A Yes, I did.

Q And that consists of JWW-1 through JWW-3, is that correct?

A I believe so, subject to check.

Q Do you have any changes or corrections to your testimony at this time?

A No, I do not.

Q Do you have any changes or corrections to your

exhibits?

A No, I do not.

Q Were the exhibits prepared by you or under your supervision?

A Yes, they were.

Q If I asked you the same questions as were in your testimony, would your answers be the same today?

A Yes, they would.

Q Mr. Chairman, could I have JWW-1 through 3 marked for identification, please?

COMMISSIONER DEASON: Yes. Composite Exhibit 40.

(Composite Exhibit Number 40 marked for identification.)

BY MR. HATCH:

Q Mr. Wells, do you have a summary of your testimony?

A Yes, I do.

Q Could you read that, please?

A Thank you. Good afternoon Commissioners. My name is Jim Wells, I --

MR. HATCH: My apologies, Commissioner. Could I have his testimony inserted into the record as though read?

COMMISSIONER DEASON: Without objection, it shall be so inserted.

MR. HATCH: It has been a long day, and I'm

trying to hurry.

REBUTTAL TESTIMONY OF

JAMES W. WELLS, JR.

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

DOCKET NOs: 960833-TP/960846-TP/971140-TP/960757-TP/960916-TP

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is James W. Wells, Jr., and my office address is 5280 Laithbank Lane, Alpharetta, GA 30022

Q. BY WHOM AND IN WHAT CAPACITY ARE YOU EMPLOYED?

A. I have been an employee of AT&T for the past twenty-five years. My current position is District Manager - Outside Plant Cost Engineering in the Cost/Technical Analysis and Advocacy Division of the Local Services Division of AT&T. My area of expertise is Outside Plant (OSP) infrastructure planning, design and construction, including costing aspects of the local loop.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of AT&T Communications of the Southern States, Inc.

II. PURPOSE:

Q. WHAT ARE THE PURPOSES OF YOUR TESTIMONY?

A. The purposes of my testimony are:

- to offer an analysis of and recommend modifications to the OSP portions of the Local Loop portion of BellSouth's Florida Cost Study and
- to rebut the testimonies of BellSouth witnesses Daniel Baeza, Daonne Caldwell and William Zarakas.

Q. HAVE YOU PROVIDED OTHER TESTIMONY IN THIS PROCEEDING?

A. No.

III. QUALIFICATIONS AND EXPERIENCE:

Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND OSP WORK EXPERIENCE.

A. I have Bachelor of Engineering (Electrical Engineering) and Master of Business Administration degrees and certification as a Project Management Professional. I have gained OSP experience in the following assignments:

- with South Central Bell Telephone Company (now BellSouth) in Birmingham, AL: OSP Construction Foreman - 1 year, OSP Facilities Engineer - 4 years, OSP Planning Engineer - 2 years,
- with Western Electric and AT&T Network Systems (now Lucent Technologies): Technical Representative for OSP Products - 5 years and District Manager - OSP Engineering and Construction - 5 years,
- with AT&T Local Infrastructure and Access Management: District Manager OSP Engineering and Construction - 1 year,

- with AT&T Local Services Division: District Manager Outside Plant Cost Engineering - 8 months.

IV. SYNOPSIS:

Q. HOW DOES YOUR TESTIMONY FIT INTO AT&T's OVERALL CASE?

A. My testimony addresses engineering and costing aspects of the Outside Plant (OSP) portion of the local loop, which is the network infrastructure from the central office to the customer's premise. The impact of my recommendations on the total cost of the local loop is included in the testimony of Mr. Wayne Ellison.

Q. PLEASE PROVIDE AN OVERVIEW OF YOUR CONCERNS WITH BELLSOUTH'S COST STUDY.

A. In my testimony I:

- demonstrate that BellSouth's Cost Study is not the least cost, most efficient, forward looking model utilizing currently available technology, for the OSP portion of the local loop;
- identify several flaws in BellSouth's OSP cost modeling methodology and errors in its spreadsheet values and calculations; and
- make appropriate recommendations for improvements to BellSouth's Cost Study.

My testimony addresses the following OSP specific aspects of BellSouth's Florida Cost Study:

- Forward Looking Assumptions - in which I examine BellSouth's assumptions concerning:

- number of cross-connect boxes in a loop,
- minimum copper cable size,
- bridged tap,
- average fiber cable sizes and
- two-channel Digital Subscriber Lines.

These assumptions determine how certain loops in BellSouth's sample are redesigned, or recasted, to reflect what BellSouth incorrectly asserts is a least cost, most efficient, forward looking local loop OSP network architecture utilizing currently available technology.

- OSP Cost Modeling Assumptions - in which I review BellSouth's assumptions concerning:
  - distribution cable utilization,
  - customer drops,
  - network interface devices,
  - building entrance terminals,
  - circuit level costs and
  - structure sharing.

These assumptions underlie the process employed by BellSouth in determining the cost of a single "hypothetical representative loop"[1] for the entire state of Florida.

- Loading Factors - in which I describe how BellSouth's cable material and conduit loading factors are major add-ons used in BellSouth's Cost Study to inflate local loop investment for what should be relatively minor material expenses.

V. CONCERNS WITH BELLSOUTH'S COST STUDY FOR FLORIDA

Q. DOES BELLSOUTH'S COST STUDY REFLECT LEAST COST, MOST EFFICIENT FORWARD LOOKING ASSUMPTIONS WITH RESPECT TO OSP IN ACCORDANCE WITH TSLRIC METHODOLOGY?

A. No, it does not. The set of OSP assumptions in BellSouth's Cost Study do reflect an improvement over the major inefficiencies of BellSouth's current network design, as evidenced by the sample of loops in its network. However, BellSouth's Florida Cost Study does not produce the least cost, most efficient, forward looking, local telecommunications network based upon currently available technology, which is the correct approach to determining the Total Services Long Run Incremental Cost (TSLRIC) for the OSP elements of the local loop. A set of OSP assumptions that embraces this concept would reflect:

- the economies of large scale projects,
- minimization of cable not on the path to the customer,
- costing of a single sheath in cable cross sections,
- minimization of travel time between work locations,
- maximization of structure sharing,
- most efficient utilization of the OSP infrastructure,

- elimination of backward looking network components and methods of operation from loading factors, and
- prudent deployment of currently available technology.

In the following examples, I demonstrate how BellSouth's Cost Study fails to employ these OSP TSLRIC assumptions.

Q. WHY ARE THE BELLSOUTH COST STUDY ASSUMPTIONS CONCERNING THE NUMBER OF CROSS-CONNECT BOXES IN A LOOP NOT FORWARD LOOKING?

A. A forward looking OSP network design would have a single Feeder Distribution Interface (FDI) or cross-connect box in a loop. However, BellSouth has incorporated sampled loops (e.g., FL # 689) with multiple cross-connects into its single hypothetical representative loop. It is recommended that BellSouth add "single cross-connect box" to its list of forward looking redesign criteria for its sampled loops.

Q. WHY ARE BELLSOUTH'S COST STUDY ASSUMPTIONS CONCERNING MINIMUM CABLE SIZE NOT LEAST COST?

A. BellSouth employs a minimum distribution cable size of 25 pairs.[2] The impact of this 25 pair minimum is to exaggerate the number of pairs of distribution cable needed in sparsely populated areas or a side street with eight or fewer customers because the next generally available and economically applicable lower sized cable is 12 pair 24 gauge cable. Based on BellSouth's distribution cable sizing

factor of [redacted] lines per living unit, then customer demand of eight or fewer lines or living units should be served more economically by 12 pair cable.

Mr. Baeza testifies that 25 pair is the smallest pair size cable that BellSouth utilizes because of the cost of having additional cable sizes in their inventory, plus the training costs. However, BellSouth has filed installed cost input values for copper aerial cable per foot as follows: 25 pair, 24 gauge - $[redacted], 12 pair, 24 gauge - $[redacted] and 25 pair, 26 gauge - $[redacted].[3] The potential installed cost savings is at least [redacted]% from utilizing a 12 pair 24 gauge aerial cable instead of a 25 pair cable. Any cost savings for BellSouth from not having 12 pair 24 gauge cable as a choice in its inventory cannot begin to offset these potential savings. BellSouth currently has more than [redacted] cable types and sizes of cable in its inventory.

BellSouth's operating practice of 25 pair minimum size cable and 25 pair distribution cable administration are major contributors to BellSouth's rather low copper distribution cable utilization factor of [redacted]%, which in turn drives up BellSouth's TSLRIC cost for distribution cables of all sizes. The very example that Mr. Baeza uses to substantiate BellSouth's low distribution utilization rate would have a utilization factor of 75% if 12 pair cables were deployed on the side streets.[4]

Mr. Baeza's cost savings arguments include reduced training from not having 6 and 12 pair cables. There quite simply are no additional training requirements to place or splice these smaller size cables.

BellSouth's position on this issue is based on their embedded operating practice of having a minimum 25 pair cable. BellSouth can certainly choose to run its business as it see fit. However, for the purpose of establishing the cost basis for Unbundled Network Elements, BellSouth should model the least cost, most efficient, currently available technology, which in this case is 12 pair 24 gauge cable. The result would be cost savings in cable material, utilization and loading factors.

Q. WHY DO YOU BELIEVE THAT BELLSOUTH'S ASSUMPTIONS CONCERNING USE OF BRIDGED TAP ARE NOT LEAST COST AND FORWARD LOOKING?

A. The term bridged tap applies to copper cable that is not on the direct path of the cable pair between the customer and the central office. As used in BellSouth's Cost Study, it includes "pure bridged tap" (i.e., bridged to the cable pair between the customer and the central office) as well as "end section" (i.e., extending past the customer). "Pure bridged tap," which is prevalent in BellSouth embedded network and thus its loop sample, is a consequence of outdate multiple plant design. BellSouth's Cost Study exaggerates copper cable costs by including up to 2,500 feet of either type of bridged tap from its sampled loops after deleting all of its irregular bridged tap between load coils and repeaters. Even with this limitation to the amount of bridged tap that is actually deployed in BellSouth's network, the cost impact of this mostly inefficient bridged tap adds a staggering [redacted]% - [redacted]% to the BellSouth's total loop investment in Florida. (The range of bridged tap investment is estimated based on BellSouth's filings in similar UNE

cost dockets in other states since BellSouth did not file the relevant spreadsheet (i.e., allcomp) in this proceeding.)

In his direct testimony regarding bridged tap, Mr. Baeza continues BellSouth's futile quest to develop an example to substantiate the inefficiencies of "pure bridged tap," as opposed to "end section.[5] He states that his example demonstrates that bridged tap "is actually desirable in many cases, since it avoids the necessity of building additional plant to serve our customers." This statement is incorrect and misleading. With 40 homes in the subdivision in Mr. Baeza's example, 20 homes along the main street and 20 homes on the cross street, a 100 pair cable is required from the central office. Therefore, no cable from the central office is avoided by the designed bridged tap in the example. The OSP planner or design engineer would allocate 50 pairs along main street and 50 pairs to the cross street. The multiplying of the 50 pairs allocated to the cross street for assignment along the main street as described in Mr. Baeza's example is neither required nor desired and is contrary to the Detailed Distribution Area Planning practice.[6]

Using BellSouth's own example to further illustrate the uneconomical use of designed bridge tap, the 100 pair cable along the main street could have been tapered to a 25 or 50 pair cable at the cross street and still served the demand, if it was otherwise economical to do so. Mr. Baeza asserts that, "Opening the sheath, cutting the cable and splicing the new cable are not free. As well, costs are incurred in training, warehousing and inventorying splicing equipment and in the maintenance of those splices." He seems to overlook the obvious fact that there will be a splice anyway of the 50 pair cable going down the cross street to the 100

pair cable coming down the main street at the potential taper point. Therefore, the correct economic considerations in determining whether or not to taper the cable would be the wire joining cost of splicing to a 25 or 50 cable continuing on down the main street versus the material cost savings of the 25 or 50 pair cable instead of continuing on with the 100 pair cable. Thus, Mr. Baeza's example of reasonable "bridged tap" avoids no costs, violates distribution design practice, and precludes potential cost savings from tapering the cable along the main street.

One more observation regarding Mr. Baeza's testimony on "bridged tap" is that if he really wanted to use it to avoid the necessity of building additional plant, then in his previous example on distribution cable utilization, the 25 houses could have been served with 50 pairs via "bridged tap" with a 75% utilization (based on (25 houses x 1.5 lines per house) / 50 pairs).

There should be zero "pure bridged tap" and minimal "end section" in a forward looking local loop design based on the current Serving Area design concept. The elimination of "pure bridged tap" from BellSouth's redesign assumptions and the limitation of the single "end section" bridged tap to 2,000 feet in accordance with BellSouth's own directive[7] would substantially lower the [redacted]% - [redacted]% of bridged tap copper cable material investment in BellSouth's Cost Study. If BellSouth were to recast its sampled loops in accordance with this recommendation, I estimate that there would be a 3% - 5% reduction in BellSouth's total loop investment. Other local loop cost models, by comparison, have no "pure bridged tap" in their designed loops.

Q. WHY ARE THE BELLSOUTH COST STUDY ASSUMPTIONS CONCERNING AVERAGE FIBER CABLE SIZE NOT LEAST COST?

A. For loops longer than 12,000 feet on copper feeder, the BellSouth Cost Study redesigns such loops with average size fiber cables that can be larger and more expensive than necessary, thereby exaggerating material investment. In Florida, these average sized fiber cables are [redacted] fiber for aerial, [redacted] fiber for buried, [redacted] fiber for underground and [redacted] for building entrance. BellSouth's Cost Study offers no substantiation for these cable sizes, which differ significantly by state. It is incredulous to model [redacted] fiber cable as the average size building entrance fiber cable, especially when these buildings are more than [redacted] feet from the wire center.

In rebuttal to this point in Louisiana, Ms. Caldwell makes the incredible statement that, "Regardless of these facts, on a per DSO equivalent basis, or any other comparable basis for that matter, 25 pair cable is no more costly than 11 or 6 pair cable and 30 strand fiber cable is not more costly than 6 strand fiber cable."[8] BellSouth's own cost data in this docket show the cost of 6 strand fiber cable to be $[redacted] per foot and 30 strand fiber cable to be $[redacted] per foot. In addition, it also cost more to splice the 24 extra fibers in a 30 strand fiber cable.

Mr. Baeza states that "the truth is that one-sixth of a six pair cable is more expensive the one-twenty fifth of a 25 pair cable."[9] BellSouth's methodology of determining cost on a per circuit or DS0 equivalent basis may be appropriate for allocating and recovering costs associated with an embedded investment. But, a forward looking bottom up cost model based on the concepts of least cost and

most efficient would properly size and fully cost each cable in the local loop network. If a 6 or 12 pair cable is of sufficient capacity to serve the customer demand, then that 6 or 12 pair 24 gauge cable costs less than BellSouth's 25 pair 26 gauge cable. Furthermore, and even more importantly, the modeling of 6 and 12 pair cable sizes increases the distribution cable utilization factor, which lowers local loop investment even more because of the way that BellSouth has modeled utilization in its cost study.

By way of comparison, other local loop cost models will determine and then properly size copper and fiber cables for each cable segment of each feeder route in each and every wire center for the entire state of Florida; thereby modeling more realistic material costs for fiber cables in this regard.

Q. HOW ARE THE BELLSOUTH COST STUDY ASSUMPTIONS CONCERNING THE USE OF TWO-CHANNEL DIGITIAL SUBSCRIBER LINE (DSL) SYSTEMS NOT LEAST COST AND FORWARD LOOKING?

A. BellSouth's Cost Study oversizes copper cable spare capacity, thereby increasing material costs and decreasing forward looking utilization factors. Two-channel DSL Systems can operate over 2-wire non-loaded loops out to 18,000 feet and provide a second line capability as needed, which is more economical than having a spare cable pair for each customer. Thus, a least cost, most efficient set of forward looking assumptions utilizing currently available technology would be to reduce some of the spare capacity in copper cables and drops for the non-DLC loops less than 12,000 feet by employing two-channel DSL as the economic alternative if all of the spare cable capacity is used.

The reason that a two-channel DSL System, or BellSouth's Digital Added Main Line (DAML), is more economical than providing excessive spare copper cable capacity is based on the following analysis. With copper utilization rates of [redacted]% for distribution cables and [redacted]% for feeder cables, a substantial amount of BellSouth's loop investment is in spare capacity. Judicious utilization of two-channel DSL systems, or DAML, would raise BellSouth's utilization rates and lower its investment.

BellSouth did not file its investment per local loop in Florida for this proceeding; however, in UNE cost dockets in other states BellSouth has filed $[redacted] - $[redacted] for a 2-wire analog voice grade loop, service level 1. For economic comparison purposes this investment in a spare copper circuit that has very limited redeployment capability is made at time point zero. A two-channel DSL system, or DAML, cost approximately $700. This investment is incurred at some point in the future, if needed. Relatively few of them will likely be needed because there are only [redacted] lines per residence in Florida. DAML is also highly redeployable.

So the appropriate economic comparison is:

- spare capacity in the form of excessive cable investment that is at least [redacted]% to as much as [redacted]% more costly per circuit, is a sunk investment at time point zero, and is provided for all potential users of second lines, versus
- lowered initial cable investment, a smaller cost per additional line that is incurred if, when and only in the amount needed by customers, and is not a sunk investment because it can be redeployed if customer service requirements change.

Mr. Baeza appears to have an entirely different view on how to model and cost a network according to TSLRIC principles. In his rebuttal testimony in Louisiana he states that, "Spending $500 to $700 to gain a pair, and perhaps save an additional drop, at three times the cost of provisioning the pair in the initial cable sizing seems excessive."[10] His oversimplified comparison assumes incorrectly that ultimate spare facilities for all customers must be provided on initial installation and that the economic choice is spare copper pairs or DAML systems initially for all. He does not consider the probability of occurrence, the capability for redeployment nor the discounting of cost associated with a future expenditure for the DAML as the economically viable alternative.

Mr. Baeza also states that the incremental cost of the spare pair is one third of the cost of DAML, which would be $167 to $233. I believe that CLECs would be most interested in leasing BellSouth's spare capacity based on this amount of incremental investment. However, BellSouth's Cost Study uses average investment that is much higher than TSLRIC because, in part, BellSouth's copper utilization rates are too low.

BellSouth's Loop Technology Deployment Directives allow for two-channel DSL systems (referred to therein as DAML for Digital Added Main Line) as BellSouth's last choice for distribution relief.[11] Mr. Wayne Gray (Mr. Baeza's counterpart for Georgia) confirmed at his deposition that DAML is a viable alternative for providing a second line.[12] With two-channel DSL Systems as a viable alternative to oversizing cables for all potential customer needs, initial loop investment will be lowered by raising BellSouth's "forward looking" copper cable

utilization factors. Furthermore, any future investment in DSL Systems is only required if, when, and for as long as specifically required.

Mr. Baeza further argues that "DAML is less expensive if demand is only temporary. If demand is permanent and ongoing, the correct solution is to size the distribution cable to provide for the projected demand."[13] He misses the point that DAML is being proposed as the economical alternative to excessive spare copper pairs for unprojected future demand. Instead, BellSouth would rather deploy and charge current customers, particularly its CLEC customers, for the excessive capacity to possibly serve future customers.

Q. WHAT IS YOUR CONCLUSION REGARDING BELLSOUTH'S FORWARD LOOKING OSP ASSUMPTIONS IN ITS LOCAL LOOP COST STUDYING?

A. My conclusion, based on the examples I describe above, is that BellSouth's "forward looking" assumptions fall short of being the least cost, most efficient utilization of currently available technology, and many of BellSouth's OSP assumptions are not really forward looking at all. BellSouth's Cost Study in numerous ways seeks to recover BellSouth's backward looking, embedded costs incurred in building its existing network.

Q. DOES BELLSOUTH'S COST STUDY INCLUDE ALL THE FORWARD LOOKING ASSUMPTIONS OF BELLSOUTH'S INTERNAL NETWORK DEPLOYMENT PLANS?

A. No. BellSouth witnesses have acknowledged that the BellSouth Cost Study specifically does not incorporate many of the forward looking assumptions of BellSouth's own network deployment directives.[14] On the other hand, BellSouth's Cost Study incorporates other aspects of its "Loop Technology Deployment Directive" that perpetuate the underutilization – and therefore exaggerate the material cost – of BellSouth's existing copper plant. For example, the low utilization of copper cables in BellSouth's Cost Study may be partly attributable to BellSouth's internal and self-serving business decision to [redacted].[15]

OSP COST STUDYING ASSUMPTIONS:

A. COPPER DISTRIBUTION CABLE UTILIZATION

Q. HAS BELLSOUTH MADE REASONABLE ASSUMPTIONS IN PROJECTING ITS UTILIZATION OF COPPER DISTRIBUTION CABLE?

A. No. Based on the criteria of a forward looking, least cost, most efficient local loop utilizing currently available technology, I conclude that BellSouth's copper distribution utilization projection of [redacted]% is too low. A more efficient, forward looking distribution network for Florida would incorporate distribution cable fill factors of approximately 70% with commensurate utilization reasonably projected at 60%. BellSouth's projected distribution utilization results in approximately [redacted]% more distribution cable investment than should be required.

It is important to explain the difference between "fill factor" and "utilization." The fill factor for a copper cable is defined in bottoms up cost models as the percentage of the lines served divided by the number of pairs required to serve those lines, allowing for a reasonable amount of spare capacity. The fill factor for copper cable is used in these other cost models to divide into the number of customer lines to determine the number of cable pairs required, which is then increased to the next larger available cable size, which becomes the number of pairs available.

A better descriptive name for "fill factor" would be "cable sizing factor." On the other hand, the term "utilization" is defined as the number of lines served, divided by the number of pairs available.

The following is an example of how a copper cable fill factor works to create spare capacity. If the demand along a particular street was for 60 lines and the applicable fill factor in that density zone was 75%, then a bottoms up cost model would determine that 80 pairs (i.e., 60 / .75) would be the number of cable pairs required to serve the demand. So, the fill factor alone, in this example, has modeled 20 additional cable pairs, which is a fill factor spare capacity level of 33% (i.e., 20 / 60).

However, since copper cables come in discrete sizes, the bottoms up cost model would select the next larger available cable size, which is a 100 pair cable, to serve the 60 customers along that street. The initial utilization would be 60%

(i.e., 60 lines / 100 pairs available), and the initial spare capacity would be 40% (i.e., 40 / 100).

Since the bottoms up cost model fill factor defines the upper limit on initial utilization, then the least amount of spare capacity initially will be 100% less the fill factor. The actual spare capacity will likely be much greater depending upon the actual demand and the rounding up to the next cable size. Thus, the average "cable utilization" that results from the bottoms up cost model will be significantly less than the input values for fill factors for the cost model. It is a misrepresentation to claim that the bottoms up cost model fill factors are unreasonably higher than the ILECs utilization factors because that is simply not an "apples-to-apples" comparison.

The average utilization for a cable section can be approximated as the average of the initial and planned maximum utilization (i.e., initial customer lines and planned maximum divided by the size of cable placed). Initial and planned maximum utilization can be approximated by first constructing a spreadsheet of customer lines divided by a given fill factor and rounded up to the next larger cable size and calculating the initial and planned maximum utilization. Then, by averaging these initial and planned maximum utilizations over a range of customer line requirements, the average utilization can be approximated, as in Exhibit JWW1.

This methodology produces cables that account for the "lumpiness" of cable investments, will serve reasonably projected future demand, allow for as much as 5% defective pairs, and permit churn in the outside plant.

Q. WHAT IS YOUR BASIS FOR CONCLUDING THAT BELLSOUTH'S DISTRIBUTION CABLE UTILIZATION IS TOO LOW?

A. At a [redacted]% utilization factor, BellSouth's distribution cables will have outlived their usefulness long before they exhaust their excessive spare capacity, as demonstrated below. BellSouth has based its copper distribution utilization on the ratio of current access lines divided by ultimate cable requirements. BellSouth expects an annual average access line growth rate of [redacted]% (based on historical data) over the next ten years.[16] Starting at a [redacted]% fill on existing distribution cables, it would take at least [redacted] additional years of compounded growth to reach a typical fill at relief of 85%. On the other hand, BellSouth's stated service life for aerial and buried copper cables is only [redacted] years. In other words, BellSouth has sized its distribution cables to far exceed reasonably foreseeable capacity requirements during their useful life.

Another reason why BellSouth's copper cable utilization rate is too low is the rather high actual defective pair rate of [redacted]% for BellSouth's copper cables.[17] In my opinion, a 5.0% defective pair rate is unacceptably high and is more than covered by the fill factors.

When asked about this matter in her deposition, Ms. Daonne Caldwell, BellSouth's Cost Witness, was not aware if BellSouth had any standards for an

acceptable defective pair rate. She also mistakenly stated that defective pairs had not been counted as available pairs in establishing BellSouth's Cost Study utilization factors.[18]

My reasons for stating that a 5% defective pair rate is too high are based on the following:

- BellSouth receives copper cables that should have zero defective pairs,
- BellSouth performs cable acceptance test on cable projects and should not be turning up for service newly installed cables with more than 1% defective pairs, and
- BellSouth UNE cost studies have modeled its investment per cable pair to be $[redacted] - $[redacted] in other dockets.
- BellSouth's cost to clear a defective pair is approximately $[redacted].[19]

Thus, as the defective pair rate begins to approach 5%, it becomes very economical to identify and repair or replace major causes. That is unless BellSouth has such large surplus of spare cable pairs that there is no economic need to recover the [redacted]% - [redacted]% in excessive defective pairs. Low cable utilization (i.e., excessive spare pairs in the cable) encourages high defective pair rates because it is often expedient to simply "cut a change" and transfer the customer having trouble to a spare pair, thus leaving the initial pair defective.

Mr. Baeza's reasoning that defective pairs (or fibers) is justification for lowered utilization[20] is certainly not a model for a least cost, most efficient local loop network and should be unacceptable. BellSouth has rationalized its high defective

pair rate in part because of its low utilization rates. In this cost study BellSouth is now trying to rationalize its low utilization rates base in part on its high defective pair rate.

Q. DO BELLSOUTH'S DISTRIBUTION CABLE UTILIZATION ASSUMPTIONS COMPORT WITH BELLSOUTH'S ACTUAL BUSINESS PLANS?

No. BellSouth's own Loop Technology Deployment Directive states that "[redacted]" and "[redacted]".[21] A BellSouth Network Infrastructure Planning Witness has equated this to sizing cable based on anticipated demand in a particular area in the next [redacted] years,[22] as compared to the [redacted] years of spare capacity remaining in cables with [redacted]% average utilization under BellSouth's Cost Study.

Historically, BellSouth has sized its distribution cables based on ultimate demand utilizing a guideline of [redacted] pairs per living unit[23] plus business demand, but is now sizing based on [redacted] pairs per living unit.[24] So, if BellSouth is currently placing distribution cables that are of smaller size based on only the [redacted] year demand or to provide only [redacted] lines per living unit as opposed to its past practice of [redacted] pairs per living unit, then it logically follows that distribution cable utilization rates will rise in the future. Instead, BellSouth's Cost Study reflects the lower distribution cable utilization of its backward looking embedded network

deployment of [redacted] pairs per living unit. The importance of this point is that lowered utilization rates have a direct linear impact on unnecessarily high local loop investment in BellSouth's Cost Study.

Mr. Baeza offers as partial justification for BellSouth's low utilization rates that "consideration also has to be given to churn and sufficient pairs must be available to handle dual or nonconcurrent service activity which is likely to increase with the presence of multiple Local Exchange Companies. As a result, cable sizing requirements will increase, and thus help ensure that utilization factors will remain constant."[25] However, when a customer changes service from BellSouth to a Competitive Local Exchange Carrier (CLEC) via a UNE there should be no change in the cable portion of the local loop; in other words, there should only be concurrent service activity in so far as the cable pair or DLC channel is concerned. Thus, no additional OSP facilities with lower utilization should be attributed to customers changing from BellSouth to CLECs over BellSouth UNEs as Mr. Baeza has argued.

Mr. Baeza also testifies that the various Florida plant utilization factors contained in the cost studies BellSouth has presented are reasonable and represent what he believes that BellSouth's utilization factors will be in the future.[26] This is contradicted by BellSouth's own publicity regarding second line growth:

> BellSouth is driving revenue and profit growth by aggressively marketing additional telephone lines to our customers. Additional lines are key to satisfying the expanding consumer demand for connections to the Internet,

> Home fax machines, children's phones, telecommuting tools and home office phones. With 1.3 million additional lines, BellSouth has the most of any telephone company in the U.S. Our additional lines increased by 21 percent in 1995, and accounted for nearly half of all new residential connections.[27]

For the purposes of defining a least cost, most efficient, forward looking cost model for the local loop to establish the cost basis for UNEs, it is inconceivable that BellSouth would be allowed to use its historical embedded utilization rates. As used in BellSouth's cost model, utilization rates have a direct linear impact on material costs. If the utilization rates used by BellSouth are set 20% too low for a least cost, most efficient, forward looking cost model for the local loop, then the resulting UNE rates will be 20% too high.

Q. HOW THEN IS A MORE APPROPRIATE ASSUMPTION FOR COPPER DISTRIBUTION UTILIZATION DETERMINED?

A. Mr. Baeza constructed a useful table in Exhibit DMB-3 to his Rebuttal Testimony in the Louisiana Cost Docket that shows the effect of sizing cables based on [redacted] pairs per living unit (i.e., a fill factor of [redacted]%) and rounding up to the next available cable size.[28] This table has been reproduced with the addition of 6 and 12 pair cables as Exhibit JWW1. The conclusion drawn from this example is that the average utilization over the life of the cables would be 62.5% (the initial utilization would be 50.0% (i.e., 8,911 / 17,822) and the ultimate utilization would be 75.0% (i.e., 13,366.5 / 17,825) with average utilization being 62.5%).

Q. DOES BELLSOUTH'S COST STUDY APPLY CABLE UTILIZATION FACTORS CORRECTLY?

A. No. The BellSouth Cost Study uses its copper distribution, copper feeder and fiber cable utilization factors to factor up the amount of investment that it determines on a per DSO circuit basis. It makes no differentiation among utilization rates for its embedded aerial, buried or underground applications, even though BellSouth's practice is to size its cables differently based on the type of plant. Typically, buried cables are sized to serve forecasted demand over a longer period of time, and consequently would have lower average utilization than aerial or underground cables. BellSouth's witnesses repeatedly assert correctly that it is undesirable to dig up streets and lawns to reinforce buried cables. What they do not mention, and what BellSouth's Cost Study does not model, is the fact that BellSouth's aerial and underground cables cable sections are sized for shorter relief intervals and have higher average utilization rates due to the lower cost and minimal disruption of cable reinforcement.

B. <u>COPPER FEEDER CABLE UTILIZATION</u>

Q. IS THE UTILIZATION RATE USED FOR COPPER FEEDER IN THE BELLSOUTH COST STUDY APPROPRIATE AND IF NOT, WHAT DO YOU RECOMMEND?

A. No, it is not appropriate. The copper feeder utilization used by BellSouth is the embedded fill measured at the Main Distributing Frame (MDF) in the central office where all the copper feeder pairs are terminated. It is commonly referred to as "MDF fill".

The copper feeder utilization of [redacted]% used by BellSouth in this proceeding is based on the embedded copper feeder, which is not appropriate for TSLRIC. As explained more fully by economic witnesses,[29] the utilization excluding anticipated growth, or what is called "fill at relief" by OSP engineers, is the appropriate utilization for TSLRIC. The "fill at relief" reflects the estimated capacity of the existing network. Based on my experience, the appropriate "fill at relief" for copper feeder pairs is 90% - 95% based on assigned pairs and 85% - 90% based on working pairs. BellSouth has also stated that 85-90% is the appropriate "fill at relief" for copper cables.[30]

Assigned pairs includes feeder pairs that are spare (commonly referred to as idle assigned pairs) but are left assigned to a customer location to avoid a field visit when service is re-connected. A good example of an idle assigned pair is one connected to an apartment that has been vacated but the service for the new tenant has not yet been connected. This typically represents about 5% (as a percent of the assigned pairs). Also, it is important to recognize that when the feeder cables reach the 85% - 90% "fill at relief", it does not automatically mean that relief is required. It is a "trigger" for the outside plant engineer to study the feeder route to determine whether relief is appropriate. The most important factors to consider in making that decision are spare capacity and growth. Obviously if there is no growth or the growth is small, feeder relief may not be required at the time that the "fill at relief" is reached. The importance of focusing on spare capacity and growth as opposed to automatically reinforcing the feeder network when it reaches 85% or 90% fill, cannot be over emphasized. This is critical to achieving and maintaining efficient utilization of the copper feeder network.

BellSouth uses a copper feeder utilization factor of [redacted]% in Florida, which reflects low utilization of the copper feeder investment. Assuming BellSouth's stated annual growth rate of [redacted]% per year, the BellSouth cost study includes spare copper feeder capacity for [redacted] to [redacted] years growth from its average copper feeder utilization, as opposed to the utilization at the time that a feeder route has been relieved with a new cable. This is excessive because feeder cables are generally sized at the time of placement for only three to five years growth, as corroborated by BellSouth's Loop Technology Deployment Directives.[31] Based on this three to five year period and an 85-90% "fill at relief", the fills for the feeder cables should range between 70% (i.e. the lowest fill will be 85% - 15%) and 90% (i.e. the upper fill will be 90%). Thus, the average should be about 80% which is what I recommend as the appropriate utilization for copper feeder cables in this proceeding.

Q. WHAT ARE THE FACTORS THAT AFFECT THE MDF FILL AND CAN YOU PROVIDE SOME EXPLANATIONS OF WHY THE BELLSOUTH UTILIZATION IS THAT LOW?

A. Based on my experience and the BellSouth information that is applicable to all states, I believe the following five factors contribute significantly to BellSouth's low copper feeder utilization:

1. A major factor is the high percentage of defective pairs based on the following data regarding BellSouth's defective pair rate:[32]

Year	Defective Rate
1991	[redacted]%
1992	[redacted]%
1993	[redacted]%
1994	[redacted]%
1995	[redacted]%
1996	[redacted]%

There are a number of factors that contribute to this high defective percentage of pairs. When feeder utilization is low, there is little incentive to clear defective pairs, and customer troubles are cleared by transferring the customer to a good pair. This results in a continuous increase in the level of defective pairs. High numbers of defective pairs is not efficient utilization of the copper feeder investment and should not be included in TSLRIC. Based on the experience of the Hatfield Model OSP Engineering Team, the target level for defective pairs has traditionally been 2% - 3% for copper feeder cable. If the actual defective pair level exceeded this range, an attempt should be made to clear defective pairs prior to placing additional cable. Furthermore, with the advancement in methods and technology for splicing, terminal equipment, cable material, and SAC (Serving Area Concept) design which minimizes rearrangement of the copper pairs, an appropriate forward looking defective pair level should be considerably lower than the embedded level.

2. The BellSouth strategy for deployment [redacted] leads to low copper feeder utilization.

Where BellSouth [redacted], resulting in the copper feeder utilization being lower than it would be otherwise. As indicated in BellSouth's deployment directives, [redacted] contribute to low feeder utilization and should be excluded from the utilization used in TSLRIC.

3. Over-sizing of feeder cables based on optimistic forecasts of growth is a significant contributor to low feeder utilization. Generally, low growth central offices are the major offenders. Because the growth in these central offices is low, it takes a very long time to correct the problem. Furthermore, with the BellSouth emphasis on DLC deployment for strategic reasons, the low utilization in these central offices will take even longer to correct. It is not appropriate to reflect excess copper feeder cable capacity in a TSLRIC study.

4. The utilization measured at the MDF usually understates the true fill of the copper feeder route. Because of a concern about exhausting the conduit capacity entering a central office (there is a room called a cable vault, typically in the basement, where the cables enter the central office from the outside) some engineers automatically oversize the feeder cable that enters the central office. In these cases the utilization measured at the MDF is lower than the fill measured further away from the central office. For this reason MDF fill usually provides an erroneous measurement of the copper feeder investment utilization. While it is simple to determine the fill at the MDF, it is not an appropriate measurement of the feeder cable utilization, and it is

definitely not an appropriate utilization measurement of the copper feeder network for TSLRIC.

5. BellSouth did not adjust the embedded fill factor to reflect the difference between the embedded local loop network design and the forward looking network design assumed for TSLRIC. BellSouth states that their cost study assumes that all loops over [redacted] kilofeet are served on DLC and that loops less than [redacted] kilofeet are served by copper cables. This results is a very important difference that significantly impacts the fill on the copper feeder network. The embedded (or existing) network involves multiple gauges (fine gauge cables for the short loops and coarse gauge cables for the long loops) whereas in the forward looking network the copper feeder will consist of only one gauge. With the requirement for only one gauge, the fill will be significantly higher because in the multi-gauge situation the cables have to be sized separately for each gauge, resulting in lower fills.

Q. WHAT EFFECT DOES BELLSOUTH'S USE OF EMBEDDED COPPER FILL MEASURED AT THE MDF HAVE ON ITS STUDY?

A. BellSouth has understated its copper feeder cable utilization and thus overstated the copper feeder costs in this cost study by:

- choosing to use the embedded fill, measured at the MDF, which is not an appropriate measure of copper feeder route fill,
- not adjusting the embedded fill for the excessive defective pairs,
- not adjusting for inappropriate over-sizing,

- not adjusting for the negative impact on copper feeder utilization of DLC deployment and
- not adjusting the embedded fill to reflect the forward looking requirement for only one gauge.

BellSouth's use of its low embedded copper feeder utilization [redacted]% does not reflect efficient utilization of the copper feeder network. In his Exhibit DMB-1, Mr. Baeza "demonstrates that BellSouth has a better than average utilization rate as compared to other RBOCs [Regional Bell Operating Companies]."[33] It is true that BellSouth's company average embedded feeder utilization of [redacted]% is slightly above the RBOC embedded average of [redacted]%, as is the BellSouth - Florida's embedded feeder utilization rate of [redacted]%. Nevertheless, the relevant criteria for the cost models in this UNE proceeding is "most efficient." By that criteria, BellSouth falls far, far short of the "best in class" RBOC embedded feeder utilization rate of 92.2% as shown in Mr. Baeza's Exhibit DMB-1. And of course, the other relevant criteria for these cost models is forward looking, as opposed to embedded utilization.

Based on BellSouth's own guidelines, and the analysis above, I recommend that this Commission require a utilization of 80% in the BellSouth Cost Study for the copper feeder network.

C. DROPS AND NIDs

Q. HAS BELLSOUTH MADE REASONABLE ASSUMPTIONS IN ITS COST STUDYING OF DROPS AND NETWORK INTERFACE DEVICES (NIDs)?

A. No, it has not. A drop is the individual service wire that typically extends from a cable terminal at the curb or rear lot line to the network interface device (NID) on the outside wall of the customer's premise. Drop and NID costs are a major component of BellSouth's local loop costs because they apply to most loops. BellSouth's drop and NID costs of $[redacted] is an excessive amount, which can be attributed in large part to four of BellSouth's Cost Study drop assumptions which are flawed: 1) average drop length is too long, 2) telecommunications labor costs for drops are too much, 3) the percentage of aerial drops is too low, and 4) the sizing of residence buried drops is too large.

Q. DO YOU BELIEVE THAT BELLSOUTH'S ASSUMPTION FOR AVERAGE DROP LENGTH IS ACCURATE OR REALISTIC?

A. No – BellSouth's assumption for average drop length appears inaccurate for several reasons. First, in its cost study, BellSouth utilizes average drop lengths of [redacted] feet for aerial and [redacted] feet for buried based on the opinion of its subject matter experts. However, there is no evidence that an actual survey of drop lengths was done, and it can only be surmised that the opinion survey was representative of the entire state.

Even if BellSouth's regional estimates for drop lengths were accurate for today – and there is no actual evidence that they are – changing demographics should

decrease average drop lengths in the future. In his direct testimony Mr. Baeza asserts, "I believe that there is no basis to conclude that the length of these drops would be expected to change in the future."[34] However, in deposition, Mr. Gray does indeed foresee changes in the demographics of the customers of local telephone services in the future. He anticipates that business growth may change the business-residence mix, rural areas will become even less rural, and there will possibly be more concentration of customers and more multiple dwelling units.[35] He also foresees that more densely populated areas would have smaller lots with shorter drops, and that there are cases where no drop wires are required.[36] Such changes in customer demographics should result in shorter average drop lengths in the future in contradiction to Mr. Baeza's testimony and the assumptions of BellSouth's Cost Study.

Q. WHAT DO YOU RECOMMEND AS THE APPROPRIATE DROP LENGTH?

A. First of all, as a comparative benchmark to BellSouth's drop length figures, the Bellcore Survey of BOC Loops[37] showed an average drop length of only 73 feet. Mr. Baeza challenges this national average drop length by asserting that BellSouth's region is a relatively rural area and thus should have longer than average drops.[38] A comparison of access lines per square mile for the former Bell Operating Companies shows that BellSouth has approximately 99 access lines per square mile versus a national average of approximately 119. Thus, BellSouth's region is approximately 17% to the rural side of the national average. However, BellSouth - Florida has approximately 237 access lines per square mile, roughly

twice the national average, and is definitely not a "more rural environment" as claimed by Mr. Baeza.

My observation from having worked in OSP for BellSouth in Alabama for seven years, from having field surveyed OSP in ten CBGs all around the state of Georgia in preparing a response to a data request from the Georgia PSC Staff, from living in BellSouth's service areas in four states for most of my life, and from traveling extensively throughout BellSouth's nine state region, is that more than 80% of BellSouth's residential and small business customers have either no drop or drops that are less than 150 feet in length. I therefore recommend adjusting BellSouth's average drop length for both aerial and buried drops to 100 feet.

Q. WHY DO YOU CONCLUDE THAT BELLSOUTH'S ASSUMPTIONS FOR TELECOMMUNICATIONS DROP LABOR COSTS ARE TOO HIGH, AND WHAT DO YOU RECOMMEND?

A. BellSouth has included in its costs for telecommunications labor [redacted] minutes for travel, [redacted] minutes for Network Interface Device (NID) installation, and [redacted] minutes for terminating the drop, for a total of [redacted] minutes. There is also an additional [redacted] minutes of telecommunications labor for placing an aerial drop. BellSouth has assumed an average travel approach between drop placements, in contrast to a least cost, forward looking, large scale project approach that would minimize travel between drop placements. My recommendation is that BellSouth's telecommunications labor time for travel, NID installation and drop

termination should be reduced to 60 minutes total, with an additional 20 minutes for placing an aerial drop.

Q. WHY DO YOU CONCLUDE THAT BELLSOUTH'S ASSUMPTION REGARDING ITS PERCENTAGE OF BURIED DROPS IS TOO HIGH, AND WHAT DO YOU RECOMMEND?

A. The BellSouth Cost Study models [redacted]% of drops as aerial and [redacted]% as buried for both business and residence lines, based on data from BellSouth's loop sample, which suggest that these are the actual percentages of loops served by aerial and buried terminals. I believe that this modeling methodology is flawed because it does not account for BellSouth's very common practice of buried cable terminals having aerial drops, but not vice versa. Lacking data on actual physical drop percentages for BellSouth in Florida, my recommendation, based on extensive personal observations in other BellSouth states, is that the drop percentages in BellSouth's Cost Study should be adjusted to 35% aerial and 65% buried drops.

Q. WHY DO YOU CONCLUDE THAT BELLSOUTH'S ASSUMPTION REGARDING THE SIZE OF ITS BURIED DROP FOR RESIDENCES IS TOO LARGE, AND WHAT DO YOU RECOMMEND?

A. BellSouth's Cost Study shows that it serves [redacted] lines per residence, but assumes [redacted] pair buried drops for both residences and businesses. However, a [redacted] pair drop, which is the size that the BellSouth Cost Study assumes for its aerial drop applications, creates an average of [redacted]% spare capacity (based on [redacted] / [redacted] (i.e., [redacted]%) of the capacity of [redacted] pair drops being utilized). While BellSouth can certainly

choose to invest in [redacted] pair buried drops to every residence to preclude ever having to reinforce any of them, it is not economically justified that a CLEC should fully support the resulting [redacted]% average spare capacity (based on [redacted] / [redacted] (i.e., [redacted]%) of the capacity of [redacted] pair drops being utilized). Furthermore, the availability of second line DSL Systems working on copper pairs out to 12,000 feet provides a viable alternative for up to four subscriber lines on a 2-pair buried drop for those residence customers who may someday require more than two lines.

My recommendation, for the purpose of costing UNEs, is that all residence buried drops should be 2 pair. From the Copper Cable Table in the BellSouth Cost Study, the cost premium for 5 pair versus 2 pair BSW is $[redacted] per foot. For BellSouth's average [redacted] foot buried drop, this would represent a direct material savings of $[redacted] per drop (including the 6% sales tax) for the [redacted]% of buried drops serving residences.

Additionally, BellSouth has costed NID Material (Bridge & Protector) for two pair aerial and buried. Thus, [redacted]% of the residential station protectors are spare. Station protectors are very modular and can be installed as needed. BellSouth has therefore modeled excessive investment in station protection of approximately $[redacted] for each residence customer location versus the cost of placing single station protection on each residential working line.

Q. WHY DO YOU CONCLUDE THAT SOME OF BELLSOUTH'S DROP AND NID COSTS WERE NOT FACTORED FOR THE AVERAGE

NUMBER OF LOOPS PER RESIDENCE, AND WHAT DO YOU RECOMMEND?

A. In its Drop Wire/NID Material spreadsheets, BellSouth's Cost Study has correctly factored for the number of residence and business loops with drops in its calculation of Material for Drop and NID, Contractor Labor, and Telco - Install and Terminate Drop Labor. However, it has not applied this factor appropriately to Exempt Material, Telco - Travel Time, or Telco Install NID Labor. Exhibit JWW2 correctly applies these factors to all of the appropriate elements.

Q. CAN YOU SUMMARIZE THE COMBINED IMPACT OF YOUR RECOMMENDATIONS FOR ADJUSTMENTS TO BELLSOUTH'S DROP COSTS?

A. The interdependent impact of all of these recommendations, as detailed in Exhibit JWW2, would be to lower the total average weighted material for drop investment from $[redacted] to $[redacted]. This represents a major reduction of $[redacted] in the drop investment, resulting in a substantial reduction (my estimate is [redacted]% - [redacted]% since BellSouth did not file the spreadsheet for total loop investment) in the total material investment for BellSouth's hypothetical representative local loop.

Q. DOES YOUR ANALYSIS OF TELECOMMUNICATIONS DROP LABOR ALSO APPLY TO BELLSOUTH'S CALCULATION OF THE COSTS FOR NIDs?

A. Yes it does. First of all, it is unlikely that AT&T would request BellSouth to install a stand-alone NID for leasing as UNE. The reasoning is that a CLEC might wish to lease an existing BellSouth NID as an Unbundled Network

Element. However, if no BellSouth NID existed at the customer's location, it is likely that the CLEC would choose to install its own stand-alone NID rather than incur the expense for BellSouth to make a trip to just install a stand-alone NID. Therefore, BellSouth's Cost Study should calculate the costs for a NID as if the NID had been installed along with the drop. BellSouth has loaded the full [redacted] minutes of travel that it costed for drops and NIDs into its standalone NID costs. Under a least cost, forward looking approach, the travel time would be minimal for the original installation of the NID along with the drop, and what travel time there is should be shared between the drop and the NID. My recommended reductions in travel time to 15 minutes and in total NID labor to 25 minutes, coupled with the 35% aerial and 65% buried drop occurrence recommendation, will produce revised Material Inputs to the costs for 2-Wire and 4-Wire NIDs as detailed on Page 4 of Exhibit JWW2.

D. BUILDING ENTRANCE TERMINALS

Q. HAS BELLSOUTH MADE REASONABLE ASSUMPTIONS IN ITS COST STUDYING OF BUILDING ENTRANCE TERMINALS (i.e., OSP CABLE TERMINATIONS INSIDE OF BUILDINGS THAT OFTEN REQUIRE ELECTICAL STATION PROTECTION)?

A. No it has not. In its June 20, 1997, revised filing of its Georgia Cost Study, BellSouth changed all building entrance terminals from cross boxes to a costing formula based on multiple 100 pair units of its average building entrance station protector at $[redacted] per 100 pair unit. Station protection is required on metallic cable pairs entering a building to provide a safe path to ground in case of an electrical fault in the OSP. I have four major issues with respect to BellSouth's

new building entrance terminal assumptions which I believe add unreasonable costs into BellSouth's local loop model:

- BellSouth has assumed that all building entrance cables in urban areas require costly station protection. In urban areas where buildings are close and sufficiently high to provide cone-of-protection shielding, and where extensive underground metallic piping systems exist to dissipate large currents, building entrance terminals do not require costly station protectors.[39]
- BellSouth has improperly placed station protected terminals on some of BellSouth's existing loops and redesigned loops which have non-metallic fiber feeder into the building (e.g. FL # 23). The derived feeder pairs from the DLC remote terminal fed by the fiber cable do not require station protection as assumed by Ms. Caldwell.[40]
- In some cases, the costing for building entrance terminals has been exaggerated because station protectors have been modeled on the cable pairs that distribute within the building (e.g. FL # 23).[41]
- In BellSouth's Cost Study assumptions prior to its June 20th revision in Georgia, when building entrance terminals were treated as cross-connect boxes, BellSouth had divided the cost of the building entrance terminal between feeder and distribution. In BellSouth's current Cost Study, the full cost of multiple 100 pair station protected terminals has been double counted for both feeder and distribution in some building entrance facilities (e.g. FL # 23) in contradiction to Ms. Caldwell's statements in deposition.[42]

Q. HOW COULD BELLSOUTH'S BUILDING ENTRANCE TERMINALS BE MORE ACCURATELY COSTED?

A. The material portion of the hypothetical representative loop for field reporting code FRC 12C, which includes the Building Entrance Terminals, is typically relatively minor (BellSouth did not file the data in this proceeding) because these exaggerated costs are converted to a per DSO equivalent. An accurate re-costing of the building entrance terminals would require access to BellSouth's plats for all the affected loop samples in order to determine the number of feeder and distribution pairs per building entrance terminal and whether any unexposed feeder pairs were terminated and thus would not be worth the effort. However, correction of the rather obvious deficiencies in BellSouth's Cost Study of placing station protection on fiber building entrance cables and distribution pairs within a building can and should be done.

E. OTHER OSP COST STUDYING ASSUMPTIONS

Q. WHAT OTHER ISSUES AND RECOMMENDATIONS DO YOU HAVE CONCERNING BELLSOUTH'S ASSUMPTIONS FOR ITS LOCAL LOOP COST STUDYING?

A. There are three other miscellaneous issues:

1. Circuit Level Copper Cable Material Costs,
2. Structure Sharing and
3. Errors in BellSouth's Tables, etc.

Q. WHAT ARE YOUR CONCERNS REGARDING BELLSOUTH'S MODELING OF CIRCUIT LEVEL COPPER MATERIAL COSTS?

A. In converting its hypothetical representative loop to TELRIC Calculator inputs, BellSouth converts copper cable material costs into circuit level costs per foot by

dividing the cost per sheath foot by the number of pairs in the cable and the utilization factor. Exhibit JWW3 shows that the cost of copper cable by circuit-foot (i.e., pair-foot) decreases significantly as the pair size of the cable increases through 600 pairs before leveling off.

This is a example of convoluted modeling logic in BellSouth's Cost Study in that larger cables, which actually add more to BellSouth's network investment, produces a lower average loop cost. Thus, the least cost local loop output employing BellSouth's Cost Study would be obtained by redesigning each cable to its maximum size. For example, all 25 pair buried cables redesigned to 2400 pair cables would illogically produce the "least cost" solution using BellSouth's Cost Study. However, such a modeling approach does not produce the "most efficient" solution, as evidenced by BellSouth's low utilization rates. In contrast, other bottoms up cost models size each cable appropriately, and smaller cables contribute smaller amounts of investment to the network solution.

BellSouth has determined its single hypothetical representative loop by compiling the actual cable sizes by type for each segment of its 349 samples of existing loops. BellSouth has stated that, "Cables are appropriately sized in the BellSouth studies." The cables in BellSouth's loop survey are its existing cables, and nothing has been done to substantiate that they have been "appropriately sized."[43]

On the contrary, BellSouth's low utilization factors and current deployment directives support a conclusion that, in general, BellSouth's cables are oversized. There are two types of cases where the inefficiencies of BellSouth's existing

network result in smaller size cables at higher per circuit-foot costs being included in its Cost Study.

The first case is where there is a cost inefficient tapering in BellSouth's embedded feeder route. This seemingly minor cost inefficiency gets compounded numerous times throughout BellSouth's Cost Study as it is magnified by utilization, inflation, material loading and conduit loading factors.

My second issue regarding BellSouth's conversion to cost per circuit-foot is that many of BellSouth's embedded cable cross sections contain multiple sheaths from years of reinforcement projects. Therefore, many of the cables included in BellSouth's hypothetical representative loop do not reflect the proper sizing that would be achieved if the least cost, most efficient cable were placed to serve the requirements of each cross section.

When multiple cables of less than 600 pairs parallel each other, there are significant cost inefficiencies on a per circuit-foot basis as shown in Exhibit JWW3. These cost inefficiencies in the basic cable material costing get compounded over and over throughout BellSouth's Cost Study via its subsequent loading factors.

By comparison, other cost models appropriately taper each cable section and uses the most economically efficient cable to serve the requirements. Short of redesigning BellSouth's sampled loops with a set of its plats to eliminate these two cost inefficiencies, it can only be estimated as to how much BellSouth's

copper cable circuit level material costs are overstated. Based on Exhibit JWW3, my estimate is 25%, which translates directly into a 20% reduction in the copper cable investment amounts.

Q. WHAT ARE YOUR CONCERNS WITH BELLSOUTH'S MODELING ASSUMPTIONS REGARDING STRUCTURE SHARING?

A. BellSouth's Cost Study does not incorporate a forward looking view of structure sharing in a competitive environment where there will be greater opportunities and incentive for telecommunications companies to share pole lines, trenches and conduit runs. Mr. Baeza grossly misrepresents the structure sharing assumptions of other cost study models when he claims that they assume sharing of structures such as poles, conduit and trenches 100% of the time.[44] Other cost models utilize a weighted percentage of structure sharing that varies depending upon the type of plant and density zone.

Q. WHAT CONCERNS DO YOU HAVE IN REGARDS TO BELLSOUTH'S TABLES, ETC.?

Cost models evolve, particularly when reviewed by third parties, and BellSouth's Cost Study is certainly no exception. In addition to the modeling issues detailed above, a short list of items that still appear to need correction include:

- In the Cable Material Table, the investment for 25 pair buried cable is listed as $[redacted] per foot. It should be $[redacted] per foot. Similarly, 1800 pair aerial cable is listed as $[redacted] per foot when it should be $[redacted] per foot.[45]
- The weighted costs for the 50 pair building entrance and intrabuilding cables include [redacted]% of BKTS-50, a self-supporting cable code which includes the

cost of strand. However, strand is not required in building entrance and intrabuilding cables.

BellSouth's Cost Study is at a relatively early stage in the rigorous process of critical review and improvement. Several corrections have been made; however, other cost models are much further along.

OSP LOADING FACTORS

Q. HAS BELLSOUTH MADE REASONABLE ASSUMPTIONS FOR OSP LOADING FACTORS IN ITS LOCAL LOOP COST STUDYING?

A. No it has not. BellSouth's OSP loadings are not forward looking and, instead, are utilized to recover the costs of BellSouth's past methods of operation. Numerous loadings have been developed based on BellSouth's embedded investment and its 1995 costs and investments. These loadings typically comprise an enormous [redacted]% - [redacted]% of the total investment in the 2-wire analog voice grade loop (BellSouth did not file the information required to accurately determine the loading on it hypothetical representative loop in this proceeding). To paraphrase the analogy employed by Ms. Caldwell, that is a awful lot of "nuts, bolts and screws" compared to the amount of "lumber" being used to build this "house."

Q. WHAT CHANGES, IF ANY, DO YOU RECOMMEND TO BELLSOUTH'S OSP LOADING FACTORS?

A. All of the loadings in the BellSouth Cost Study that are applied to the average material cost of BellSouth's single hypothetical representative loop for the entire state should first be adjusted to eliminate any embedded costs that are not forward

looking. I am incapable of deciphering the details of BellSouth's accounting, but examples of such embedded costs in BellSouth's loading factors could include: load coils in its material costs, historical conduit investment based on large, coarse gauge copper cables to serve long loops, maintenance of buried air core PIC cables, etc.

Q. WHAT LOADING FACTORS DO YOU BELIEVE BELLSOUTH HAS OVERSTATED, AND UPON WHAT DO YOU BASE YOUR CONCLUSIONS?

A. I believe that BellSouth has overstated its cable material and conduit loading factors.

Q. WHY DO YOU BELIEVE THAT BELLSOUTH'S COST STUDY OVERSTATES ITS CABLE MATERIAL LOADING FACTORS?

A. My initial concern is with BellSouth's cost modeling methodology of its loadings. BellSouth applies a material loading factor to the inflated direct material cost for copper and fiber cables in its Outside Plant (OSP) Field Reporting Codes (FRC). These material loading factors are modeled primarily to recover telecommunications engineering and labor, vendor engineering and installation, exempt (i.e., minor) material, and sales tax. BellSouth's methodology is to calculate a ratio of these associated expenses to its non-exempt (i.e., major) material investments for the year [redacted], and then multiply this ratio by the direct material associated with its single hypothetical representative loop for the state.

I do not believe that BellSouth's ratio of material loading expenses to cable investment in [redacted] should be considered least cost, most efficient, or forward looking based on currently available technology. Mr. William Zarakas, BellSouth's Cost Modeling Witness, stated in his deposition that, "our assumption there would be that the cost of installing a pole in the future would basically be the same as it was in the past, because we see no change in the technology. And we did that for each individual factor or loading (emphasis supplied)."[46]

Going beyond the fundamental methodology question and looking into the data provided on the material loading factors raises additional questions. These material loading factors for cable are huge contributors to the total loop investment as follows: aerial - [redacted], buried - [redacted], underground - [redacted] and building - [redacted]. Thus, for example, BellSouth is saying via its cost study that for every $1.00 of aerial copper cable material that it puts into its network, it loads in additional costs of $[redacted] in in-plant material loadings, which does not even include the costs of poles, which is another loading of $[redacted] per each $1.00 of aerial cable material.

A more familiar way of expressing this relationship is to say that in BellSouth's modeling of cable investment, [redacted]% - [redacted]% of the cost is in the cable and [redacted]% - [redacted]% is in the loadings for engineering, construction, etc. This far exceeds a generally accepted ratio in the industry of 40% cable material to 60% in loadings. In BellSouth's Cost Study the focus is predominantly on the material, but the "big dollars" are in the loading factors which are an accounting mystery of embedded investments and operating practices.

Clearly, BellSouth's current practice and forward looking policy directive is to build more cost efficient fiber plant,[47] but its cost study is "overloaded" with the embedded cost inefficiencies of its copper cable in-plant loadings. Lacking the accounting details or expertise to challenge the specific expenses and investments underlying these material factor ratios, my recommendation is that they be reduced significantly. This would bring the average ratio of material loadings to non-exempt material from BellSouth's exorbitant level down to a ratio of 1.5, which is consistent with the assumptions of the AT&T/MCI sponsored cost model.

Q. WHY DO YOU BELIEVE THAT BELLSOUTH'S COST STUDY OVERSTATES ITS CONDUIT LOADING FACTOR?

A. BellSouth uses a conduit loading factor applied to underground cable investment to determine the amount of conduit investment to add to the total 2-wire analog voice grade loop investment. This factor results in $[redacted] in associated conduit costs for each $1.00 in underground copper and fiber cable after the cable material costs have been inflated and had the previously described material loadings added. This conduit loading factor is derived from the ratio of BellSouth's embedded conduit and underground cable investment accounts, which have been adjusted to current costs and inflated.

I have three issues with BellSouth's conduit loading factor. First, BellSouth's cost modeling methodology is seriously flawed, in that it assumes that the cost of conduit is proportional to the material cost of the cable that is placed in the conduit. This is a terribly oversimplified and incorrect assumption. Mr. Zarakas

states that "the cost of installing poles and conduit will similar in the future as it is today."[48] What Mr. Zarakas fails to understand and model is that the ratio of those costs to the material costs of the cables that they support has changed dramatically from BellSouth's historical cost ratio.

The cost of a duct does not vary based on whether a 600 pair or 3600 pair copper cable is pulled into it. BellSouth's conduit loading factor does not take into account that a 4-inch duct is typically used to support only one copper cable but three fiber cables. Neither does the BellSouth Cost Study account for such cost variables as the number of ducts in a conduit run nor the cost to cut and restore the trench based on its particular location.

Second, the historical ratio of conduit to underground cable investment is a dreadfully inappropriate forward looking ratio, due to the dramatic shift from large, heavy gauge copper cables to fiber cables for interoffice trunking and for feeder routes over 9,000 feet. Conduit systems of 4-inch ducts that were sized to accommodate a single large copper cable in the past now easily accommodate three fiber cables per 4-inch duct, with each of these fiber cables having far more circuit capacity than the single copper cable. Yet the BellSouth Cost Study applies the same conduit loading factor to both copper and fiber underground cable investments. Existing underground copper cables are being replaced by fiber cables, as corroborated by BellSouth's declining underground cable - metal investment account. Thus, BellSouth's future requirements for conduit will be far less. Also, because of this transition to fiber cables and removal of copper feeder cables,[49] existing conduit runs will not likely have to be reinforced in the

future. A significant portion of BellSouth's historical conduit investment account is attributable to projects it undertook to reinforced existing conduit runs. Such conduit investments will simply no longer be required as they were in the past.

Third, BellSouth's embedded ratio for conduit loading includes conduit investments that have been sized for a [redacted] year service life (and will not likely ever have to be reinforced) divided by underground cable investments that are sized to be relieved in less than ten years. Furthermore, the most efficient, least cost, forward looking practice will require most of BellSouth's future underground cables to be placed in existing ducts, which will require no additional conduit investment.

BellSouth's conduit loading factor typically accounts for an considerable [redacted]% - [redacted]% of the total investment in BellSouth's representative 2-wire analog voice grade loop (BellSouth did not file the data to determine this exactly for this proceeding). Applying least cost, most efficient, forward looking assumptions clearly demonstrates that BellSouth's conduit loading factor is egregiously overstated. I estimate that it should be reduced from [redacted] to .250. In contrast, other cost models place new conduit runs to support the underground cables designed for each unique feeder route in each unique wire center in the entire state.

VI. SUMMARY AND CONCLUSION

Q. HOW WOULD YOU SUMMARIZE YOUR TESTIMONY CONCERNING BELLSOUTH'S COST STUDYING OF OUTSIDE PLANT FOR THE LOCAL LOOP?

A. While BellSouth's Cost Study reflects an improvement over the inefficiencies of BellSouth's current network design, my analysis concludes that it is certainly not the least cost, most efficient, forward looking set of assumptions for a local loop model, particularly when compared to the other bottoms up cost models currently available. Moreover, I believe that further analysis and more information would uncover additional deficiencies in the OSP component of BellSouth's local loop Cost Study.

Nevertheless, identification and correction of all of the known and yet to be determined deficiencies in the OSP portion of BellSouth's Cost Study will not resolve the fact that BellSouth's OSP cost modeling methodology, which is based on a single hypothetical representative loop for the entire state of Florida, is fundamentally unsound. I base this conclusion on the fact that the OSP portion of local loop investment varies greatly depending upon a number of factors, but primarily determined by loop length and the density of customers. BellSouth's Cost Study cannot be applied to determine an accurate estimate of the local loop cost for any customer's loop or grouping of loops below the total state level, and therefore is fundamentally unsound for costing local loops in a competitive environment.

It is rather obvious that BellSouth's intent in modeling local loop cost with a single hypothetical representative loop is to create an barrier to market entry for potential Competitive Local Exchange Carriers. BellSouth's Cost Study achieves this objective by costing the shorter loops in customer dense areas which have the most revenue potential at cost levels far in excess of BellSouth's own costs. In

sharp contrast, BellSouth has employed a much lower cost basis for its ESSX loops, which face a competitive alternative. It is also noteworthy that BellSouth has excluded ESSX loops from it sample for determining UNE costs.

For all of these reasons, my final recommendation is that if it has already been decided that the BellSouth Cost Study will be the basis for determining local loop costs in Florida that BellSouth's OSP modeling assumptions and input values be modified based on the recommendations in my testimony.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

MR. HATCH: Now, could you continue with your summary, Mr. Wells.

THE WITNESS: Thank you.

As I said, my name is Jim Wells, I'm here to talk about outside plant, and that is the portion of the local loop that goes from the wire center to the customer's premise.

I'm a career employee of AT&T with over 20 years of experience in outside plant. I have planned, engineered and built local access networks. And I spent the first seven years of that career with South Central Bell, which is one of BellSouth's predecessors.

And my purpose in this proceeding is to recommend the most appropriate model for determining local loop investment. Now, I'm just an engineer, but the economists tell me that for the local loop network that the most appropriate model in this proceeding should replicate the local loop network of an economically efficient carrier in a competitive environment. And the appropriate model should be reasonable, it should be least cost, most efficient, forward-looking. It should be based on currently available technology, and it should conform to sound outside plant -- outside plant and transmission design practices. And also the appropriate costs are to be total, long-run and incremental, and very specifically are not to include the

embedded network.

Now, there are a lot of detailed and somewhat boring analysis in my testimony that show why BellSouth's cost study does not meet the model criteria. Fundamentally, BellSouth's cost study is based on a sample of loops from its embedded network. And there still are a number of inherent cost deficiencies and backward-looking methodologies in BellSouth's network that have not been taken out in the, quote, redesign, unquote, of their loop sample, and I would like to summarize just five of those.

First, about four percent of the loop investment in their model is what I call pure bridged tap and it's unwarranted. Number two is that distribution cable utilization in the model is based on BellSouth's historical rates, and it should be about 61 percent higher than they use.

Now, BellSouth's low cable utilization rates can be attributed to several factors. For instance, their defective pair rate is more than twice what an acceptable rate should be. Secondly, there is a reluctance on their part to factor in the efficiencies of digital additional main line systems, or DAML, that was talked about earlier. Third is a failure to take into account the tremendous growth in lines per residence that is going on. And fourth is a practice of having current customers pay exorbitant

amounts for spare capacity to serve future customers.

A third area of embedded cost inefficiencies is that while BellSouth goes to great lengths in its cost study to support its material crisis, the really big costs are in the in-plant loading factors, and these reflect numerous cost inefficiencies in BellSouth's embedded network and operating practices. For example, their outside plant contractor costs are based on higher prices for the day-to-day routine work as opposed to the more cost efficient project work.

Another point is that their conduit investment, which is one of these loading factors, is based on historical ratios of their large copper cables in 4-inch ducts instead of the current technology which places three less expensive fiber cables having far greater circuit capacity in the same 4-inch duct.

And another point is that there is a real lack of forward-looking sharing of structure cost with other utilities that is not reflected in their model.

Point number four is that BellSouth's cost study also imposes upon potential CLECs the cost inefficiencies and transmission degradation of universal digital loop carrier instead of offering us the far superior integrated digital loop carrier that they employ for their own use.

And the fifth way that BellSouth has structured

its cost study to be an effective barrier to CLEC market entry is by averaging local cost into a single hypothetical loop for the entire State of Florida. Now, loop costs vary considerably based primarily on loop length and the density of customers served by the loop. Thus, BellSouth's proposed UNE rates are a very effective barrier to CLEC market entry in urban areas until such time as forces of competition will drive price towards economic cost.

Now, the best example that I know of of this particular point is BellSouth's ESSX service offering. Now, here is a case where BellSouth faced real competition for its CENTREX service offering from private branch exchanges or PBXs, which were deregulated. In order for BellSouth to be competitive it had to develop more competitive ESSX rates based in large part on the fact that they actually have lower investment for the shorter higher volume loops to serve large business customers. And by the way, as was pointed out earlier today, these shorter ESSX loops have been purposefully excluded from BellSouth's sample in its cost study.

So faced with competition, the excessive contributions that BellSouth enjoyed from CENTREX service have now been lost due to real competition, and BellSouth's ESSX rates more reflect the actual cost in urban areas.

In conclusion, I have two recommendations. One

is that this Commission should recognize BellSouth's cost model for the market entry barrier that it is, because of the cost inefficiencies that are built into it from its embedded local loop. And, secondly, it should implement the modifications that are made in my testimony to make it more appropriate for determining competitive local loop costs for establishing the UNEs in Florida. Thank you.

MR. HATCH: AT&T tenders Mr. Wells for cross.

MS. KEATING: Commissioner Deason, I ask that staff's exhibits for this witness be marked for the record at this time.

COMMISSIONER DEASON: Exhibit 41, JWW-4.

(Exhibit 41 marked for identification.)

MR. SELF: No questions.

MR. ROSS: Thank you, Commissioner Deason.

CROSS EXAMINATION

BY MR. ROSS:

Q Mr. Wells, Bennett Ross on behalf of BellSouth. Good afternoon.

A (By Mr. Wells) Good afternoon, Mr. Ross.

Q Mr. Wells, in your summary you mentioned certain recommendations that you are making, and I think they are outlined in more detail in your testimony, about the outside plant assumptions in BellSouth's cost study, is that correct?

A That is correct.

Q And you do have some experience with outside plant assumptions in cost models, don't you?

A Yes, that's correct.

Q And although I didn't see it in your testimony, I believe you have experience in developing the outside plant assumptions used in the Hatfield Model, is that correct?

A Yes. I am a member of the Hatfield Model outside planning engineering team, and our responsibility in that role are to develop the model methodology and the input values that are used in the Hatfield Model. I did not mention it in my testimony or summary because the Hatfield Model is not being presented in this particular docket at this time.

Q But I assume that in your role as a member of the engineering team that supports the Hatfield Model, that you are familiar with the outside plant assumptions in the Hatfield Model, is that fair?

A Yes, that is very fair.

Q Let me ask you about the copper distribution cable utilization assumption that you believe the Commission ought to adopt for BellSouth's cost studies. Specifically -- and I'm on Page 16 of your testimony -- you criticize the copper distribution utilization factors that BellSouth has used, is that correct?

A Bear with me while I -- was there a particular line I need to look at?

Q I believe it starts on Page 16 at about --

A Oh, just in general?

Q Line 17.

A Okay. This is talking about the distribution cable specifically. And, yes, I do criticize the very low -- it's a proprietary number here, but it is an extremely low utilization factor.

Q And on Page 17 you describe how a, quote, bottoms-up cost model, close quote, should in your view properly account for copper distribution cable utilization, is that correct?

A Yes. I describe how a bottoms-up model would use fill factor or cable-sizing factor based on the demand and create the number of pairs required, how it would round it up to the next size cable. So that's the methodology that a bottoms-up model would use as opposed to BellSouth's methodology of saying that because our utilization rate has always been this particular level going forward it should be that level.

Q Is the Hatfield Model one of the, quote, bottoms-up, close quote, cost models to which you're referring? A Yes, it would be.

Q Now, specifically in recommending a copper

distribution cable utilization assumption for BellSouth's cost studies, you propose a number of approximately 70 percent, is that correct?

A The question was what do I propose that BellSouth should use for utilization, is that the question?

Q Let me rephrase the question.

A Please do.

Q Is it your position that the Commission should use a distribution cable fill factor of approximately 70 percent and incorporate that assumption in BellSouth's cost studies?

A I think I used probably a range of fill factors. As you should be aware, the Hatfield model has different fill factors for different density zones. But to be clear here, my recommendation is very clear in here, that the utilization rate that BellSouth should use in its model should be about 62-1/2 percent as opposed to the low number that you use now.

Q So the number that you are proposing is 62 percent and not 70 percent?

A 62-1/2 percent utilization. And in my testimony, and I will be glad to go through details, I differentiate between a fill factor and utilization. The Hatfield Model uses the fill factor, the BellSouth model uses utilization. The equivalence that I am recommending is that BellSouth

should be using 62-1/2 percent utilization in its model.

Q What is the 62-1/2 percent utilization convert to in the way of a fill factor? And, again, I'm talking about copper distribution.

A Off the top of my head, I can't give you an exact answer. But the range would be somewhere between -- the fill factor would be probably between 50 and 75 percent.

Q And how does that compare with the assumptions in the Hatfield Model concerning the fill factors for distribution?

A That's the ranges that are used in the Hatfield Model.

Q Let's talk about copper feeder cable utilization, which I believe you discuss on Page 24 of your testimony. Again, here you are critical of BellSouth's utilization rates for copper feeder, is that correct?

A Yes, that's correct.

Q And instead of using the actual BellSouth's copper feeder utilization, you advocate excluding anticipated growth by only considering fill at relief, is that correct?

A As I said, the economists argue, and I'm not the authority there, but they argue that the fill at relief is the appropriate -- is the appropriate level.

Q Do you believe that that is the appropriate

level?

A That's my testimony.

Q All right. Now, the Hatfield Model also assumes fill at relief levels for purposes of copper feeder, is that correct?

A It uses a fill factor that would equate to the fill at relief, but it's not the exact same numbers because it is applied differently in the bottoms-up model versus the BellSouth model, which is a cost study.

Q Are there any other outside plant cost modeling assumptions that you are advocating here that parallel the outside plant assumptions in the Hatfield Model?

A Oh, absolutely. Bridged tap, for example. The bottoms-up cost models do not have pure bridged tap. And BellSouth's loop survey of its embedded loops has a lot of bridged tap. You do make some redesign assumptions to get rid of what is truly improper bridged tap like between locals and repeaters and so forth, and bridged tap that exceeds 2,500 feet in total, but you still allow a lot of pure bridged tap, as well as a lot of end section.

And my testimony says that your model should limit itself in its redesign criteria to only 2,000 feet of only end section and should eliminate all the pure bridged tap. And I estimate that's 3 or 4 percent of the total investment that you have got in your loop, so that's one

example. I'm sure if you will give me a minute I can come up with some others.

Q Well, I know it's kind of late in the day, but how about structure sharing, your views on structure sharing?

A Absolutely. That's another good one, yes. It was in my summary that I pointed out. The Hatfield Model, forward-looking, assumes that there will be a number of utilities that are going to be looking to lower cost, and are going to be looking to do so by sharing structure. In other words, pole lines, and trenches and conduit systems. And so we feel that based on the economics and based on the number of carriers we see increasing, an increasing number of carriers in a competitive environment, and also we feel like that particularly in below ground plant that municipalities may start, you know, encouraging people to get in the same trench.

So we foresee an aggressive amount of structure sharing in the future as opposed to BellSouth has modeled here only the amount of structure sharing that you currently have. A very backward looking type of -- and I'm not even sure that's factored into your cost study, but you do show some of that when you use the BCPM and USF proceedings.

Q Other than structure sharing, bridged tap, and the fill factors that you have mentioned, are there any

other outside plant assumptions that you are advocating be used that parallel the outside plant assumptions in the Hatfield Model?

A Well, I'm not going to answer yes and -- bear with me a second, okay. Well, first of all, as I pointed out in my summary, I feel like your defective pair rate is much too high, and that is an area that you should look at and would definitely raise your utilization level. I advocate that also DAML is a technology that you do not use or do not recognize in your study but --

Q Excuse me, Mr. Wells, my question was the outside plant assumptions that you were advocating that parallel those in the Hatfield Model, not all of the outside plant assumptions you discuss in your testimony, just the ones that parallel the Hatfield Model, that was my question?

A The outside plant that parallel. That I'm recommending that BellSouth adopt that are different from what you have adopted, is that --

Q That is correct. And you have given four, and I was just asking whether there are any others that you can think of as you sit here today?

A Let's see. The carrier crossover is roughly equivalent. You use 12,000 feet, we use 9,000 feet of feeder and we use a dynamic selection process. We also use some dynamic selection processes in structure mix. Going to

the more economic, you model your historical structure mix. Building entrance terminals, there is a lot of criticism of how you model your building entrance terminals. You have grossly overstated the amount of station protection required, so there is a difference there.

Q Are you advocating that the assumptions in BellSouth's cost studies as far as building terminals ought to be equivalent to the way it is treated in the Hatfield Model?

A Well, once again, it's an apples to oranges comparison. The BellSouth cost study is a cost study; it looks down at investment on a per pair basis. I mean, it's so convoluted that in the BellSouth cost study a 2,400 pair cable is less expensive than a 200 hundred pair cable simply because 1/2400th of that particular cable is less expensive than 1/200th of the other cable.

Whereas the Hatfield Model would go in and look at the actual demand and would say if a 200 pair cable is sufficient, it would cost a 200 pair cable, not a 2400 pair cable. So the same thing applies to building entrance terminals. We cost out a building entrance terminal. You cost out a per pair investment, so it gets kind of -- it's not an actual -- it's not an actual comparison.

But I was trying to focus on some of your redesign assumptions, how they compare to the Hatfield, and

I think in the area, as I said, bridged tap. Carrier crossover, I don't have -- I won't quibble offer that one. Twenty-six gauge assumption, I think we are consistent there. So without belaboring this, I'll cease at that point other than to say that there may be others that I have not covered, okay.

Q I'm not sure that the answer to my question was a yes or no, but --

A Well, if you will -- I'm sorry, could you give it to me again and I will try to give you a yes or no answer.

Q As you sit here today, other than the fill factors for feeder and distribution, the structure sharing and bridged tap, are there any other outside plant assumptions that you believe the Commission should adopt in BellSouth's cost studies which parallel the outside plant assumptions in the Hatfield Model?

A The answer I will give you is yes. But without further time I don't know that I could articulate any more at this point.

Q Were you involved in the AT&T arbitration here in Florida, Mr. Wells?

A No, I was not.

Q Are you familiar with the Commission's December 31, 1996 order in the AT&T consolidated arbitration?

A No, I'm not.

MR. ROSS: Commissioner Deason, may I approach the witness, please?

COMMISSIONER DEASON: Surely.

BY MR. ROSS:

Q Mr. Wells, I have handed you a copy of the December 31, 1996 order of the Florida Public Service Commission in the AT&T arbitration. I have highlighted a reference on Page 29. Do you see that?

A The one that has the red border?

Q Yes. Do you see that?

A Yes.

Q Can you read that, please, into the record?

A This says that upon consideration of the evidence, we find that the Hatfield Model does not produce estimated costs which are representative of the cost of BellSouth's network in Florida. The Hatfield Model is extremely complex, and our efforts in thoroughly evaluating the model were impeded by the presence of numerous block sales in the spreadsheet. As demonstrated above, our review leads us to conclude that the Hatfield Model understates costs. Accordingly, we will not set permanent rates based on the Hatfield Model results.

Q Thank you, Mr. Wells. Now, Mr. Wells, if the Hatfield Model understates costs, wouldn't incorporating network assumptions from the Hatfield Model in BellSouth's

cost studies likewise result in costs being understated?

A Well, first of all, your statement that it understates costs --

Q Mr. Wells, that's a yes or no question, and you can explain.

A I'm going to have to ask you to repeat the question so I make sure I get the -- but the explanation will -- please, I'm sorry.

Q If the Hatfield model understates costs --

A Okay.

Q -- then wouldn't incorporating the network assumptions from the Hatfield Model into BellSouth's cost studies likewise result in costs being understated?

A Not necessarily. So that answer will be no and let me try to explain why it's not necessarily. First of all, you are making the assumption, and I have read this, that it does understate costs, but you are saying that it is because of the outside plant assumptions, and I'm here to say that the assumptions that I have given you are reasonable assumptions and do not understate costs. So the conclusion that the model understates costs because of the outside plant assumptions I do not accept.

Secondly, is that this particular ruling, and I'm not going to quibble over it, but it was made based on Hatfield Model 2.2.2, if I'm not mistaken. We are now on

release 5, the model has progressed considerably in evolutionary terms. The complaint about block sales I'm sure does not apply any longer, and so I feel that it was a good decision made for good reasons at that point in time, and I have not advocated the Hatfield Model in this proceeding. But the Hatfield Model is not the same model or it is considerably evolved since then. And, you know, at some point in the future if a bottoms-up model is to be considered as the appropriate way to estimate least-cost, forward-looking network based on forward-looking assumptions and currently available technology, then maybe the Hatfield Model deserves another look.

Q I think you have already indicated this, Mr. Wells, but AT&T and MCI have not filed Hatfield 4.0 or Hatfield 5.0 in this proceeding, is that correct?

A Yes. My understanding was that this was a limited scope, that permanent rates had already been decided, and I guess that's what this order is. And that the gist of my rebuttal testimony, I didn't file direct, I filed rebuttal, was to critique the BellSouth model, and I've done so. Your point is that my critique is not inconsistent with the least-cost, most efficient, forward-looking, currently available technology assumptions that are in the Hatfield Model, that is correct. But I am not here in this particular docket at this particular time

advocating the Hatfield Model other than in response to your questions.

Q Let me switch gears, Mr. Wells. In your testimony you criticize the average drop length that is used in BellSouth's cost study, is that correct?

A That is correct.

Q And you propose that the Commission use an average drop length for aerial and buried drops of 100 feet, is that correct?

A That is correct.

Q Have you done any study in Florida to support your conclusion that a 100 foot drop is average in the state?

A I have not done any study that gathered data. I have traveled in Florida quite a bit as well as the other states in BellSouth, and it's my observation that the average drop length, I have a high level of confidence that the average drop length would not exceed 100 feet, and that's what I have put in my testimony.

Q And, in fact, that 100 foot average drop recommendation of yours is not specific to Florida, that's the number you propose in Alabama, that's the number you have proposed in Tennessee, that's the number you proposed in South Carolina, that's the number you have proposed in all of the BellSouth states in which cost dockets have been

held to date, isn't that correct?

A That is correct. As I said, it is based on my level of confidence that that is a good number. I do not have data that would -- in every state. Nor do I -- I might also point out that we have not been able to discover any data to support the BellSouth cost -- BellSouth drop survey that has links as well as time. We asked Mr. Baeza in deposition specifically about the study and he professed no detailed knowledge at all.

Q Let me ask you about your proposed assumptions for telecommunications drop labor costs. You recommend that the labor time for travel, NID installation and termination should be 60 minutes total with an additional 20 minutes for placing an aerial drop, is that correct?

A Subject to check, I will accept that.

Q Have you conducted any studies in Florida to support that recommendation?

A No, we have not.

Q With respect to your recommendation that BellSouth's cost studies should be adjusted to incorporate 35 percent aerial drops versus 65 percent buried drops, have you conducted any studies in Florida to support those recommendations?

A I have not conducted any study. But as you read in the testimony, I have accepted your numbers and adjusted

them for the fact that you based your number on the fact that aerial cable has aerial drop and a buried cable has a buried drop. And anybody that drives down the road can see that a lot of buried cable has pedestals at the base of poles, and the drops go up the poles and to the customer's house in the air.

So you have a lot of buried cable with aerial drops, and I have said that your methodology is incorrect, and that those numbers should be adjusted. And if you make those adjustments, aerial drops will be less expensive than buried drops. So you have overstated your drop cost because you have overstated the percentage of buried, because your methodology is simply to say buried cable has -- all buried cable has all buried drops, and that's not correct.

Q You acknowledge in your testimony that you don't have any data on the actual physical drop percentages for BellSouth in Florida, isn't that correct?

A I do not have any data. I based it off yours.

Q Now, in all the data requests that AT&T has submitted to BellSouth in this proceeding and others, has AT&T ever asked for that kind of information?

A Like I said, we tried to depose Mr. Baeza and he professed no knowledge of the drop survey. As far as the data requests in this docket, I cannot say. As far as data requests in the upcoming North Carolina docket, I can assure

you that you will have the opportunity to respond.

Q So the answer to the question is no?

A I'm sorry, I apologize.

Q I will move on.

A If you will repeat the question I will give you a yes or no answer.

Q I will move on, Mr. Wells. Let me ask you about your recommendation concerning NID costs. You recommend that travel time to install a NID should be 15 minutes and the total NID labor should be 25 minutes, is that correct?

A Subject to check, I will accept that.

Q Have you conducted any studies in Florida to support those recommendations?

A No, I have not.

Q Let me turn to bridged tap, and you mentioned this in your summary. You advocate that there should be zero pure bridged tap and minimal end section bridged tap in BellSouth's cost studies, is that correct?

A I said there should be no pure bridged tap and that end section should be limited to 2,000 feet, which is a transmission limitation that is consistent. And there is only -- by the way, there should be only one end section on a cable.

Q What percentage of the loops in BellSouth's cost studies have pure bridged tap as you define that term?

A I have looked at hundreds of your loop diagrams from your samples, and it's considerable. But I have not compiled any statistics.

Q Have you looked at the diagrams for the loops in BellSouth's cost study here in Florida?

A Yes, I have.

Q And you say it's considerable, but you can't give a number or a percentage as to the loops which have pure bridged tap?

A There are 350 loops, I did not go through and compile an analyzation of that, no, I did not. Now, in other proceedings you guys have filed a spreadsheet where I could go in and pull out the footage. You didn't do that here.

Q Mr. Wells, to determining whether the bridged tap in the particular loop is pure bridged tap or end section tap, you would need to look at a schematic diagram, wouldn't you?

A Yes.

Q And is it your testimony that you reviewed schematic diagrams for the loops in BellSouth's cost studies here in Florida?

A Yes. Not extensively, but I have looked at them, yes.

Q Are you sure they were filed?

A Say again.

Q You're sure they were filed in this proceeding?

A Yes. Yes, I am sure. I saw them today as a matter of fact, again today.

Q What is the average length of the bridged tap in BellSouth's cost studies?

A Like I said, you didn't file the papers in Florida to determine that, but in other venues it has been about -- and my testimony shows about 6 to 9 or 10 percent in bridged tap. And my guess is -- not guess, my best estimate is that about half of that is pure bridged tap and the other half is end section. And I base my testimony on that, that you have got about 3 or 4 percent of pure bridged tap that -- I'm not saying it's not out there, but in purposes of least cost, most efficient modeling you shouldn't include it. You should exclude it in your redesign assumptions. And you have adopted some of my recommendations in other venues on matters like -- in other words, you have eliminated all the illegal or irregular bridged tap that was counted in some earlier dockets.

Q Can you state as you sit there this afternoon or this evening what the total amount of bridged tap in BellSouth's cost studies is?

A Not in Florida, because you didn't file the spreadsheet that would show. In other venues, I have

documented it.

Q So I'm assuming if you don't know what the total amount of bridged tap in BellSouth's cost studies is, you can't state with any degree of certainty how much is end section bridged tap versus pure bridged tap, is that correct?

A I cannot give you an exact figure. But my recommendation is based on the assumption that you didn't design Florida any differently than the other eight states.

Q Well, the loops that are here in Florida that we are trying to establish prices for are HDSL and ADSL loops, is that correct?

A In this particular docket that is correct.

Q And are there any limitations on the amount of bridged tap that you can use on a HDSL or ADSL compatible loop?

A They would have no bridged tap. You couldn't transmit those services over a loop with bridged tap. And the recommendation is not about that, it's the amount of investment you have calculated based on the bridged tap in your sample, not whether HDSL or ADSL has bridged tap.

Q So when you testified in your summary that approximately 4 percent of the loop investment in BellSouth's cost studies was attributable to pure bridged tap, you don't have a specific documentation that you can

refer to from Florida that would support that number, is that correct?

A I have said that you did not file the appropriate spreadsheet in your filing in Florida.

Q With respect to HDSL and ADSL compatible loops, were you in the room when Mr. Porter was testifying?

A I may not have been here totally, but I was here.

Q Would you agree that HDSL -- currently HDSL and ADSL technology requires copper loops?

A I'm not a transmission expert, but I will agree with that.

Q And so when you were referring to the use of integrated digital loop carrier technology in your summary, integrated loop carrier technology is used with fiber, isn't that correct?

A That is correct.

MR. ROSS: No further questions, Commissioner.

COMMISSIONER DEASON: Staff.

MS. KEATING: Commissioner Deason, we have no questions for this witness, but we do have another exhibit that needs to be marked for the record.

COMMISSIONER DEASON: Very well.

MS. KEATING: And it is JWW-Con, and it is the confidential portions of Mr. Wells' deposition. And I believe that is Exhibit 42.

COMMISSIONER DEASON: That's correct, Exhibit 42.

(Exhibit 42 marked for identification.)

MS. KEATING: Thank you.

COMMISSIONER DEASON: Redirect?

MR. HATCH: No redirect.

COMMISSIONER DEASON: Okay. Exhibits?

MR. HATCH: Move Exhibit 40.

COMMISSIONER DEASON: Without objection, Exhibit 40 is admitted.

MS. KEATING: Staff moves Exhibits 41 and 42.

COMMISSIONER DEASON: Without objection, Exhibits 41 and 42 are admitted. We are going to take a short recess until five minutes after 6:00.

MR. HATCH: May Mr. Wells be excused?

COMMISSIONER DEASON: Yes. Mr. Wells, you may be excused.

(Exhibit Numbers 40, 41, and 42 received into evidence.)

(Brief recess.)

COMMISSIONER DEASON: Call the hearing back to record. Mr. Hatch.

MR. HATCH: This witness has not yet been sworn.

COMMISSIONER DEASON: Okay. Please stand and raise your right hand.

(Witness sworn.)

COMMISSIONER DEASON: Please be seated.

Thereupon,

JOHN P. LYNOTT

was called as a witness for AT&T Telecommunications of the Southern States, Inc., and after being duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HATCH:

Q Mr. Lynott, could you please state your name and address for the record, please.

A My name is John Lynott, L-Y-N-O-T-T. My address is 1875 Lawrence Street, Suite 800, Denver, Colorado 80202.

Q And by whom are you employed and in what capacity?

A I am employed by AT&T Communications, Local Service Division, as a district manager in the nonrecurring cost team.

Q Did you cause to be prepared and to be filed in this proceeding direct testimony?

A Yes, I did.

Q Did you also cause and prepare to be filed in this proceeding rebuttal testimony?

A Yes, I did.

Q Did you have three exhibits attached to your direct testimony listed as JCK-1 -- or JPL-1, 2, and 3?

A Yes, I did.

Q Were those exhibits prepared by you or under your supervision?

A Yes, they were.

Q With respect to your rebuttal testimony, did you have exhibits attached to your rebuttal testimony?

A Yes, I believe so.

Q And that would be JPL-1, 2, and 3, is that correct?

A That is correct.

Q Were those exhibits prepared by you or under your supervision?

A Yes, they were.

Q Do you have any changes or corrections to either your testimony or your exhibits, direct and rebuttal?

A Yes, I do. On my direct testimony, I have a deletion on Page 25, Lines 9 through 12. And also on Page 20, Line 16 has a modification. In both cases where it says -- there is two phrases there. One says for loops greater than and for loops less than. In both cases it should have been loop feeders.

Q Do you have any other changes or corrections?

A Yes. I would also want to delete JPL-2 from my direct testimony and a revision to JPL-3 with respect to migration.

Q With respect to JPL-3, what would those changes be?

A I'm sorry, anything that states migration should be deleted. Those lines should be removed.

Q If you look at JPL-3, would that consist of Elements 2, 5, and 18?

A Yes, that is correct.

MR. HATCH: Just for the record, Commissioner Deason, that the deletion of Exhibit JPL-2 and the revisions to JPL-3 are in response to the request to eliminate the issues with respect to the old Issue 2. That got deleted into a subsequent proceeding.

COMMISSIONER DEASON: Very well.

MS. BROWN: Commissioner Deason, if I could ask some clarification on these deletions. I notice on JPL-3 there is other mention of migration other than at 2, 5, and 18, and I was wondering -- at least on my version. It is also at 7, 10, and 12. Am I looking at the wrong thing?

MR. HATCH: No, ma'am. Those are stand-alone elements. Those are not combinations, and that is the difference.

MS. BROWN: All right. Thank you.

MR. HATCH: It's the combinations that were deleted for the subsequent proceeding, not on a stand-alone basis is my understanding of Commissioner Clark's ruling,

and the Commission's ruling on that one. There is one other change with respect to Mr. Lynott's rebuttal testimony, I think, with respect to the Commission's -- let me make sure it got picked up. Page 3, and that would be Lines 20 through 24.

COMMISSIONER DEASON: Is this Page 3 of the rebuttal testimony?

MR. HATCH: That is correct.

COMMISSIONER DEASON: With the sentence that begins on Line 20?

MR. HATCH: On Page 3, start on Line 20. After the word provider, strike from there down to the end of Line 24.

COMMISSIONER DEASON: Any other changes?

THE WITNESS: No, that's all.

COMMISSIONER DEASON: Mr. Hatch, do you wish to have the prefiled exhibits to the direct and rebuttal identified?

MR. HATCH: Yes. Could we have Exhibit JPL-1 and JPL-3 attached to the direct identified, please.

COMMISSIONER DEASON: That would be Composite Exhibit 43.

(Composite Exhibit Number 43 marked for identification.)

MR. HATCH: Could we have the exhibits attached

to his rebuttal identified, please.

COMMISSIONER DEASON: All right. Exhibit 44.

(Exhibit Number 44 marked for identification.)

BY MR. HATCH:

Q With all of those changes and corrections, Mr. Lynott, if I asked you all the questions in your direct and rebuttal testimony would your answers still be the same?

A Yes, they would.

MR. HATCH: Mr. Chairman, I request that the direct and rebuttal testimony of Mr. Lynott be inserted into the record as though read.

COMMISSIONER DEASON: Without objection, the direct and rebuttal will be so inserted.

DIRECT TESTIMONY OF

JOHN P. LYNOTT

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC. AND

MCI TELECOMMUNICATIONS COMPANY AND

MCI METRO ACCESS TRANSMISSION SERVICES, INC.

DOCKET NOs: 960833-TP/960846-TP/971140-TP

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND EMPLOYMENT.

A. My name is John P. Lynott, and my business address is 1875 Lawrence Street, Suite 875, Denver, Colorado 80202. I am employed by AT&T Communications as a District Manager in the Local Connectivity Costing and Pricing District of the Local Services Division.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to help this Commission establish appropriate non-recurring cost (NRCs) rates for local market entry. It has been the experience of AT&T and MCI that the NRC rates being proposed by most incumbent local exchange carriers ("ILECs") are vastly overstated for a variety of reasons, including faulty assumptions or inaccurate input values relating to

network architecture, operations support systems (OSSs) capabilities and labor costs. AT&T and MCI have developed a costing tool that models forward-looking non-recurring costs in order to develop appropriate NRC rates. The specific focus of my testimony is to explain the technical assumptions that were used to develop the AT&T and MCI Non-Recurring Cost Model (NRCM).

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. I begin with a description of general assumptions that are used in the NRCM. I then describe in more detail some of the non-recurring activities that are costed out in the model. For brevity's sake, I do not describe in detail the technical assumptions underlying each and every activity provided for in the model. I have organized my testimony as follows:

SECTION I - Qualifications and Background

SECTION II. - General NRCM Cost Modeling Assumptions

SECTION III. - Customer Migration Costs

SECTION IV. - Non-Recurring Costs for Installation

SECTION V. - Non-Recurring Costs for Disconnection

SECTION VI. - Summary and Recommendation

SECTION I - Qualifications and Background

Q. PLEASE STATE YOUR EDUCATIONAL AND EMPLOYMENT BACKGROUND.

A. I attended Pennsylvania State University and graduated from Regis University in Denver, Colorado, receiving a BS degree, with a major in Technical Management (Emphasis on Electrical Engineering Technology; "EET"), and a minor in Economics. I have also successfully completed a mini-MBA at the Wharton School of Business/University of Pennsylvania, as well as numerous other technical and management training seminars and curriculums. I am presently pursuing a Master of Science degree in Technology Management ("MOTM") at the University of Denver. I am a member of the Institute of Electrical and Electronics Engineers ("IEEE").

I began my career as a Communications Technician with Mountain States Telephone and Telegraph Company ("Mountain Bell") in 1981 in the Network Switched Services department. From divestiture of the Bell System in 1984 until 1994, I held various assignments with US WEST Communications in the Network Terminal Equipment Center/Switching Control Center ("NTEC/SCC"), Technical Operations/Product Support, Network Maintenance Engineering, and Service Assurance/Electronic Switching Assistance Center ("ESAC"). In 1994, I left U S WEST for a position with AT&T Bell Laboratories/Network Systems as a Senior

Market Manager providing Custom Engineering and Development (CEAD), and Tier One Operations Support Systems ("OSS") support.

In November 1995, I accepted an assignment with AT&T Communications as a Technical Support Manager on local infrastructure access issues. Then in 1996 I accepted my current position within AT&T.

Q. MR. LYNOTT, COULD YOU PLEASE HIGHLIGHT THAT PORTION OF YOUR WORK EXPERIENCE THAT IS PARTICULARLY PERTINENT TO THE MATTERS DISCUSSED IN YOUR TESTIMONY?

A. Yes. While I have worked for AT&T since 1994, for most of my career I have worked in a Regional Bell Operating Company ("RBOC") environment with Mountain States Telephone and Telegraph Company ("Mountain Bell") or its successor Company, U S WEST Communications (U S WEST). Throughout my 13 years with these companies, I was heavily involved with the various work centers, functions, activities, and Operational Support Systems ("OSS") that are the focus of our testimony which follows. That experience began in my job as a Communications Technician actually performing the work, continued in various managerial positions observing and supervising others who performed the work, and culminated in other managerial assignments where I helped select the network element technologies and develop the industry standards involved.

Q. WOULD YOU PLEASE PROVIDE EXAMPLES OF THOSE JOB RESPONSIBILITIES AND EXPERIENCES THAT HAVE PARTICULAR APPLICATION HERE?

A. Certainly. My hands-on work as a Communications Technician (COT) for Mountain Bell included the timely provisioning and maintenance of POTS-type, "designed," and high capacity DS1 services in a central office (CO) environment. This required that I become very familiar with leading edge, processor-controlled network element central office conversions and replacement of older technologies with what were forward-looking technologies at that time. I also coordinated with outside plant (Installation and Maintenance ("I&M") technicians in the installation and maintenance of both POTS and designed services, as well as trunks and special services for interexchange carriers ("IXCs"). I specifically coordinated with the Special Services Center ("SSC") on the testing, acceptance, and maintenance of designed circuits, with the Circuit Provisioning Center ("CPC") to resolve fall-out of incorrect circuit designs, and the Switching Control Centers ("SCC"). As my career with Mountain Bell shifted into managerial roles, I trained and supervised technicians who performed these work functions, and interfaced on a biweekly basis with my counterparts in not only the SSC, SCC, CPC, and I&M groups, but also the Facilities Maintenance Administration Center ("FMAC") and Recent Change Memory Administration Center ("RCMAC," a switch translations work group). All of these work centers are important to the non-recurring cost (NRC) modeling issues addressed later in my testimony.

By 1988 my managerial responsibilities (after divestiture in 1984, with U S WEST) were Company-wide in scope, covering operations across all 14 states. In a series of managerial positions, I was responsible for developing and writing detailed technical methods and procedures (M&Ps) to govern the provisioning and maintenance of local exchange and access services; for resolving technical problems on the U S WEST network when field personnel could not; and for analysis and selection of vendor-specific, forward-looking OSS systems and technologies such as LDS, SONET, DCS, TR-303, SS7, and ADTS, many of which are discussed in the testimony which follows. In my last position at U S WEST, I served as liaison to Bell Communications Research ("Bellcore"). In this position I was responsible for assuring that the Company's new technology interfaces were compatible to legacy Bellcore OSS systems, which required a thorough understanding of flow-through provisioning and maintenance issues, problems, fallout, and systems, both upstream and downstream, and from ordering through order completion.

After leaving U S WEST in mid-1994 for AT&T Bell Laboratories (now Lucent Technologies), I served as Marketing Manager for the Company's provisioning and maintenance OSS systems for the Western Region, and also provided Tier I systems engineering support for all interfaces with U S WEST Communications. Since transferring to AT&T Communications in late 1995, I have been immersed in the technical aspects of the crucial NRC costing and pricing issues that must be resolved as AT&T, MCI, and other local service providers ("CLECs") move into

the local exchange market under the Federal Telecommunications Act of 1996. These varied work assignments over the years have all helped prepare me for addressing the issues in this case.

Q. HAVE YOU EVER BEEN INVOLVED IN NEGOTIATIONS AND/OR ARBITRATION PROCEEDINGS WITH ANY ILEC?

A. Yes, I was an AT&T lead negotiator on Interconnection, Unbundling, Collocation, and Local Number Portability (LNP) issues in the U S WEST negotiations. Subsequently, I was also involved in, and testified in Arbitration Proceedings on Technical Feasibility issues.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN OTHER JURISDICTIONS?

A. Yes. I have previously testified in numerous times in Colorado, Texas, New York, Minnesota, Arizona, Utah, and New Mexico.

SECTION II - NRCM Assumptions

Q. PLEASE EXPLAIN THE PURPOSE OF THE NON RECURRING COST MODEL (NRCM).

A. As explained in the model's documentation (Exhibit JPL-1), the NRCM develops one time non-recurring cost estimates for the tasks and activities that may be performed by an ILEC such as BellSouth when a Competitive Local Exchange Carrier (CLEC) requests wholesale services, or, as is the subject of this proceeding, interconnection, and/or unbundled network elements. Utilizing a forward-looking cost methodology, the NRCM develops a "bottoms-up" estimate of non-recurring costs. To accomplish this, the NRCM reflects the individual tasks and activities that may be required to respond to CLEC requests.

Q. WHAT DO YOU MEAN WHEN YOU SAY "FORWARD-LOOKING COST" METHODOLOGY?

A. In the context of the NRCM, I use this term to refer to costs that an efficient provider, using currently available technology would incur to conduct the non-recurring activities described below.

Q. WHAT ARE NON-RECURRING COSTS?

A. Non-recurring costs are the efficient, one-time costs associated with establishing, disconnecting or rearranging unbundled network elements purchased from BellSouth at the request of a customer (e.g., CLEC). Non-recurring cost activities are those that only benefit the CLEC requesting the elements.

Q. WHY IS IT SO IMPORTANT THAT THE ACTIVITIES BEING PERFORMED SPECIFICALLY BENEFIT THE CLEC?

A. If the activity being performed is a one-time activity, but benefits all future users of a particular telecommunications facility, the costs of the activity typically are characterized as recurring. The costs of constructing a loop is one example. Proper allocation of one-time costs is particularly important in a competitive environment where more than one local exchange carrier including the ILEC may use a particular facility at different points in that facility's lifetime. If all the forward-looking costs of a one-time activity benefiting multiple users are borne by the first telecommunications provider to use the facility, then obviously the first user will be forced to pay more than its fair share.

Activities associated with manual assistance due to errors in the network management systems and databases (Operational Support Systems) are examples of activities that do not benefit the customer. This is because efficiently managed systems do not experience these errors. Rather, such activities are a function of embedded inefficiencies, and result in costs for which CLECs should not compensate an ILEC.

Q. CAN YOU EXPLAIN, BRIEFLY, HOW THE NRCM IS PUT TOGETHER?

A. Yes. The theory behind the development of a non-recurring cost model is fairly simple. First, it is necessary to identify the non-recurring actions required to provision unbundled network elements to CLECs. Second, it is necessary to break down each action into the detailed work activities that comprise that service, and determine both the time necessary to complete these activities and the associated labor rates. Finally, it is necessary to determine, for each action, the probability that a particular work activity will be required to provide the action.

The non-recurring cost of a particular action, then, is simply the sum of the costs of each of the necessary work activities, calculated as the product of the required time, the labor rate, and the probability of occurrence of that work activity. The NRCM calculates non-recurring costs using precisely the steps I just described.

Version 2.0 of the NRCM is included with my testimony on a diskette. Also included on the diskette is the output file for Florida.

Q. WHAT PROCESSES DOES THE NRCM MODEL?

A. The majority of non-recurring processes which the NRCM models involve activities associated with pre-ordering, ordering and /or provisioning processes. Short descriptions of these processes are as follows:

- Pre-ordering: the process by which a CLEC interfaces with customers to determine customer needs, usually beginning with the ILEC providing to the CLEC information necessary to initiate orders. This information, such as customer premise address, phone number availability, feature availability and service availability, is made accessible to CLECs electronically so they can accurately respond to customers when taking service and feature orders.

- Ordering: the process by which a CLEC electronically submits a Local Service Request (LSR) order to an ILEC via an electronic gateway. The ILEC responds electronically with a positive confirmation of order acceptance or order fallout requiring CLEC resolution.

- Provisioning: the process by which an ILEC, after receipt of an LSR order, performs the necessary functions to provide Unbundled Network Elements (UNEs) requested by a CLEC.

Q. WHAT IS THE DIFFERENCE BETWEEN PRE-ORDERING AND ORDERING?

A. Pre-ordering is the process of gathering all of the information necessary to be able to create an accurate end user service order. This includes all of the information

about the services, if any, currently subscribed to by the end user, the service address, the facilities available to provide service to the end user, telephone number assignments, and the like. Once all of this information has been collected, ordering is the actual placing of an order for the various unbundled network elements needed to provide services to the end user.

Q. WHY IS PRE-ORDERING A FUNCTION THAT REQUIRES ACCESSING THE ILEC'S DATABASES?

A. When an entrant is going to use either resold services or unbundled network elements provided by the incumbent, the entrant will have to place a service order with the incumbent. If an entrant is to have its order properly identified with the end user's current service account, all of the information about the end user to be served must match the information the incumbent already has on that end user. Because the market is currently a monopoly, only the incumbent has the information about the billing and service address(es), the telephone numbers, and the features and functions that are used by each end user. Accordingly, the entrant must interface with the ILEC. Pre-ordering also allows the new entrant to talk to a potential customer about what services are available at his location, how soon it is likely service could be provided, and what the cost will be. This is the same function a customer experiences when shopping for new tires, or new stereo equipment.

Q. WHAT IS PROVISIONING?

A. Provisioning is the actual assignment of all of the network elements needed to provide services to a given end user. It is the turning up of service so that the new entrant is ready to provide service to the new or existing customer.

Q. HOW ARE THE PRE-ORDERING, ORDERING AND PROVISIONING, AS WELL AS MAINTENANCE AND BILLING, ELECTRONIC PROCESSES MANAGED ?

A. These processes are managed through the use of Operational Support Systems ("OSS").

Q. WHAT ARE OPERATIONAL SUPPORT SYSTEMS?

A. OSS are the electronic, software driven computer programs and databases that telephone companies use to manage their pre-ordering, ordering, provisioning, repair, maintenance and billing processes for both their retail and wholesale operations. Today's software programs and databases operate in a highly automated, accurate and rapid manner with little to no human intervention.

Q. WHY ARE OSS ASSUMPTIONS IMPORTANT TO THE DEVELOPMENT OF A NON-RECURRING COST MODEL?

A. Telecommunications networks have evolved to the point where functions such as billing, pre-ordering, ordering, provisioning and maintenance rely heavily on efficient, high availability Operational Support Systems in order to minimize non-recurring cost and maximize performance quality and reliability. In terms of "system solutions", significant advances have been implemented in the last 10-20 years that minimize the need for manual labor (and non-recurring costs) when these systems and databases are efficiently operated and maintained. In fact, the industry has developed and begun to implement the "next generation" of OSSs through industry standards such as Telecommunications Management Network, or TMN.

Not so long ago, functions such as processing a service order were very labor intensive, requiring constant human intervention to update manual inventories and to physically complete each and every order. Today, however, the databases existing within an incumbent's OSS architecture (often referred to as 'Legacy' systems) have been automated and re-engineered to virtually eliminate the need for human intervention. As these automated systems have developed over the past two decades, "[t]he watchwords for such systems became *flow through*, meaning that the processing of a problem or request for service would flow through several computer systems and be resolved without human intervention."[1] OSS evolution has had, and will continue to have, a very significant impact on non-recurring costs. Given that the major driver of high non-recurring costs had

been incremental labor times and labor rates, the reduced reliance on human intervention due to advanced OSSs has significantly reduced the incremental non-recurring cost associated with functions such as pre-ordering, ordering, provisioning and maintenance. Significant cost savings can be achieved with existing OSS, if their capabilities are not undermined by polluted databases or inefficient configurations.

Q ARE THERE ANY OTHER ASSUMPTIONS REGARDING OSSs THAT ARE RELEVANT TO MODELING NRCs?

A. Yes. Assumptions regarding recovery of OSS investment are important. First, the NRCM does not capture OSS investment required for the establishment and operation of the electronic gateway that serves as the medium for CLEC/ILEC interfacing because it has value over many years and to all exchange carriers utilizing the network. Second, BellSouth's current OSS investment is recovered through recurring rates, to the extent it needs to be recovered at all. Mechanized OSS manages the totality of the telecommunications network. Arguably, no OSS investment should result in any cost increase, even for recurring rates, because much, if not all, OSS investment is recovered through efficiency gains that result from that investment. That is, investing in up-to-date OSSs reduces costs for the ILEC, and, hence, the investment pays for itself over time.

Q. DO YOU HAVE AN EXAMPLE IN WHICH OSS EFFICIENCY GAINS WERE REALIZED?

A. Yes, as I mentioned previously, the provisioning of a service request, prior to the advent of efficient OSSs, was a manual, labor intensive effort that was prone to mistakes and service delays. Bellcore then developed, and the industry has implemented, several OSSs that have mechanized the assignment process. One software solution product of Bellcore called Facility Assignment and Control Systems (FACS) automated the assignment process. Another product called the Computer Operations For Main Frame Operations (COSMOS) automated manual inventory systems for tracking the assignment of central office equipment.

In addition, two other products from Bellcore further automate the provisioning process: the Loop Facility Assignment and Control system (LFACS) provides a mechanized inventory and assignment of the outside plant; and the Service Order Analysis and Control System (SOAC) tracks and analyzes the service order. SOAC determines if inventory assignments are required, and sends those assignment requests to the inventory systems (LFACS and COSMOS).

Together, these systems have mechanized the assignment process needed to provision a service request. As a result, for much of the POTS, complex, and special services, those systems have virtually eliminated the need for manual assignments, providing an efficient means for managing the network and

significantly reducing the work forces needed in the provisioning process. In addition, these systems have led the way for other enhancements and systems that now manage the work forces, produce translations that activate the local digital switch, and provision services in a completely electronic flow-through manner.

Q. CAN YOU PROVIDE AN EXPLANATION OF FALLOUT?

A. The term used when orders do not flow through an OSS automatically is "Fallout". Most ILEC systems are electronically linked and are dependent on one another. Occasionally an error will occur as data flows through the systems, and this error will cause a service order to "fall out" of the systems, resulting in the need for manual intervention. For example, in an electronic ordering process, if one of the OSSs receives erroneous or incompatible information from another OSS, the order will be designated as a process "fallout" and may require manual intervention to correct or complete the order.

It is important to note that the NRCM only considers "fallout" within the OSS managing the provisioning processes. Fallout during the pre-ordering and ordering processes (i.e., errors on the Local Service Request itself) are the responsibility of the CLEC to manually clear, as provided for in the Interconnection Agreement between AT&T and BellSouth.[2]

Q. IS FALLOUT IMPORTANT TO MEASURING NRCs?

A. Absolutely. Fallout is important because in many instances it is the only cost driver for an otherwise seamless electronic flow-through process. With OSSs that are well managed and maintained, the rate of fallout is expected to be minimal, especially in a competitive environment. This is a necessity because fallout affects the customer in terms of longer delivery intervals and restoration/response times, as well as higher cost of providing service; conditions a competitive company can ill afford.

Q. WHAT FALLOUT RATE IS USED IN THE NRCM?

A. The NRCM assumes a conservative fallout rate of 2%. Fallout levels proposed by MCI and AT&T were selected based on the judgment of our experts of a competitive industry, as well as fallout levels reported by ILECs. A 98% flow-through process rate is an achievable forward-looking benchmark. The level of fallout currently reported by some ILECs for resale orders is approaching, at, or better than, what our model proposes and this will be the trend in a competitive environment for UNE orders as well. A prime example is the SWBT transcripts for EASE/TSR flow through provisioning which indicate only a 1% fallout rate for resale orders.[3] SWBT has also indicated that they expect the same 99% flow-through for unbundled network elements (UNE) via similar systems. Moreover,

US West has also stated in a cost study filed before the Minnesota Public Service Commission on 7/11/97 that "97% of all CSB PIC Changes are completely mechanized." PIC changes involve the transfer of ILEC facilities between inter-exchange carriers and, thus, involve non-recurring activities comparable to those an ILEC must perform to provision unbundled network elements to CLECs.

Even BellSouth admits that low fallout rates currently are achievable.[4] Further, a competitive local environment will *necessitate* a low fallout rate, as indicated in the requirements RBOCs have supplied to Bellcore. According to Bellcore GR-2869, Issue 2, (Oct. 1996) pg.4-25, section 4.6.2 on Immediate Service Activation, "Activation will occur at the time of assignment" (i.e., immediately). Such requirements will not allow for high levels of fallout.

Q. IS THE 2% NRCM FALLOUT RATE SIMILAR TO THE ASSUMPTIONS BEING UTILIZED BY BELLSOUTH IN THEIR COST STUDIES?

A. Not at all. BellSouth, like several other ILECs, has assumed a significantly higher degree of manual intervention in its OSS systems, such as COSMOS/SWITCH, PREMIS, TIRKS, and LFACS. For the reasons discussed above, this assumption is invalid because it does not represent efficiently managed and forward looking systems, and, accordingly, produces a higher non-recurring cost than should be experienced even with the automatic flow-through processes that actually exists

today. In addition, BellSouth introduces unnecessary workgroups, such as the LCSC and ACAC, to internally rework orders that BellSouth deems contain CLEC order entry errors. Any manual assistance required to clear errors associated with the data on the Local Service Order will be performed by the CLEC, which incurs all cost. Since all order errors, not OSS fallout, are 100% electronically returned to the CLEC, BellSouth inappropriately overstates relevant non-recurring cost.

Q. IN ADDITION TO OSS, IS THE NETWORK ARCHITECTURE ASSUMPTION CRITICAL WHEN MODELING NON-RECURRING COSTS?

A. Yes. It's also important to understand and utilize forward looking network architectures in modeling non-recurring costs. For example, the NRCM utilizes Local Digital Switches ("LDS"), Integrated Digital Loop Carrier (IDLC/GR-303) for loops greater than 9 Kilofeet (for loops less than 9 Kilofeet, copper is assumed), Digital Cross-connect Systems ("DCS"), and Synchronous Optical Network ("SONET") rings for transport. These architectures are important because they are forward looking intelligent processor controlled network elements that can communicate over standard interfaces to the OSSs in such a manner that little-or-no manual intervention is required for provisioning or maintenance activities. These architectures are also the ones currently be deployed by BellSouth today. Technologies such as these work hand-in-hand

with advanced OSSs to minimize cost and improve customer service and are essential to the development of forward looking non-recurring costs.

Q. ARE THESE FORWARD LOOKING NETWORK TECHNOLOGIES AVAILABLE TODAY?

A. Yes, current forward looking network technologies are available to the telecommunications industry. In fact, BellSouth made headlines in a November 2, 1993, AT&T News press release: "BellSouth makes ISDN call via GR-303-compliant loop carrier." The news release stated that the demonstration points to substantially lowered costs for ISDN connections, expected to make ISDN service more attractive and widespread. SONET technology also is deployed currently within the BellSouth network, and is the existing, forward-looking technology in the industry. BellSouth offers a variety of SONET services in its Interstate Access Tariff.

Q. CAN YOU BRIEFLY DESCRIBE OTHER SIGNIFICANT ASPECTS OF THE NRCM'S METHODOLOGY AND ASSUMPTIONS?

A. Yes. As a threshold matter, the model develops separate non-recurring costs for migration, installation, and disconnection functions. The cost to disconnect has been modeled separately in order to model accurately an entrant's non-recurring costs, depending on whether the new entrant chooses to disconnect the feature or

function at the time an end user cancels service, or maintain the service, feature or function installed for a future customer. By contrast, in the current, non-competitive environment, ILEC connect charges often recover the cost of both the connection and the disconnection.

In addition, the NRCM assumes certain levels of testing. As an example, the NRCM does recognize continuity-type testing to insure connectivity. The costs of conformance-type testing (necessary to insure that installed facilities deliver services meeting the required specifications), however, are captured within the maintenance loading factor on recurring rates because this testing is performed during the Engineer, Furnish and Install (EF&I) phase associated with plant placement. As a result, the NRCM does not duplicate inclusion of these costs. The NRCM also assumes that BellSouth will proactively maintain its network to ensure that it operates properly and provides reliable customer service. Such proactive monitoring of the network is done in order to be aware of potential failures before they occur. In addition, BellSouth must respond to customer generated inquiries about service problems. The NRCM assumes that the costs for these types of testing are recovered in recurring rates.

Lastly, the NRCM models different process flows depending upon whether the service, feature, and/or function is considered a plain old telephone service ("POTS") or a designed/private line type special service. This distinction is critical from a cost perspective since a designed service may be significantly more

costly. For example, the use of special services test access points will trigger a costly designed circuit, which, in turn, triggers other costly processes (equipment/technology intensive designs), special services OSSs, and work centers/work groups that BellSouth does not use itself when provisioning or maintaining its own non-designed POTS type services. In addition, it is important for parity reasons to ensure that BellSouth charges new entrants for designed process flows only in circumstances in which BellSouth, for its own customers, would incur this expense.

Q. WHAT CRITERION SHOULD THE COMMISSION USE TO EVALUATE THE APPROPRIATENESS OF NRCs?

A. As is the case with network elements in general, the Commission should ensure that NRCs are not structured in a manner that forces new entrants to pay for costs that they do not cause. Presently, for example, ILECs commonly "disconnect" unbundled network elements by software command only (i.e., without physical disconnection of any sort). This activity is referred to as 'soft dial tone' and requires no manual work. Yet, the non-recurring installation charges BellSouth proposes to charge new entrants invariably reflect the costs of physical reconnection, regardless of whether the facilities in question were ever physically disconnected in the first instance. Structuring NRCs so that new entrants must pay for costs that the incumbent will not actually incur is yet another means by which ILECs can erect competitive barriers to competition. Modeling costs that

reflect the elimination of such proposals not only minimizes initial barriers to entry, but also closely links cost recovery with the manner in which the costs are actually incurred.

SECTION III - NRCs for Customer Migration

Q. PLEASE EXPLAIN WHAT IS MEANT BY THE TERMS MIGRATION AND INSTALLATION.

A. Migration occurs when a customer with existing service requests changes in its local service provider (i.e., moving existing ILEC customers to a CLEC). This contrasts with an installation, which is defined as the establishment of any new (or additional) service for a CLEC customer.

Q. COULD YOU BRIEFLY DESCRIBE THE STEPS FOR MODELING THE NON-RECURRING COSTS ASSOCIATED WITH CUSTOMER MIGRATION?

A. The NRCM assumes that migration activities can be accomplished electronically through the electronic gateway that exists between a CLEC and BellSouth and BellSouth's OSSs that the CLEC is accessing. Thus, the cost for a migration order potentially is processing time only, which is recovered in recurring rates.

When an order does fall out, the NRCM assumes that the Provisioning Analyst Work Station ("PAWS"), or a similar OSS, clears some of the jeopardy conditions automatically, again resulting only in the cost for processing time. The NRCM, however, assumes that some manual work will be required to resolve fallout problems that PAWS cannot resolve (e.g., communication link failures between different OSSs, software release incompatibility, database errors, hardware failures, system maintenance, etc.).

Based on my experience with New England Telephone Co.'s Mechanized Loop Assignment Center (MLAC), I have estimated that the average time expended by technicians to resolve system problems consists of 2.5 minutes to retrieve and analyze the order and 15 minutes to actually clear the jeopardy.

Q. CAN YOU EXPLAIN HOW PAWS CLEARS SOME OF THE JEOPARDY CONDITIONS?

A. Yes. The PAWS system is a software product from Bellcore that manages and tracks fallout or jeopardy conditions. When fallout is detected, OSSs such as SOAC route information about the fallout to PAWS. PAWS, in turn, routes this data to a particular work group or system that can assist in resolution of the problem. The PAWS software also comes equipped with a "work scripting" tool set which allows companies like BellSouth to construct work scripts that emulate otherwise manual transactions required to resolve the jeopardy condition. If, for

example, the system detects an interfering station condition (primary service cannot be installed, possibly because the disconnect for that service location has not been received yet), the work scripts would perform the necessary inquiry transactions on various systems, evaluate the condition and clear the conflict or reroute the fallout to a workgroup for further investigation.

SECTION IV - NRCs for Customer Installation

Q. HOW DOES THE NRCM DEVELOP INSTALLATION COSTS?

A. The best way to answer this question is using the development of non-recurring unbundled loop (For cost modeling purposes, 2 Wire POTS and ISDN BRI are the same. In addition, the NRCM provides for different activities that take place depending upon whether a copper loop or GR-303 fiber loop is being provisioned.) and port installation costs as an example. (Exhibit JPL-2.) The NRCM multiplies individual work activity times by the applicable rate per hour to determine the activity cost. After the total costs of provisioning the service type are calculated, the model sums the costs and applies an "overhead factor" to arrive at the total cost of provisioning that service type.

IS IT TECHNICALLY FEASIBLE FOR A FLOW-THROUGH PROVISIONING PROCESS TO OCCUR?

A. Yes. With the deployment today of efficient OSS, a flow-through provisioning process takes place the majority of the time.

Q. PLEASE EXPLAIN THE GENERAL SERVICE FLOW FOR THE DEVELOPMENT OF INSTALLATION NON-RECURRING COSTS?

A. Generally, the service order flow for OSS and INE is as follows and is illustrated below:

1. The Service Order Processor ("SOP") sends the order to the Service Order Analysis & Control System ("SOAC"). SOAC analyzes the order and determines if assignments or updates are necessary to outside plant (assignments/updates), interoffice facilities or central office equipment (assignments/updates), and whether local digital switch (recent change translations) functions are needed. If required, SOAC then generates an assignment request and sends it to the appropriate Provisioning Systems (e.g., Computer System for Mainframe Operations [COSMOS], Loop Facility Assignment and Control System [LFACS], Trunk Inventory and Record Keeping System [TIRKS], etc.). It should be noted here, that in the case of a simple request of a customer to change providers with no change in what he or she is currently receiving in service (e.g., "as is" ("As Is" means that the existing customer and their services are in place today and will remain identical.), Unbundled Network Element Platform, and

Soft Dial Tone (Soft Dial Tone is where the circuit facilities and the switch port are not reassigned, but are left in place even though the premises is vacated.), there is no need to access any down-stream systems via SOAC because all facilities are already in place. Thus, the only cost associated with this activity is processor time to change some records in BellSouth's databases.

2. The Provisioning Systems (e.g. Memory Administration/Recent Change) respond with assignments or updates and SOAC formulates the Element Management System ("EMS"), and Provisioning Systems Translation Packets and Messages based upon the component response data.

3. SOAC electronically sends the Translation Packets and Messages to EMS, and/or Provisioning Systems (e.g., Memory Administration Recent Change [MARCH] and Operations Processor System for Intelligent Network Elements [OPS/INE].

4. The Provisioning Systems and/or EMS electronically sends Translation Packets and Recent Change Messages to the Local Digital Switching Systems ("LDS")[5], Digital Cross-connect Systems ("DCS")[6], and/or other Stored Program or Processor Controlled Network Elements ("PCNE"). The EMS[7] also sends Translation Packets or Recent Change Messages to

the Integrated Digital Loop Carrier ("IDLC")[8], Automated Digital Terminal Systems ("ADTS")[9], Fiber in The Loop ("FITL")[10], SONET ADM/LTE[11] or other Processor Controlled Intelligent Digital Loop Carrier ("DLC")[12].

5. Upon receipt of the Message or Translation Packets, the EMS, Provisioning Systems, and Processor Controlled Network Element ("PCNE") will respond in one of two ways:

(a) The first is a positive acknowledgment that the Translation Packets or Messages received have been worked successfully. Assuming a positive acknowledgment response, service is normally provisioned within 2.0 seconds.

(b) The second is an error acknowledgment (fallout) sent to SOAC to indicate that the EMS, PCNE, and/or Provisioning Systems were unable to translate the Translation Packet or Message successfully. If this occurs, the order falls out of the system, the error(s) are resolved and the order is re-input into the process.

6. Assuming successful flow-through (no fallout or RMA), SOAC stores EMS, PCNE, and/or Provisioning Systems requests/responses in its databases for use of reports and inquiries. SOAC also sends the

assignment section to the service order processor ("SOP"), and completions are automatically posted in the affected OSS Systems (e.g., Provisioning Systems, Work Management Systems, and Billing Systems, etc.)

Q. PLEASE EXPLAIN THE INTEROFFICE TRANSPORT COST MODELING ASSUMPTIONS.

A. First, the non-recurring cost model assumes, that SONET rings for interoffice transport are the proper forward looking technology to employ and that DS1 and DS3 are virtual paths over the SONET ring.

Second, forward-looking Digital Crossconnect System/Electronic Digital Signal Crossconnect (DCS/EDSX[13]) technology is assumed. There is no need to manually perform option settings on the SONET equipment (i.e., line codes, features) because DCS/EDSX has default settings, and -- because it is software controlled. If changes of the default settings are required, it will be remote and in a flow-through manner from upstream OSS systems(s) such as the Bellcore Operations Processing System for Intelligent Network Elements ("OPS/INE"). The cross connects are performed electronically and will take approximately 50 milliseconds for CPU processing time with an acknowledgment response within 2 seconds per Bellcore specifications.[14]

Third, the study also assumes that the performance monitoring for Error Seconds ("ES"), Bit Error Rate ("BER"), Cyclical Redundancy Check ("CRC), Unavailable Seconds ("UAS"), Severely Error Seconds ("SES"), and Automatic Protection Switch Counts ("APS") have been set. Remote DS1 loop-back testing is facilitated by the use of a Testing OSS system ("TOS'). Finally, Quad (4-port) plug-in cards have been assumed.

Fourth, the transport non-recurring cost modeling does not include the end-to-end provision of special access/private line services, but rather only designed interoffice facilities ("IOF") transport and, therefore, the entire transport process is controlled by the Facilities Maintenance Administration Center ("FMAC") and not the Special Services Center (SSC). Thus, this transport cost reflects ordering capacity only.

Fifth, alarms are typically tested with the Facility Maintenance Administration Center ("FMAC") upon acceptance and turn-up of the intelligent network elements (i.e., DCS/EDSX, SONET Mux, etc.) and not on a facility by facility basis. This feature has no manual labor for testing other than trace lamp continuity because performance monitoring is performed automatically between the EDSX/DCS/EDSX and the Network Monitoring and Analysis ("NMA") OSS. This assumes, of course, that the FMAC has already built the parse rules, templates, and databases in the NMA OSS System. If performance monitoring

("PM") fails then intrusive testing will occur via a remote Integrated Test System ("ITS") or similar Test Operations System OSS system.

Finally, the cost for DS1 grooming within the DS3 Interoffice Transport is CPU processing time only. This feature has no manual labor because it assumes the new entrant has access to Flexcom/LINC, which is a Bellcore OSS end-user partitioned system, or Customer Network Controller ("CNC"), which is a Lucent end-user OSS system, that allows for end user customer access to EDSX/DCS and SONET Add/Drop Multiplexers for reconfiguration of their own DS3, DS1, and/or DSO bandwidth. This allows the new entrant the ability to groom the DS1 within the DS3 interoffice Transport.

Q. WHAT TIMES AND ACTIVITIES WERE ASSUMED FOR INTEROFFICE TRANSPORT?

A. Two channel units or plug-ins were assumed for each DS3. Three channel units or plug-ins were assumed for a DS1. The cards required to be installed are in DCS/EDSX, high speed SONET Multiplexer and low speed SONET multiplexer (applicable to DS1 only). This allows low speed drops (e.g., DS1s) from a high speed SONET ring (e.g., OC-48) to a low speed DS1. The times to install the cards was estimated at 2 minutes each. However, the time was divided by 4 to reflect the Quad (4-port) cards plug-ins for DCS/EDSX and the low speed multiplexer. The time for the high speed plug-in was divided by 28 to reflect the

capacity of an STS-1, DS3, or OC-1. For testing, its was assumed, as discussed above, all performance monitoring ("PM") registers were pre-set for autonomous reporting of PM threshold crossings to the OSS. However, it was assumed that it took the FMAC technician 3 minutes to retrieve and analyze the data. In addition, it was assumed that 1% of the time an ITS or intrusive test will be performed, if a performance Monitoring test fails. Fall out was included and the center assumed was the Circuit Provisioning Center.

V. NRCs for Customer Disconnects

Q. PLEASE DEFINE DISCONNECT.

A. Disconnect occurs when a service to a customer is ended.

Q. PLEASE DESCRIBE WHY THE NRCM MODELS DISCONNECTION NRCs SEPARATELY?

A. While ILECs, including BellSouth in its model, typically model installation NRC charges to include the cost of disconnection, the NRCM separates installation and disconnection for costing and pricing purposes. The rationale for this method is two fold. First, the ILEC should only receive the revenue for the disconnect at the time the actual disconnection occurs. This eliminates a "time value of money" concern that is inherent in most current ILEC methodologies.

Second, the disaggregation of installation and disconnect costs and prices also allows the new entrant the ability to benefit from the long standing and efficient practices with respect to Dedicated Inside Plant ("DIP") and Dedicated Outside Plant ("DOP"). The DIP and DOP processes allow for rapid activation or deactivation of services at an end user location without the need for physical disruption of the facility because, with DIP and DOP, physical connections remain in place and only a command from the OSS to the network element is necessary to activate or de-activate the service. If a new entrant chooses to have service de-activated using only software commands, disconnection NRCs become almost non-existent. BellSouth's current disconnect policy adheres to this practice of DIP and DOP in order to provide immediate service activation to the next customer at that premise. Thus, by modeling the installation separately from disconnection, the new entrant would have the same benefits from the DIP and DOP processes as would BellSouth.

VI. Summary and Recommendation

Q. WILL YOU PLEASE SUMMARIZE YOUR TESTIMONY?

A. Yes. In order for a competitive environment to exist, new entrants must have non-discriminatory access to the incumbent's databases and other resources for entering service orders to eliminate the need for costly, intermediate customer service contacts. Also, new entrants must only incur costs equal to those which

the ILEC would incur using a forward looking network architecture and efficient OSS or else the CLEC is burdened with a barrier to entry and the ILEC has no incentive to become efficient. Finally, NRCs must be based upon TELRIC principles.

The NRCM recognizes those requirements. The NRCM, therefore, corrects the many faulty assumptions that have been found in ILEC cost studies. The Non-Recurring Cost Model correctly adheres to the following:

(1) A forward looking cost model should incorporate the efficiencies of automated OSSs which provide for maximum electronic flow through of orders.

(2) To the extent fallout does indeed occur, it should be limited to approximately 2% of the total orders processed.

(3) Manual work times should reflect appropriate intervals based on the use of forward looking network technologies.

(4) Wherever appropriate, service orders should be processed through a non-designed POTS provisioning process as opposed to a more expensive designed services process.

(5) A forward looking cost model should incorporate the efficiencies of automated Intelligent Network Elements (SONET, GR-303/IDLC, DCS/EDSX, LDS, etc.) which provide for maximum electronic flow through for provisioning of orders.

(6) Wherever appropriate, the same work centers, work groups, technicians, and associated labor rates should be modeled at parity with how BellSouth provides similar services to itself.

(7) Migrations and installations should be recognized as mechanized whenever DIP and DOP will permit.

(8) Installation and disconnection should be calculated separately to account for significant cost differences dependent on a new entrant's disconnect decisions regarding DIP/DOP.

Q. DO YOU RECOMMEND ANY NRCs TO THIS COMMISSION?

A Yes. I recommend the NRCs found in Exhibit JPL-3.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

REBUTTAL TESTIMONY OF

JOHN P. LYNOTT

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC., AND

MCI TELECOMMUNICATIONS CORPORATION, AND

MCI METRO ACCESS TRANSMISSION SERVICES, INC.

DOCKET NOs.: 960833-TP/960846-TP/971140-TP/960757-TP/960916-TP

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND EMPLOYMENT.

A. My name is John P. Lynott, and my business address is 1875 Lawrence Street, Suite 875, Denver, Colorado 80202. I am employed by AT&T Communications as a District Manager in the Local Connectivity Costing and Pricing District of the Local Services Division.

Q. ARE YOU THE SAME JOHN P. LYNOTT WHO FILED DIRECT TESTIMONY ON BEHALF OF AT&T AND MCI IN THIS PROCEEDING?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my rebuttal testimony is to address: (1) the direct testimony of BellSouth witness Eno Landry concerning non-recurring costs (NRC), (2) certain deficiencies in BellSouth's non-recurring cost study, (3) modifications required to BellSouth's non-recurring cost study to efficiently provide the aforementioned

elements, and (4) advantages of the AT&T/MCI Non-Recurring Cost Model (NRCM) for modeling BellSouth's non-recurring costs.

Q. DO YOU HAVE A SPECIFIC CONCERN WITH THE TESTIMONY OF BELLSOUTH's WITNESS ENO LANDRY?

A. Yes. In describing the major components contributing to non-recurring costs, Mr. Landry identifies the receiving and processing of the service request into an internal order as a BellSouth cost. This is also reflected in BellSouth's cost study as cost associated with the Local Customer Service Center (LCSC). In a competitive local environment, it is the responsibility of the Competitive Local Exchange Carrier (CLEC) to process the local service order for BellSouth provisioning. The insertion of the LCSC work group in the ordering and provisioning processes is discriminatory to the CLEC. Such additional costs are not being borne by BellSouth. Indeed, AT&T and BellSouth have an Interconnection Agreement to provide for the mechanized flow of pre-ordering and ordering service request data exchange.

Q. ARE THERE OTHER MODELING ERRORS IN THE BELLSOUTH NON-RECURRING COST STUDIES?

A. Yes. AT&T and MCI joint witness Thomas Hyde discusses the methodological and assumption concerns with the BellSouth studies. Highlights include BellSouth's embedded cost nature (early 1990 sources with little to no detail of functions being performed), inappropriate network architecture assumptions (over-engineering and excess plant), which results in unnecessary work functions that BellSouth does not experience itself, and duplicate work activities due to

BellSouth's treatment of each and every unbundled network element being provisioned on separate orders. For example, a CLEC has no use for a standalone loop without the loop being connected to a port or dedicated transport or its own equipment located in collocation space.

Q. ARE OPERATIONAL SUPPORT SYSTEM ASSUMPTIONS IMPORTANT TO THE DEVELOPMENT OF A NON-RECURRING COST MODEL?

A. Yes. Telecommunications networks have evolved to the point where functions such as billing, pre-ordering, ordering, provisioning and maintenance rely heavily on efficient, high availability Operational Support Systems (OSSs) in order to minimize non-recurring cost and maximize performance quality and reliability.

Q DO BELLSOUTH'S ASSUMPTIONS REGARDING OSSs NEGATIVELY IMPACT THE MODELING OF NRCs?

A Yes. First, assumptions regarding recovery of OSS investment are important. The AT&T/MCI NRC Model does not capture OSS investment required for the establishment and operation of the electronic gateway that serves as the medium for CLEC/ILEC interfacing, because this Commission has already stated that these cost will be borne by each individual provider. ~~Charging such costs to new entrants would be a barrier to competitive entry. Yet, in spite of this clear direction from this Commission, BST has proposed to recover the costs of its proposed electronic gateway through a separate charge assessed on each and every order received from a CLEC for an unbundled element.~~

Additionally, BellSouth's current OSS investment (not the gateway to access these OSSs) is being recovered through recurring rates, to the extent it needs to be recovered at all. Mechanized OSS manages the totality of the telecommunications network. Arguably, no OSS investment should result in any cost increase, even for recurring rates, because much, if not all, OSS investment is recovered through efficiency gains that result from that investment. That is, investing in up-to-date OSSs reduces costs for the ILEC, and, hence, the investment pays for itself over time.

BellSouth fails to recognize the efficiencies of its own existing ('Legacy') OSSs. BellSouth failed to consider the automated systems that are currently available to support and replace manual activities/functions performed by their respective work centers. BellSouth's non-recurring cost worksheets provide only a brief description of the activities performed by these work centers. Having spent several years dealing with service provisioning in an ILEC, work-times and work groups indicated by BellSouth are overstated or unnecessary due to the many advances in operational support systems. Rebuttal Exhibit JPL-1 is a table that identifies certain work functions BellSouth includes in calculating non-recurring cost. I have provided certain automated systems (OSS) that are currently available and their functionality as an example of why such manual work costs are not warranted.

Q. CAN YOU PROVIDE AN EXAMPLE OF NECESSARY ADJUSTMENTS TO BELLSOUTH'S NON-RECURRING COST STUDY?

A. Yes. Rebuttal Exhibit JPL-2 consists of (page 1 of 2) BellSouth's NRC Inputs for the 2-wire ADSL-compatible Loop and (page 2 of 2) Adjusted NRC Inputs for the 2-wire ADSL-compatible Loop. The Adjusted NRC Inputs depiction also reflects the correction of modeling flaws as identified by AT&T/MCI witness Thomas Hyde.

Q. WHAT IS THE PURPOSE OF THE PROPOSED CHANGES IN THE BELLSOUTH COST STUDIES?

A. The recommended adjustments offer this Commission information to better evaluate the BellSouth cost studies. The BellSouth cost study modifications are necessary to more accurately portray BellSouth's own cost using efficient practices, not the historic practices BellSouth is modeling.

In addition, the AT&T/MCI Non-Recurring Cost Model (NRCM) does not currently cost each of the specific non-recurring activities identified by this Commission. The NRCM does, however, contain many of the necessary work steps/activities and work times required to order and provision these unbundled network elements. Following the NRCM's TSLRIC costing guidelines, adjustments were made to recognize electronic ordering, efficiently managed OSSs and forward-looking network architecture benefits. Necessary adjustments to BellSouth's other filed studies is attached as Rebuttal Exhibit JPL-3. Certain critical assumptions are provided, e.g., detailed work activities and times, as well as a brief explanation where worktimes or probabilities, e.g. the probability of a line served at a non-staffed central office affects travel, have been modified.

Q. PLEASE EXPLAIN YOUR ASSUMPTION ON FALLOUT?

A. The term used when orders do not flow through an OSS automatically is "Fallout". Most ILEC systems are electronically linked and are dependent on one another. Occasionally an error will occur as data flows through the systems, and this error will cause a service order to "fall out" of the systems, resulting in the need for manual intervention. For example, in an electronic ordering process, if one of the OSSs receives erroneous or incompatible information from another OSS, the order will be designated as a process "fallout" and may require manual intervention to correct or complete the order.

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Q. DOES BELLSOUTH RECOGNIZE FALLOUT IN THEIR COST STUDIES?

A. Yes. BellSouth, like several other ILECs, has assumed a significant degree of manual intervention in its OSS systems, such as COSMOS/SWITCH, PREMIS, TIRKS, and LFACS. In fact, BellSouth assumes a 100% manual ordering and provisioning process with no recognition of its OSS capabilities. For the reasons discussed above, this assumption is invalid because it does not represent efficiently managed and forward looking systems, and, accordingly, produces a higher non-recurring cost than should be experienced even with the automatic flow-through processes that actually exists today. In addition, BellSouth introduces unnecessary workgroups, such as the LCSC and ACAC, to internally rework orders that BellSouth deems contain CLEC order entry errors. Any manual assistance required to clear errors associated with the data on the Local Service Order will be performed by the CLEC. Since all ordering errors, not provisioning OSS fallout, can be 100% electronically returned to the CLEC, BellSouth inappropriately overstates relevant non-recurring cost.

Q. IN ADDITION TO OSS, IS THE NETWORK ARCHITECTURE ASSUMPTION CRITICAL WHEN MODELING NON-RECURRING COSTS?

A. Yes. It's also important to understand and utilize forward looking network architectures in modeling non-recurring costs. For example, the NRCM utilizes Local Digital Switches ("LDS"), Integrated Digital Loop Carrier (IDLC/GR-303) for loops greater than 9 Kilofeet (for loops less than 9 Kilofeet, copper is assumed), Digital Cross-connect Systems ("DCS"), and Synchronous Optical

Network ("SONET") rings for transport. These architectures are important because they are forward looking intelligent processor controlled network elements that can communicate over standard interfaces to the OSSs in such a manner that little-or-no manual intervention is required for provisioning or maintenance activities. These architectures are also the ones currently being deployed by BellSouth today. Technologies such as these work hand-in-hand with advanced OSSs to minimize cost and improve customer service and are essential to the development of forward looking non-recurring costs.

Q. HAS BELLSOUTH INCLUDED THE AVAILABILITY OF THIS TECHNOLOGY IN DEVELOPING ITS PROPOSED PRICES FOR NRCs?

A. No. BellSouth has not reflected the use of the latest technology in its cost studies for NRCs. As reflected in the rebuttal testimony of Thomas Hyde, BellSouth instead has relied upon studies on equipment placed into service before 1995. Thus, it is apparent that BellSouth's cost studies for NRCs do not reflect forward-looking, least cost technology, and should be rejected.

Q. DOES THE AT&T/MCI NRCM REFLECT THE USE OF THE LATEST AVAILABLE FORWARD-LOOKING LEAST COST TECHNOLOGY DESCRIBED ABOVE?

A. Yes.

Q. PLEASE DISCUSS THE AT&T/MCI NON-RECURRING COST MODEL'S (NRCM) ASSUMPTIONS FOR THE TR-303 IDLC CONCERNING SUB-LOOP UNBUNDLING.

A. The NRCM assumes that the DOP (what is this?) and NID are in place. After the CLEC purchases a Virtual Tributary DS1 (VT-1) on the ILEC OC-3 Fiber Feeder from the Remote Terminal ("RT") to the CLEC collocation space, the installation (and subsequent disconnection) of an unbundled loop would not require any manual effort. The appearance of any new or migrated virtual DS0 customer loop at the collocation area would be accomplished electronically using the appropriate OSSs and the functionality that is inherent in TR-303 IDLC systems. In other words, if the ILEC has 24 DS0 channels/customers on its Virtual Tributary DS1 (VT-1) and terminated on its Local Digital Switch (LDS) and one (1) customer decides to migrate to the CLEC, the ILEC would still retain the other 23 on their VT1 and LDS. If the second customer (DS0) decides to migrate to the CLEC, the ILEC would still retain the other 22 DS0s on its VT1 and LDS - and so on. It should be noted that in the above scenario, it is assumed that both VT1s are resident on the same ILEC Fiber Feeder (OC-3). Each OC-3 has the a total DS1 payload capacity – depending on electronics and configuration – of 84 VT1s.

Q. IS THIS THE SAME AS SUB-LOOP UNBUNDLING, ONLY IN A TR-303 IDLC ENVIRONMENT?

A. Absolutely not, because the CLEC in the above scenario is still using the same ILEC OC-3 Loop fiber feeder, and is simply grooming from one Virtual DS1 tributary or channel (VT1) to another Virtual DS1 tributary or channel within the same ILEC OC-3 fiber feeder. The DS0s are groomed via communications from a provisioning/recent change OSS to the electronic time slot interchange (TSI) at the remote terminal (RT). If the CLEC were to provide its own OC-3 or physical

DS1 from their POP to the RT or Feeder Distribution Interface (FDI), then it may be considered as sub-loop Unbundling.

Q. WHAT ARE SOME OF THE ADVANTAGES OF THE AT&T/MCI NRC MODEL?

A. The NRCM provides a detailed step-by-step understanding of the systems required and the manual work activities performed by an ILEC in the ordering and provisioning of wholesale services and unbundled network elements.

The NRCM models efficient, currently practiced processes using a TELRIC network that supports wholesale services and unbundled network elements.

The NRCM can be modified to reflect the removal or addition of work steps/activities by updating the steps on the 'Processes & Calcs' spreadsheet of the NRCM. The user determines the work/processes by selecting any of the 290 activities for each service type on the 'Processes & Calcs' spreadsheet.

The NRCM allows for user inputs to adjust for specific regional conditions, including the copper/fiber ratio of served loops and loops served by staffed vs. non-staffed facilities. A proper cost study must account for these data.

The NRCM identifies cost in the manner in which costs are incurred and requested for installation, migration, and disconnect non-recurring activities.

Q. DO YOU RECOMMEND ANY NRCs BASED ON ADJUSTMENTS TO BELLSOUTH'S NRC STUDIES TO THIS COMMISSION?

A Yes. Adhering to TSLRIC principles and based on necessary adjustments to BellSouth's NRC cost studies identified above and in the rebuttal testimony of Thomas Hyde, I recommended certain modifications that have been utilized by AT&T witness Wayne Ellison for purposes of AT&T's rate proposal in this docket.

Q. WILL YOU PLEASE SUMMARIZE YOUR TESTIMONY?

A. Yes. In order for a competitive environment to exist, new entrants must have non-discriminatory access to the incumbent's databases and other resources for entering service orders to eliminate the need for costly, intermediate customer service contacts. Also, new entrants must only incur costs equal to those which the ILEC would incur using a forward looking network architecture and efficient OSS or else the CLEC is burdened with a barrier to entry and the ILEC has no incentive to become efficient. Finally, NRCs must be based upon TSLRIC principles.

The NRCM recognizes those requirements. The NRCM, therefore, corrects the many faulty assumptions that have been found in ILEC cost studies. The Non-Recurring Cost Model correctly adheres to the following:

(1) A forward looking cost model should incorporate the efficiencies of automated OSSs which provide for maximum electronic flow through of orders.

(2) To the extent fallout does indeed occur, it should be limited to approximately 2% of the total orders processed.

(3) Manual work times should reflect appropriate intervals based on the use of forward looking network technologies.

(4) Wherever appropriate, service orders should be processed through a non-designed POTS provisioning process as opposed to a more expensive designed services process.

(5) A forward looking cost model should incorporate the efficiencies of automated Intelligent Network Elements (SONET, GR-303/IDLC, DCS/EDSX, LDS, etc.) which provide for maximum electronic flow through for provisioning of orders.

(6) Wherever appropriate, the same work centers, work groups, technicians, and associated labor rates should be modeled at parity with how BellSouth provides similar services to itself.

(7) Migrations and installations should be recognized as mechanized whenever DIP and DOP will permit.

(8) Installation and disconnection should be calculated separately to account for significant cost differences dependent on a new entrant's disconnect decisions regarding DIP/DOP.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

BY MR. HATCH:

Q Mr. Lynott, do you have a summary of your testimony?

A Yes, I do.

Q Could you give that, please?

A Yes, I will. The purpose of my testimony is to aid the Florida Public Service Commission in establishing proper nonrecurring cost-based rates for local market entry. It has been the experience of AT&T and MCI that the nonrecurring rates being proposed by the most incumbent local exchange carriers, in this case BellSouth, are vastly overstated for a variety of reasons, including faulty assumptions or inaccurate values relating to network architecture, operational support systems, labor costs, and inappropriate work centers and work groups performing those tasks.

The definition of NRCs basically are the efficient one-time costs associated with establishing, disconnecting, or rearranging unbundled network elements purchased from BellSouth at the request of a customer. In this case -- in the case of this proceeding, the customer is a CLEC, such as AT&T or MCI. Nonrecurring cost activities are those which only benefit the CLEC requesting the elements. If the activity being performed is a one-time activity that benefits all future users of a particular

element or a particular telecommunications facility, the costs of the activity are typically characterized as recurring. The cost of constructing a loop is a good example. Proper allocation of one-time cost is particularly important in a competitive environment where more than one local exchange carrier, including the ILEC, may use a particular facility at different points during the facility's lifetime. If all the forward-looking costs in the one-time activity benefitting multiple users are borne by the first telecommunications provider that uses the facility, then obviously the first user will be forced to pay more than its fair share.

Activities associated with manual assistance to resolve errors and operational support systems, or OSSs, that manage the network and data bases are examples of activities that do not benefit the customer. This is because efficiently managed OSS systems do not experience these errors. Rather, such activities are a function of embedded inefficiencies and result in costs for which CLECs should not compensate an ILEC for.

AT&T and MCI have developed a costing model tool that models forward-looking nonrecurring costs in order to develop appropriate nonrecurring rates. The specific focus of my testimony is to explain the technical assumptions that were used to develop the AT&T and MCI nonrecurring cost

model to the BellSouth, and compared to the BellSouth NRC cost studies. The nonrecurring cost model develops one-time nonrecurring cost estimates for the tasks and activities that may be performed by an ILEC, such as BellSouth, when the CLEC, such as AT&T or MCI, requests wholesale services, or as the subject of this proceeding, interconnection or unbundled network elements.

Utilizing a forward-looking cost methodology, the nonrecurring cost model develops a bottom-up estimate of nonrecurring costs. To accomplish this, the nonrecurring cost model reflects the individual tasks and activities that may be required to respond to a CLEC's request. There are many technologies assumptions that the nonrecurring cost model is based on. It's important to understand and utilize forward-looking network architectures in modeling nonrecurring costs. And, by the way, these technologies will be available off the shelf today by a multivendor community.

For example, in addition to assuming efficient Legacy OSS systems that flow through with basically 2 percent exception or fallout, the electronic request replaced by the CLECs for the purposes of preordering, ordering, provisioning, or maintenance and billing, the NRC will also assume a network comprised of intelligent network elements such as local digital switches, GR303 integrated

digital loop carrier, and loop feeder. That's for loop feeder greater than 9 kilofeet, and two wire copper twisted pair for loop feeders below 9 kilofeet. The model also assumes digital cross connect systems, automated digital terminal systems, and synchronous optical network, better known as SONET.

These architectures are important because they are forward-looking, intelligent, processor-controlled network elements that can communicate over standard interfaces to upstream operational support systems in such a manner that little or no manual intervention is required. These architectures are also ones that are currently being deployed by RBHCs, such as BellSouth today. Technologies such as these work hand-in-hand with advanced operational support systems and Legacy operational support systems to minimize costs and improve customer service, all of which are essential to the development of forward-looking nonrecurring costs.

In summary, in order for a competitive environment to exist, new entrants must have nondiscriminatory access to the ILEC's data bases and other resources for entering service orders and maintaining services to customers and eliminate the need for costly intermediate customer service contacts. Also, new entrants must only incur costs equal to those which the ILEC would

incur when using a forward-looking network, and that includes the operational support systems as well as the network element architecture itself.

Finally, the NRCs must be based on forward-looking cost principles and not on embedded network that BellSouth may like to model. The nonrecurring cost model recognizes those requirements. The nonrecurring cost model, therefore, corrects the many faulty assumptions that have been found in ILEC cost studies.

The AT&T and MCI nonrecurring cost model correctly adheres to the following: Number one, a forward-looking cost model should incorporate the efficiencies of automated operational support systems which provide for electronic flowthrough of orders. Number two, to the extent fallout does indeed occur, it should be limited to approximately 2 percent of the total orders processed. Number three, manual work time should reflect appropriate intervals based on the use of forward-looking network technologies. Number four, wherever appropriate, service orders should be processed through a non-designed POTS provisioning service as opposed to a more expensive design or special service circuit. Number five, a forward-looking cost model should incorporate the efficiencies of automated intelligent network elements such as SONET, local digital switches, GR303 integrated loop

carrier, digital cross connect systems, et cetera. All of these provide maximum electronic flowthrough for the provisioning and maintenance of orders. Number 6, wherever appropriate, the same work centers, work group, technicians, and associate labor rates should be modeled at parity with how BellSouth provides similar services to itself. Number seven, migration and installation should be recognized as mechanized whenever dedicated inside plant, known as DIP, or dedicated outside plant, known as DOP, will permit. And, finally, installation and disconnection should be calculated separately to account for significant cost differences depending on a new entrant's disconnect decisions and policies regarding DIP and DOP as previously mentioned in number seven. Thank you.

MS. BROWN: Commissioner Deason, if I might interrupt, and ask that Staff Exhibit Number JPL-7 be marked for identification. It consists of the January 5th, 1998 deposition transcript of John P. Lynott, and deposition and late-filed deposition Exhibit Numbers 1 through 7.

COMMISSIONER DEASON: It will be identified as Exhibit 45.

MS. BROWN: Thank you.

(Composite Exhibit Number 45 marked for identification.)

COMMISSIONER DEASON: Mr. Self.

MR. SELF: I have no questions.

MR. HATCH: I tender the witness for cross.

MS. WHITE: Commissioner Deason, Nancy White for BellSouth. Before I start, I would ask Staff on Pages 201 to 208, the exhibit marked Number 45 concern -- its Late-filed Deposition Exhibit Number 7. They concern an element that he has deleted from his testimony, that Mr. Lynott has deleted from his testimony, so I would ask that Pages 201 to 208 of Staff's Exhibit 45 also be deleted.

MS. BROWN: If we might just have a minute.

COMMISSIONER DEASON: While Staff is looking at that, you may proceed.

MS. WHITE: Okay.

CROSS EXAMINATION

BY MS. WHITE:

Q Mr. Lynott, we find ourselves in the unenviable position of standing between all the people in this room and freedom, so I will try to be brief, and I hope that you try to be brief, as well.

Now, the people who created the nonrecurring cost model that you are sponsoring, they were all employees of AT&T and MCI, is that correct?

A That is correct.

Q And there have been three versions of the nonrecurring cost model that you are sponsoring?

A As of today, that is correct.

Q And, in fact, MCI and AT&T intends to release a further version of the model?

A I beg your pardon?

Q MCI and AT&T intends to release another version of the model in the future?

A That is correct.

Q Now, the model that you are sponsoring uses an assumption of 31 percent copper and 69 percent fiber for the network, is that correct?

A That is correct.

Q And do those numbers come from the Hatfield Model?

A Those inputs are derived from the Hatfield Model.

Q And do you know whether the Hatfield Model got those numbers from BellSouth in Florida?

A No, I do not know that for sure.

Q And would you agree that the lower the percentage of copper, the smaller the amount of manual activity? I mean, excuse me, I'm sorry. Strike that and start over.

Would you agree that when copper facilities are involved, additional manual work is involved?

A Yes, that is correct.

Q Now, your model assumes a certain percentage of staffed central offices and unstaffed central offices, is

that correct?

A That is correct.

Q And for that, for those percentages did you use a Florida specific number or a default?

A 80 percent was a default.

Q Do you know the actual ratio in Florida for BellSouth of lines served by staffed central offices versus unstaffed central offices?

A No, I do not.

Q And would you agree that the assumption concerning the percentages for staffed central offices and nonstaffed central offices affect work times and travel times?

A That is correct.

Q Now, the travel time that you have in your model is a default value, isn't it, of 20 minutes?

A That is correct.

Q And that default value does not contain any Florida specific information, does it?

A It is not Florida specific, but it is based on some data that was collected and some samples that were collected throughout the United States.

Q So it's a national default value?

A Basically, yes.

Q You also have a set-up time in the model of five

minutes, and is that the default value?

A That is a default value, yes.

Q Now, your model assumes that every order will be submitted electronically and that none will be submitted manually, is that correct?

A That is correct.

Q And does your model also assume that the costs of that model are only associated with orders placed by AT&T and MCI and no other company?

A In the specific -- in this specific NRCM, for version 2.0 that was filed on Florida, that is a correct assumption that AT&T and MCI would order unbundled network elements electronically.

Q Your model also assumes two minutes to perform the cross connect, is that right?

A In version 2.0, that is correct.

Q And version 2.0 is what you have submitted to this Commission?

A Yes, ma'am.

Q Okay. Now, did the two minutes come from subject matter experts?

A Yes, it did. And I would like to clarify something, that there was an error in the two minutes in version 2.0, and the team met last week as to where that two minutes came from, and it was just a -- it was an error.

The actual cross connect time based on a low profile cosmic time frame that is modeled is forward-looking in the nonrecurring cost model, the actual time should have been one minute, not two minutes.

Q So it's one minute?

A Yes, ma'am.

Q And that comes from a subject matter expert, you said?

A That is based on subject matter experts' practical experience. And actually --

Q I'm sorry. No, I'm sorry, I interrupted.

A No, I was finished. It was based on --- these are people who are technicians who have actually done the work and made observations of other people performing that same task.

Q Now, your cost model also assumes that a technician will perform four work activities per trip, is that correct?

A Yes, ma'am, that is correct.

Q And did you perform any analysis to determine what number of work activities BellSouth technicians perform per trip in Florida?

A Not specifically, but I can tell you that some of this was based on load and work time records samples out of a WFA system. That's known as a WFA. And these are systems

that are deployed by all the RBHCs. And, again, it was based on a subject matter expert who actually loaded technicians with work through this WFA system, but it was not Florida specific.

Q Now, would you agree that your model assumes that there is enough plant to meet the demand forecasted in your study, there is enough plant in place already?

A Yes, ma'am.

Q So does your model assume that BellSouth will never need to dispatch a technician?

A Our model -- it would depend on the actual element. There are cases where, for example, in the case of subloop unbundling, which is modeled in version 2.0, it does assume that a technician would be dispatched in order to unbundle at the FDI.

Q And the FDI is what?

A FDI is the feeder distribution interface. So in the case of subloop unbundling, for an example, we do recognize the need for dispatching a technician to migrate.

Q Have you done any analysis of BellSouth's existing plant in Florida to determine if, and how much dedicated plant there is?

A No, I have not.

Q Now, does your model include any of the costs associated with carrying out the requirements of the

BellSouth/AT&T interconnection agreement in Florida or the BellSouth/MCI interconnection agreement in Florida?

A I'm not really sure.

Q Do you know whether your cost model includes the cost to provide a single point of contact to AT&T for all ordering and provisioning contacts?

A Our model does not provide that.

Q Does your model assume any costs for BellSouth employees to answer any questions that AT&T or MCI may have with regard to ordering a provisioning?

A No, it does not.

Q Now, in this model you have assumed that certain costs are recurring costs and, therefore, you don't try to capture those in your nonrecurring cost model, is that a fair statement?

A That is correct.

Q And have you done any analysis to determine whether those items that this model assumes are recurring costs are actually captured in the recurring rates proposed by AT&T and MCI?

A I would refer that to Doctor Selwyn.

Q Could you tell me what telecommunications management network is, also known as TMN?

A TMN is, again, a telecommunication management network, and it is a both a Bellcore generic requirement

GR2869, Issue 2, and there is also an international standard known at ITU M30.10. The TMN basically reflects a hierarchy of layers as a forward-looking environment, and it starts -- to make it as simple as possible, there is various layers of TMN, starting at the very top of the stack, if you think of a ladder, the very top rung would be the business management layer where basically decisions are made and processes are driven and things of that nature. And next to that you have the service management layer. Below that you have the network management layer, then the element management layer, and then the network element/element layer.

And bundled in all of those layers there are different processes, such as configuration, fault, performance, account, and security management. ITU M30.10 goes into some pretty complex detail with regards to the standard, and it basically dictates requirements and objectives and how network element providers -- when I say network element providers, I talk about the SONET network element, for an example, or GR303, local digital switches, and how operational support system suppliers such as Bellcore and Lucent should build their systems.

Q Build their operational support systems?

A Yes. It's basically systems that use common functional data bases, object oriented platforms, and standard communications interfaces.

Q So, in a very basic sense, TMN makes the operational support systems more efficient?

A Not necessarily. First of all, there is more to it than the operational support systems. Because at the network level itself, you can't have a full TMN compliant platform unless the network elements themselves are TMN compliant. And by TMN compliant, again, I'm talking about SONET networks which really leapfrogged the OSSs, and drove a lot of the OSS standards because they got out there ahead of the operational support systems.

But to answer your question on efficiencies, I don't believe you would have any additional efficiencies out of a TMN compliant OSS architecture than you would out of the Legacy systems today. Having said that, the real efficiencies there are in the Legacy system environment today, and I'm speaking from past experience because I managed these processes at Bellcore, I was a program manager for the OSS operations and technology funding where I met with other RBHCs, such as BellSouth, and we voted on -- we prioritized, voted and funded the operational support systems modifications.

In addition to that, we went out to the vendor community, such as, you know, Lucent and Nortel and NEC, and had them -- they had subsidized that funding provided by the RBHCs. Now, the one thing in mind here was the operational

savings was always the primary driver of this funding. So, for an example, the RBHCs would introduce some new service and, of course, an associated USOC and FID (phonetic) codes go with that. Our primary concern was to provide the generic funding for those OSSs to accommodate that and flow through those types of services.

When the vendors came along with their unique network elements, such as a 5 ESS switch, that provided some new functionality or some new bells and whistles, it also triggered a new type of a message that had to traverse the network and talk to the upstream OSSs. So the RBHCs provide the funding to provide the downstream flowthrough process and then the vendors through what they call an OSMINE process at Bellcore, that's O-S-M-I-N-E, they subsidize it to make sure that any changes in the network because of the switch or digital cross connect system propagated upwards.

So the whole purpose of this, of these two processes, both the generic funding by the RHBCs, which continues today to some degree, and the supplemental OSMINE funding was to assure that things flowthrough, that provisioning flowed through. And I can rest assure you that Lucent, for an example, spent millions of dollars and they made darn sure that in a test lab environment at Bellcore that when a new USOC or FID code was put in through the service order process, it flowed all the way downstream to

the switch and provisioned POTS and ISDN services and features. The same with digital cross connect systems. It's because the data bases were mismanaged and because processes weren't in place in the RBHCs that they start to incur high fallout.

The intent was 100 percent flowthrough, and I believe our model is very conservative in allowing for 2 percent fallout, which is really unacceptable in a competitive environment. But these OSSs were meant to flowthrough 100 percent. There was a lot of money paid and if the processes aren't in place in the RHBCs and the data bases aren't up-to-date, this is one of the major reasons -- or if they are not fault tolerant or high availability platform, one system goes down, the other system doesn't get its data and data bases get out of sync. This is an area where I have could spend probably the entire day talking on.

COMMISSIONER DEASON: Please, please, please. You have answered the question. Very well.

BY MS. WHITE:

Q So in your cost model do you assume a fully compliant network, TMN network?

A No, we do not. Let me just add, just to get to your question. The benefits of TMN in an OSS environment, I will give you one benefit, is that today because those OSS and Legacy, they are closely coupled, and there is

dependencies, when the system administrators go in they have to touch many systems so everything flows through. In a TMN environment, typically you wouldn't touch every system, and that's where it makes it -- that's where it makes it easier to do the administration. But the flowthrough, I don't believe you get any efficiencies in flowthrough.

Q Well, your model assumes a 2 percent fallout?

A That is correct.

Q So if BellSouth had a fully compliant TMN network, they would only gain 2 percent, that 2 percent?

A Well, to quote GR2869, and GR2869 says that while the customer is on the phone, when the customer could be an end user or a CLEC, that service activation can occur immediately. And to me immediately means that -- a complete flowthrough, 100 percent. And I'm quoting GR2869.

Q And just a couple more questions. You mentioned that GR2869, that is the Bellcore standard for TMN?

A Yes, ma'am.

Q And I know I may not be using the exact right language, but has that standard -- I mean, is that a completed standard?

A If you were -- GR2869 standing by itself would not allow an OSS vendor to build a TMN compliant OSS system, but it does reference other documents. It's like building a switch. One document points to many related documents or

subtending documents. So GR2869 points at many other documents, one being ITU M3010, which is the international standard.

Q Well, if a vendor took all of those documents that you just talked about and put them together, would they be able to build a TMN compliant creation?

A According to Bellcore, yes. I mean, I haven't developed systems, but I am told that, yes, you could, using all the associated documents that GR2869 references.

Q So, in your opinion, no more standard work needs to be done for TMN?

A Well, I think as new technologies and services emerge, it's like any other standard document. Going back to prior to the TMN and what they called the Q3 interfaces between systems and network elements, there was a Bellcore standard called TL1 that was still in an evolutionary stage while the TMN was trying to leapfrog it. So to answer your question, I don't think any of the standards ever fully stabilize. They are constantly evolving.

MS. WHITE: Thank you. I have nothing further.

COMMISSIONER DEASON: Staff.

CROSS EXAMINATION

BY MS. BROWN:

Q Good evening, Mr. Lynott. My name is Martha Carter Brown. I represent the Commission staff. We spoke

on the phone at your deposition.

A Yes.

Q I have just a very few questions for you. If you would turn to your rebuttal Exhibit JPL-3, please. I am most interested in Page 10 of 13 of that exhibit. It's the page that talks about four-wire analog port at the top, work paper inputs?

A Excuse me, is that -- excuse me, Exhibit JPL Number 3, did you say?

Q Yes, your rebuttal Exhibit JPL-3.

MR. HATCH: What was the page reference again, Martha?

MS. BROWN: Page 10 of 13. It is entitled adjusted NRC input.

THE WITNESS: I'm not finding that document for some reason on JPL Exhibit Number 3.

MS. BROWN: Let me see if I can clear --

THE WITNESS: I have it now.

MS. BROWN: All right.

BY MS. BROWN:

Q Now, as I understand your testimony at your deposition, you explained that AT&T did not use its nonrecurring cost model to determine the nonrecurring charge for the four-wire analog port?

A Yes, ma'am, that's correct.

Q Instead, AT&T used BellSouth's TELRIC calculator with some modified input, is that correct?

A That is correct.

Q What I would like to do is work through this exhibit page of yours and ask a couple of questions about it. Specifically, Rows 34 through 38. Do you see those five entries starting customer point of contact?

A Yes, I do.

Q Can you please explain for me for each of those five entries exactly what is involved in those work functions? Would you like for me to elaborate on my question?

A Would you, please.

Q All right. For instance, Number 34, customer point of contact. What kind of work has to go into that, what is involved in that?

A Customer point of contact is a case where the end user customer would contact a CLEC, such as AT&T. It would be the customer service center contacted by the end user. The network services clerical would be part of the connection services for copper, a copper cross connect. The recent change line translations would be associated with the actual translations of the switch, and that would be what they call the RCMAC (phonetic) type function. And I'm not sure what the account customer advocate is, but it has been

zeroed out because we don't believe that we would go through that center, the ACAC I believe it's called. And we don't believe that we would go through that center. That would be a flowthrough electronic interface, and it would be basically from our gateway to the service order process of the ILEC.

Q What about Number 37, the CO -- I assume that is installation and maintenance?

A The CO installation and maintenance is actually the physical, the physical cross connect or jumper wire.

Q All right. Over on the -- well, not quite the far right-hand side, but in the last two columns in that exhibit you have times associated with those work functions, correct?

A Yes, I see that.

Q And they are under install and disconnect?

A Yes, ma'am.

Q The work times that you have proposed on this exhibit are drastically different than the work times proposed by BellSouth, and I would like, if you would, for you to turn to Exhibit 13 of Ms. Caldwell's testimony, if you have it.

A No, I do not.

Q Is your attorney going to get it for you?

A I believe so.

Q If not, we have a page we can pass out. Are you ready, Mr. Lynott?

A I have that, yes.

Q All right. And the top of that exhibit says *nonrecurring* cost development, do you see that?

A Yes, I do.

Q Now, for the port which is shown on this exhibit, could you please compare that to the work times in your exhibit in Items 34 through 38, and explain the differences to us in those proposed work times?

A Well, let me try and take one at a time here.

Q That would be great, thank you.

A It looks like some of the times are close, but --

Q Well, Mr. Lynott, why don't we start with customer point of contact?

A It looks like a .5 --

Q Yes.

A -- for BellSouth, and a .01 for the service order function in the AT&T model.

Q Now, are those numbers in terms of fractions of hours?

A Yes, they are.

Q Okay. And can you explain the difference between those times?

A I can explain the difference on some of these,

other ones I'm not quite sure. For an example, the account -- if I start at the bottom, the ACAC, as I mentioned earlier, would not be part of the process because, again, we have talked about electronic interfaces and flowthrough for OSS. The recent change in the memory administration group, the assumption in the BellSouth cost model, for an example, the assumption is that is the RCMAC people actually put -- do the recent change memory administration translations onto the customer's line manually.

The assumption of the nonrecurring cost model assumes that this is a flowthrough process, as I mentioned earlier, from the service order processor all the way to the switch. That the only time the RCMAC would get involved, as BellSouth lays out in their model, is that if there is fallout. And, again, this gets back to the 2 percent fallout we talked about. And then it would take an RCMAC person to go in there and analyze and clear the jeopardy.

The cross connects times, as I have mentioned earlier, there is a discrepancy. Our subject matters experts in version 2.0 said two minutes, but in 2.1 that has now been corrected to one minute. And that's the only ones that I can explain.

Q All right. Thank you. Now, Mr. Lynott, if you will turn to your late-filed deposition document that is called Exhibits 3 and 5, Page 1 of 3. At the top of that

exhibit in the center it says input, and then it says in parentheses LO_DS1_3.XLS?

A Yes, I see that input, LO_DS1_3.XLS.

Q Right.

A Yes, I have that.

Q I just want you to explain a couple of the assumptions that you have identified here in the middle of the page where it says AT&T/MCI assumptions for modifying BellSouth's NRC study. As you may remember, in your deposition we asked you to -- since you have not and were not relying on your own study to make some of these, to arrive at some of these numbers, and that you are modifying BellSouth's study, we wanted to know the assumptions that were underlying those modifications. I am particularly interested in a little bit more explanation for the second one there, which says AT&T assumes buying capacity not dedicated. Could you just explain what you mean by that?

A Could you please tell me where you're at.

Q I'm sorry, right in the middle of the page. Do you see where it's underlined, and it says AT&T/MCI assumptions in bold?

A Yes.

Q All right. The second line under that heading?

A Yes.

Q Can you explain that to me a little bit more?

A Sure, I'm sorry.

Q It's okay.

A The assumption there is that in the NRC cost model for DS-1 interoffice transport, the assumption was that it was SONET rings, there were SONET rings of the OC12 or OC48 band width, and that we are buying capacity on the SONET ring to be used for -- used for whatever. We were just buying capacity off of that ring.

Q Okay. The third assumption there, no disconnect cost using Flexcom to perform own disconnect, could you describe what Flexcom is?

A Flexcom is a Bellcore end user OSS system, and what it allows --- and I believe BellSouth is using Flexcom link or CNC, but they are two similar systems. But what that allows is an end user to go in and reconfigure their own DS-1 or DS-3 transport without the need of a service order. In other words, you would data base that -- the customer would buy a quantity of DS-1s and DS-3s. And as we have modeled in your transport model, we have digital cross connect systems, so one of the requirements of, again, being a forward-looking network, one of the requirements of Flexcom link is that it requires intelligent network elements such as SONET add/drop multiplexers or digital cross connect systems.

But basically customers would buy quantities of

DS-1s or DS-3s, or even optical carrier, for that matter, on SONET ports off the DCS. Then, as they roll traffic or modified or groomed DS-1s and DS-3s, they would not be required if they generate a service order through the traditional OSS process flow, but simply they would be data based in Flexcom. They would have direct access to a partitioned digital cross connect system or SONET, and they would reconfigure their own DS-1s and DS-3s without service orders or without the need for intervention of BellSouth.

Q Okay, thank you. Do you have Mr. Landry's Late-filed Exhibit 5?

A I do not.

Q You do not. All right, we will get you one.

A Okay.

Q I really just want to ask you if you agree with the statement there where -- on that Page 296B where Mr. Landry states that preordering functions are not applicable to these transport UNEs. Do you agree with that?

A Would you please repeat that one more time.

Q Yes. Do you see there on that page -- you have my copy, so -- do you see there where Mr. Landry states, I believe it's sort of the top of the middle of the page, preordering functions are not applicable to these transport UNEs?

A Are we looking at the same --

Q Are you on Page 296B?

A I believe it's kind of -- it's very lightly shaded, but I believe it's 296B, and at the top of the page it states the following responses apply to both dedicated transport and directory assistance transport.

Q Yes. And there down a little ways there is the statement that preordering functions are not applicable to those transport UNEs. Do you see that?

A Yes, I do.

Q All right. All I really want to know is if you agree with that statement, that preordering functions are not applicable to those transport UNEs?

A If we are talking about -- it's different, it's different than preordering with respect to POTS where you go in and get features and customer service records and street address guide data. It's different type of data that you will retrieve, but it is applicable.

Q So what kind of data would you be retrieving?

A You would be retrieving customer service records to know what type of -- for an example, if you're talking DS-1 here for dedicated transport, what type of capacity the customer has available. Because, again, the customers -- similar to the access environment today, if I'm understanding this question properly, or his response properly, typically in today's environment, as I know it

with access, customers can go in there, access a data base and they know how much spare capacity or band width is left. For an example, they buy a DS-1 and perhaps they use 13 DS-0s. Well, they have access, preordering access in there to know what type of band width is still available on that pipe.

So that, again, part of their planning forecast is that they can augment those trunk groups as they need them. So there is access to that type of data. It's different than the POTS environment that we talked about earlier where you go in and get the street address guide and you get features and telephone numbers and those kind of things, but none the less there is preordering information available.

MS. BROWN: All right. Thank you very much, we have no further questions.

THE WITNESS: You're welcome.

COMMISSIONER DEASON: Redirect.

MR. HATCH: No redirect.

COMMISSIONER DEASON: Exhibits.

MR. HATCH: 43 and 44.

COMMISSIONER DEASON: Without objection, Exhibits 43 and 44 are admitted.

MS. BROWN: Staff moves Exhibit 45.

COMMISSIONER DEASON: Without objection, Exhibit

45 --

MS. BROWN: Oh, I'm sorry. I need to say that staff has no objection to the removal of those pages that Ms. White mentioned earlier.

COMMISSIONER DEASON: And those pages are?

MS. WHITE: 201 through 208.

MR. HATCH: It's Late-filed Deposition Exhibit Number 7, to be more complete, I guess.

(Exhibit Numbers 43, 44, and 45 admitted into evidence.)

COMMISSIONER DEASON: Very well. Thank you, Mr. Lynott, you are excused.

We are going to recess for the evening. We will reconvene tomorrow at 9:00 o'clock.

(Transcript continues in sequence with Volume 9.)