BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of: Petition by 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

SECOND DAY - MORNING SESSION

VOLUME 5

Pages 528 through 729

PROCEEDINGS: **HEARING**

BEFORE: CHAIRMAN JULIA L. JOHNSON
COMMISSIONER J. TERRY DEASON
COMMISSIONER SUSAN F. CLARK
COMMISSIONER JOE GARCIA
COMMISSIONER E. LEON JACOBS, JR.

DATE: **Tuesday, January 27, 1998**

TIME: Commenced at 9:00 a.m.

PLACE: Betty Easley Conference Center
Room 148
4075 Esplanade Way
Tallahassee, Florida

REPORTED BY: JOY KELLY, CSR, RPR
Chief, Bureau of Reporting
(904) 413-6732

APPEARANCES:

(As heretofore noted.)

WITNESSES

EXHIBITS

P R O C E E D I N G S

(Transcript follows in sequence from Volume 4.)

CHAIRMAN JOHNSON: I think we're prepared to go back on the record. Good morning.

MS. WHITE: Madam Chairman, before we start, there are some witnesses in the audience that weren't here yesterday, so if you'd like to go on and swear them.

CHAIRMAN JOHNSON: Thank you. If there's anyone here today to testify that was not here yesterday, if you could please stand and raise your right hand. Is there someone else?

(Witnesses sworn.)

CHAIRMAN JOHNSON: Thank you. You may be seated. Any other preliminary matters? Seeing none, I think we're ready for MCI.

MR. ADELMAN: No questions for this witness from MCI.

CHAIRMAN JOHNSON: Okay. Staff?

I'm sorry.

MR. SELF: We have no questions either.

ENO LANDRY

resumed the stand as a witness on behalf of BellSouth Telecommunications and, having been previously sworn, testified as follows:

CROSS EXAMINATION

BY MS. KEATING:

Q Good morning, Mr. Landry.

A Good morning.

Q I'd really just like to follow up on a line of questions that counsel for AT&T discussed with you yesterday. And this is regarding the differences between the proposed distribution loop cost and the tariff rates that BellSouth has. In particular, I think you discussed the impact of manual labor on those costs.

What I'd like to do now is refer you once again to Exhibit P-1, to Page 496 of that exhibit. Do you have that handy?

A Excuse me, was that the exhibit you handed out, that was handed out by Staff yesterday?

Q Yes. I believe I gave you that specific page. And it is from Exhibit P-1.

A I have it.

Q Thank you. If you would, look in Line 10 under the heading "Service Inquiry."

A Yes.

Q There are two categories relating to customer service. And the first one is LCSC. Is that something that would be required in a retail order?

A Depending upon the complexity of the retail order, yes. Things that are as complex as SmartRings and other services where it requires a fairly extensive look at exactly what it's going to take to make that function, then, yes, those are required. It is a way of making sure that that particular site and the particular configuration is servable, will function. And in the case of a subloop, it's a fairly complex process where a CLEC has met us midpoint someplace along the loop, which is not a normal meet-point; not like a central office or a customer prem, and that specific case, I guess, lends a fair amount of complexity to the process.

Q What about for a residential order?

A No. Residential orders would typically not undergo a service inquiry process.

Q Okay. The second category I'd like to look at is outside plant engineering, which is in Line 12. Is that something required in retail order?

A Again, both of those centers are part of the service inquiry process, and on some retail orders the

more complex ones, again a service inquiry would be processed.

A service inquiry is typically handled by the group that receives the order on the front end and there are either one or two groups typically involved in responding to that. Outside plant is one of the groups, and the interoffice capacity management group is the second group. Those two would make sure that your loop facilities are in place to serve it and your interoffice facilities are also in place.

And again, on the more complex retail orders, they would typically be involved; on a residential order they would not.

Q Looking down into the heading "Service Order," Line 16 there's four categories. The first one is LCSC receives service inquiry. Is that required for a retail order?

A There is a center that receives the service request. Similar in some respects to the LCSC, where somebody does take a phone call typically on a residential order from a customer. So that particular function is there in retail and residential services.

Q How about WMC coordinates dispatch technicians?

A Yes. On retail orders that center would

also be involved.

Q Also for residential?

A Yes.

Q And ACAC turns up service to the ALEC?

A There is a center that is responsible for overseeing the turn up of residential-type services. They are a residential-type center. They are equivalent to the this one, although the functions that are performed from a residential perspective are not anywhere as complex as the one that the ACAC does. So there is a service in residential services that does the function. Its processes and functions are not quite as complex as this one.

Q When you say "not quite as complex," could you give me an idea of the comparison and the complexity? Does one take significantly more time than the other, is what I'm asking?

A Just a broadbrush estimate I'd say maybe like 20% compared to 100% as far as the complexity of a RRC residential center that is turning up a service versus the ACAC. And, again, that's due to the nature of the unbundled element, and the fact -- the way these are done, it's a fairly complex process to unbundle it, separate it. A network that is typically integrated into an end-to-end network where you go all

the wasy in some cases from a termination on a switch to a termination at a premise that is an integrated network to one that you have broken into unbundled elements. Just the sheer nature of fragmenting that and breaking it into pieces, and the management of those pieces, and being able to hand them off at points that are typically not handoff points to a competitor, makes it complex.

Q Okay. Looking in the next heading, which is "Engineering." Does AFIG stand for additional facility inventory group?

A Assignment facilities inventory group.

Q Does AFIG assign cable pairs according to FRN and rules. Is that something required in the retail order?

A The AFIG is involved, not necessarily the facility reservation number. The facility reservation ties to the fact that somebody has previewed that process and those facilities, and has tied a certain facility that's been verified to a service request. The AFIG is involved. They manage all of the outside loop facilities, or the vast majority of the outside plant loop facilities are managed by the AFIG. They are involved in residential orders also; not to the extent that they are shown on here.

Again, typically a normal residential order and that process is a lot simpler than the unbundled element process.

Q Looking at the next heading, "Connect and Turnup Test." Line 27 is ACAC dispatches appropriate work groups. How about that? Is that something required in a retail order?

A On residential services, again typically there are two centers that do that; the WMC makes sure that the technicians are out there to perform the work, and typically on residential services you have a broader time where a service will be turned up. It's either an a.m. or p.m. type appointment in most cases.

And the residential repair center, or is there a center that manages that, that would make sure a final test has been run on it, but they are not involved again to the point that the ACAC is. Not anywhere near the involvement. Again, I would think maybe a 10 to 20% estimate as far as overall work compared to this total work.

Q Okay. How about Line 28? "I&M makes cross-connect at the cross-connect box."

A Yes. That one is also involved in the turnup of residential services. The installation group is the one that goes out there and actually --

if a cross-connect is needed, if a termination is needed they do that.

Q And finally in the heading "Travel," I&M incidental travel time that's not captured in the NID drop investment. Is that something required?

A The same thing. That's tied to the installation work that showed up in Line 28. And, again, it's part of the dispatch to turnup applicable and residential services also.

Q Okay. Thank you.

I'd like to turn your attention now to Witness Lynott's late-filed deposition exhibits 3 and 5. Do you have that in front of you?

A Yes.

Q If you would, look at Page 1 of 3 of that exhibit. Looking at Lines 1 through 10, the top of that chart, do you see a list of work groups there? In BellSouth's cost study, do any of the work groups listed in these line contain ALEC-specific OSS cost?

A I'm not sure what you mean by ALEC-specific. They are responding, I guess, to the turnup of a service, and in the turnup of that service have specific functions to perform. Some of these centers are the centers that perform that function on retail services. In the case of the customer point of

contact, and in the case of the ACAC, those centers were set up specifically to respond to ALEC needs as far as single points of contacts and a point where their trouble reports and turn up of certain services are coordinated through. So, I'm sorry, I may not be answering your question. But, again, they are responding to a service request.

Q Okay. Are those costs what you would refer to as fallout resolution costs rather than ALEC-specific OSS costs?

A I'm sorry, again, I'm not sure -- ALEC-specific OSS, these centers use OSS as their operational support systems in performing their services. There are certain systems that each of these centers rely on to be able to receive, process, dispatch technicians. But each of these centers is a center that exists and has people to perform a function, to handle fallout or to handle, in the case where they are not driven by fallout, there are physical things that need to be done, either in the central office or at the customer prem on those circuits.

MS. KEATING: Thank you, Mr. Landry.

Those are all of the questions Staff has.

CHAIRMAN JOHNSON: Okay. Exhibits? Any

redirect?

MR. ROSS: Just two quick questions, Madam Chairman.

REDIRECT EXAMINATION

BY MR. ROSS:

Q Mr. Landry, yesterday Mr. Lemmer, on behalf of AT&T, asked you about fallout in the access world, and he made a reference about PIC changes. Is the fallout -- could you explain the fallout in the access world as you were using that term and describe whether or not that has anything to do with PIC changes?

A As I explained yesterday, that a PIC change is a fairly simple process. It's a simple translation in the switch where you're moving a customer from one interexchange carrier to another. Although there's probably some fallout -- and, again, I'm not familiar with MARCH -- there's going to be some fallout of the translations process into that switch.

The process, and the complexity of the process, for a PIC change is not anywhere's near the complexity of the process to disconnect a loop and terminate it in a collocated space. The unbundled loop has a number of technical parameters that all have to be considered and taken into account. They all have to be correct for that whole process to

function and to function mechanically.

Q Mr. Landry, you were also asked by Mr. Lemmer about any overlap between the work functions performed by the ACAC and the WMC. Do you recall those questions?

A Yes.

Q I believe you indicated there was no overlap. Could you explain why it is, in your opinion, there's no overlap between those work centers?

A Yes. Typically the WMC has a center charge with the general management of technicians in a particular geographic area. The technicians are there to perform given amounts of work. That center makes sure that the technicians are there; that the system that loads them out -- in this case, WAFA, has been loaded. The WMC will handle expedites. If there's any overtime to be worked, again, the WMC gets involved in that. They make sure the technicians are available to perform the work.

The ACAC, on the other hand, handles very specific circuits. In a general area the WMC may have dispatched five to ten technicians to work a general amount of work. Only one or two of those circuits may be tied to an ACAC function. If I were to try to pick

a parallel, I guess, the WMC might be like a general contractor making sure that the people are there to work on a building. That the painters are there, the builders are there, the people that put carpeting are there. The ACAC might be what you think of as specific forman on the floor that is responsible for making sure that everything on that one floor is finished, and that the floor can be turned over to a specific occupant or the person who is going to own that, and that everything is completed and is in good order per what the customer specified. That would be the best parallel that I could give in comparing a WMC function to an ACAC function.

MR. ROSS: No further questions, Chairman Johnson.

CHAIRMAN JOHNSON: Okay. Exhibits? Exhibit 16?

MS. KEATING: Staff moves 16.

CHAIRMAN JOHNSON: Show it admitted without objection.

(Exhibit 16 received in evidence.)

CHAIRMAN JOHNSON: Thank you, sir. You are excused.

(Witness Landry excused.)

MS. WHITE: BellSouth calls Walter Reid.

WALTER S. REID

was called as a witness on behalf of BellSouth Telecommunications, Inc. and, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. TWOMEY:

Q Good morning, Mr. Reid.

A Good morning.

A Please state your full name and business address for the record.

A My name is Walter S. Reid. My business address is 675 West Peachtree Street N.E., Atlanta, Georgia.

Q By whom are you employed?

A I'm employed by BellSouth Telecommunications, Inc.

Q Mr. Reid, did you cause to be filed into the record of this proceeding direct testimony consisting of 12 pages and five exhibits on November 13, 1997?

A Yes, I did.

Q Did you also cause to be filed revisions to that direct testimony consisting of four pages, and that is replacement Pages 3, 4, 5 and 12, as well as revised exhibits 4 and 5 on December 9th, 1997?

A Yes, I did.

Q And did you also cause to be filed rebuttal testimony consisting of 9 pages and one exhibit on December 9th, 1997?

A That's correct.

MR. TWOMEY: Chairman Johnson, Commissioners, in addition to these revisions, there was a revised Exhibit 3 to Mr. Reid's testimony that was omitted from his testimony on December the 9th. The revised exhibit was distributed to the parties yesterday. The information contained therein was included in the model that was filed on December 9th. The actual piece of paper was simply omitted so we're going to ask it be revised as well. I don't believe there's any objection.

Q At this time, Mr. Reid, do you have any additions or modifications to your testimony?

A No, I do not.

Q If I asked you the same questions in your prefiled direct and prefiled rebuttal, would your answers be the same?

A Yes, they would.

MR. TWOMEY: At this time, Chairman Johnson, BellSouth moves into the record the testimony of Walter S. Reid, both direct and rebuttal as though read from the stand.

CHAIRMAN JOHNSON: It will be inserted as though read.

MR. TWOMEY: And would like Exhibits WSR-1 through 6, and that will include revised exhibits 3, 4 and 5, inserted into the record as well as exhibits. I believe the next exhibit number is 17.

CHAIRMAN JOHNSON: It will be marked as 17, and identified as WRS-1 through 6, with revised -- you said 3, 4 and 5?

MR. TWOMEY: Yes. Thank you.

BELLSOUTH TELECOMMUNICATIONS, INC.

DIRECT TESTIMONY OF WALTER S. REID

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NOS. 960833-TP, 960846-TP, 960757-TP, 960916-TP, 971140-TP

NOVEMBER 13, 1997

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION WITH BELLSOUTH TELECOMMUNICATIONS, INC.

A. My name is Walter S. Reid and my business address is 675 West Peachtree Street N. E., Atlanta, Georgia. My position is Senior Director for the Finance Department of BellSouth Telecommunications, Inc. (hereinafter referred to as "BellSouth", or "the Company").

Q. BRIEFLY OUTLINE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE IN THE TELECOMMUNICATIONS INDUSTRY.

A. I received bachelor and master of science degrees in industrial engineering in 1969 and 1971, respectively, from the Georgia Institute of Technology. I was employed by BellSouth in November, 1971, as a management trainee in the Comptrollers Department in Jacksonville,

Florida. Since that time, I have held various positions of increasing responsibility in the areas of budget and forecast preparation, cost accounting, separations, and regulatory matters. I was transferred to my current position at Company Headquarters in October, 1987. Overall, I have over 26 years experience dealing with the financial issues of the Company.

Q. WHAT ARE YOUR CURRENT RESPONSIBILITIES?

A. I am responsible for the preparation and analysis of the Company's financial results, the provision of accounting and cost information requested in proceedings before state regulatory commissions and the coordination of other regulatory activities related to accounting and finance.

Q. HAVE YOU TESTIFIED PREVIOUSLY REGARDING FINANCIAL ISSUES IN STATE REGULATORY PROCEEDINGS?

A. Yes. I have testified in Florida proceedings for many years. Most recently, I testified in Florida in Docket No. 96-358-C regarding the appropriate resale discount for BellSouth. I have also testified in numerous regulatory proceedings in Alabama, South Carolina, Georgia, Kentucky, Mississippi, North Carolina, and Tennessee.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony in this proceeding is to address the appropriate methodology for including a reasonable amount of forward-looking shared and common costs in BellSouth's Total Service Long-Run Incremental Cost ("TSLRIC") plus Shared and Common cost studies (BellSouth Cost Studies). In its Order No. PSC-96-1579-FOF-TP ("Order") issued December 31, 1996, the Florida Public Service Commission stated, "Upon consideration of the evidence in the record and based on the Act, we find it appropriate to set permanent rates based on BellSouth's TSLRIC cost studies. The rates are for the unbundled network elements we consider to be technically feasible. The rates cover BellSouth's TSLRIC cost and provide some contribution toward joint and common costs." (Order at page 33). BellSouth's approach for treating shared and common costs consists of a study which develops appropriate shared and common cost factors for use in unbundled network element ("UNE") rate calculations.

Q. HAS THE COMPANY PROVIDED ITS STUDY WHICH DEVELOPS THE SHARED AND COMMON COST FACTORS TO THE FLORIDA PUBLIC SERVICE COMMISSION?

A. Yes. The Company provided the study which calculates the shared and common cost factors as part of the data filed with its revised cost

studies submitted with the Company's testimony on November 13, 1997 **and revised on December 9, 1997**. In addition, the Company filed its supporting documentation on the shared and common cost study as part of its cost support documentation.

Q. FROM A HIGH LEVEL PERSPECTIVE, CAN YOU BRIEFLY DESCRIBE BELLSOUTH'S APPROACH FOR TREATING SHARED AND COMMON COSTS AS A COMPONENT OF UNE RATES?

A. Yes. The ultimate objective of BellSouth's methodology, which I have depicted on my Exhibit WSR-1, pages 1 through 3, is to split the Company's total forward-looking cost of business between its wholesale and retail functions and to specifically identify three major categories of wholesale costs: 1) wholesale direct costs; 2) the portion of shared costs attributed to wholesale; and 3) a reasonable portion of common costs applicable to wholesale operations. It is further necessary to split categories (1) and (2) above between those wholesale costs that are related to recurring investment related transactions (UNE related) and those that are related to "other wholesale" transactions, such as non-recurring (e.g., service order activities) or special purpose transactions (e.g., operator services). Shared costs assigned to "other wholesale" are not included in the development of investment related shared cost factors.

Because the Uniform System of Accounts ("USOA") does not uniquely identify these desired cost categories, a study was required to determine the appropriate amounts to include in each category. Fortunately, the BellSouth Cost Allocation Manual ("CAM") and the reporting procedures which the Company follows to separate its costs on a cost causative basis between regulated and non-regulated costs provided a good model on which to base this study. Therefore, the Company utilized the basic attribution principles of its CAM and the underlying cost pools and sub-pools which it maintains for cost attribution purposes as the underlying methodology for determining the desired breakdown of wholesale costs into categories. The wholesale costs identified through this process are the appropriate costs to apply to a cost methodology that defines the cost for UNEs.

Once all of these costs are properly categorized, cost factors for use in the BellSouth cost study can be developed. For instance, the relationship between wholesale common costs and the total of wholesale direct and wholesale shared costs yields the common cost factor. In this study, the common cost factor equals **5.30%.** Page 1 of WSR-1 illustrates this calculation.

A second set of factors is derived by determining the relationship, by investment type, between wholesale shared costs related to investment accounts and the associated network investment. These are the shared cost factors. Page 2 of WSR-1 illustrates this calculation.

A third set of factors reflects the relationship between shared costs and labor costs. These factors are calculated so that shared costs can be included in labor rates. These labor rates are primarily used to compute non-recurring cost study charges or other special purpose charges which have labor components. Page 3 of WSR-1 illustrates this calculation.

All three types of factors are used as inputs to the BellSouth cost study development methodology described in BellSouth Witness Daonne Caldwell's testimony. Application of these factors in the cost development process allows BellSouth to associate a reasonable amount of forward-looking shared and common costs with each UNE.

Q. PLEASE DESCRIBE IN MORE DETAIL THE MECHANICS OF BELLSOUTH'S PROCEDURE TO DETERMINE A REASONABLE PORTION OF ITS FORWARD-LOOKING SHARED AND COMMON COSTS FOR INCLUSION IN ITS COST STUDIES.

A. The starting point in the procedure is BellSouth's regional regulated 1995 expenses and regulated mid-year 1995 investment. This data is obtained at a very detailed (cost pool and cost sub-pool) level from BellSouth's financial system which applies the methods and procedures described in the CAM. The primary goal of the CAM is a reasonable, supportable apportionment of total costs between regulated services

and nonregulated activities. As a general rule, this methodology for shared and common costs which I am addressing in this proceeding follows the same attribution procedures for the various accounts and cost pools as are identified in the CAM for comparable accounts and cost pools.

Q. WHAT IS THE NEXT STEP IN BELLSOUTH'S METHODOLOGY?

A. The next step in the methodology is to develop a projection of expenses and investments for the years 1997-1999. This is accomplished by utilizing 10 months actual cost data from 1996, annualizing the amounts and normalizing the annual cost data for unusual events. These 1996 normalized costs are then converted into forward-looking costs by applying forecasted growth factors and, in the case of investment accounts, factors which reflect the relationship of current cost to original book cost. The application of these factors converts the historical cost data into cost levels that are representative of the forward-looking average costs for the period 1997 to 1999.

In order to reflect the proper capital carrying costs for investment accounts, annual cost factors are applied to the forward-looking investment amounts. These annual cost factors include the cost of money at 11.25%, income taxes, depreciation expense, and ad valorem taxes.

Q. HOW IS THE FORWARD-LOOKING FINANCIAL DATA ANALYZED?

A. BellSouth's study recognizes that total costs can be placed into four clearly identifiable categories. First, there are the "direct wholesale costs." These are the costs which are clearly and directly assignable to the "wholesale" function. Costs of switches, for example, would fit into this category. The wholesale direct costs are further divided between those that are related to recurring investment costs and those that are related to other wholesale transactions such as non-recurring or special transactions. The direct costs of providing telecommunications services, such as the carrying cost on investment and plant specific expenses related to the investment, are segregated by each specific investment account.

Second, there are the "direct retail costs." These are the costs which are clearly and directly assignable to the "retail" function. All retail costs are excluded from the calculation of UNE costs.

Third, there are "shared costs." Shared costs are costs that are incurred in the production of two or more products or services by the same production process that do not span all activities of the business. Typical shared costs include costs for items of general support equipment, procurement, engineering expenses, etc. Exhibit WSR-2 to my testimony provides a more detailed list of typical shared costs.

Fourth, there are "common costs." Common costs are those costs that generally span the activities of the business, and the products and services it produces. These costs are not directly assignable to one product or service, but are necessary for the operation of the business as a whole. Typical common costs are items such as accounting and finance costs, executive costs, etc. A more detailed list of common costs is also shown on my Exhibit WSR-2.

Clearly, all of those costs which are applicable to the wholesale function (direct costs, shared costs, and common costs) must be recovered by UNE rates, while all of those costs applicable to the retail function should be excluded. The difficulties are: (1) separating the "shared costs" and the "common costs" between the "wholesale" and "retail" functions; and (2) attributing the wholesale shared costs to each network investment category.

Q. HOW HAS BELLSOUTH ACCOMPLISHED THIS SEPARATION OF "SHARED COSTS" AND "COMMON COSTS"?

A. The process BellSouth has followed to reach this goal has two fundamental steps. First, the "shared costs" are segregated into cost pools similar to those utilized in the CAM. The costs accumulated in these cost pools are attributed to "wholesale" and "retail" functions as I will describe below.

In the second step, the "common costs" are apportioned between "wholesale" and "retail" functions based on the relative proportion of the direct and shared costs that have been assigned to these functions.

Q. CAN YOU PROVIDE A MORE DETAILED EXPLANATION OF THE FIRST FUNDAMENTAL STEP YOU MENTIONED ABOVE?

A. Yes. The costs which are treated as shared costs can be segregated into cost pools because the historical data which was obtained at the beginning of the process was collected at the cost pool or cost sub-pool level. This detail was maintained as the historical data was projected to forward-looking data. Therefore, the forward-looking shared costs can be identified by cost pool.

Next, attribution factors, such as central office equipment ("COE") investment percentages and the relative percent distribution of salary and wages, are developed. These factors are similar to the attribution bases described in the CAM. When the factors are applied to the respective shared costs accumulated in the various cost pools, the result, which takes more than one iteration, is the assignment of the shared costs to either: 1) a related "wholesale" network investment category (pair gain equipment, buried cable, etc.); 2) the "other wholesale" category; or 3) the "retail" category. Shared costs which are not assignable to one of these categories after two iterations of the

attribution process are treated as common costs. Wholesale shared costs assigned to an investment category are used to calculate the shared cost factor for that investment item. A shared cost factor is the ratio of the shared cost assigned to a particular type of investment divided by the projected average investment. My Exhibit WSR-3 provides the various shared cost factors calculated by this analysis.

Q. HOW ARE FORWARD-LOOKING COMMON COSTS TREATED IN BELLSOUTH'S METHODOLOGY?

A. Forward-looking common costs are proportionally split between wholesale common costs and retail common costs. The wholesale common cost factor is then calculated as the ratio of total wholesale common costs divided by the total of wholesale direct costs and wholesale shared costs. This wholesale common cost factor is an input in the development of the UNE costs as described in Ms. Caldwell's testimony. My Exhibit WSR-4 demonstrates the calculation of the wholesale common cost factor.

Q. HOW ARE THE FACTORS DEVELOPED FOR USE IN CALCULATING LOADED LABOR RATES?

A. First, salaries and wages are accumulated on a basis consistent with specific work force groups. Next, shared costs attributable to salaries and wages are accumulated on a basis consistent with the

development of the respective work force group's labor rate. A factor is then developed for each work force group by dividing the attributed shared costs (human resources, office equipment, motor vehicles, land and building space, etc.) by the related salaries and wages. This factor is applied to the salary and wage portion of the incremental labor rate for each work force group, and the result is added to the incremental labor rate to determine the loaded labor rate. My Exhibit WSR-5 provides a list of the work force group factors used in the BellSouth cost studies.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. My testimony provides a reasonable and supportable method for determining forward-looking shared and common costs attributable to the provision of unbundled network elements. The outputs of this methodology are a set of wholesale shared cost factors by investment category, as reported on my Exhibit WSR-3, a wholesale common cost factor of **5.30%,** as shown on Exhibit WSR-4, and a set of shared cost factors for use with labor rates. These factors represent the appropriate level of forward-looking shared and common costs for inclusion in BellSouth's cost studies.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

BELLSOUTH TELECOMMUNICATIONS, INC.

REBUTTAL TESTIMONY OF WALTER S. REID

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NOS. 960833-TP, 960846-TP, 960757-TP,

960916-TP, 971140-TP

DECEMBER 9, 1997

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION WITH BELLSOUTH TELECOMMUNICATIONS, INC.

A. My name is Walter S. Reid and my business address is 675 West Peachtree Street N. E., Atlanta, Georgia. My position is Senior Director for the Finance Department of BellSouth Telecommunications, Inc. (hereinafter referred to as "BST", or "the Company").

Q. ARE YOU THE SAME WALTER S. REID WHO FILED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes. I filed direct testimony in this proceeding on behalf of BST on November 13, 1997, with certain revisions filed on December 9, 1997.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to the comments of other parties in this proceeding regarding the appropriate amount of shared and common costs to include in the total cost of unbundled network elements (UNEs).

Q. PLEASE IDENTIFY THE WITNESSES IN THIS PROCEEDING TO WHOM YOUR REBUTTAL TESTIMONY WILL RESPOND.

A. My rebuttal testimony will respond to the positions which are presented in the testimonies of AT&T and MCI Witnesses Mr. John C. Klick and Mr. John P. Lynott regarding the appropriate level of shared and common (overhead) costs.

Q. WHAT WILL YOUR REBUTTAL TESTIMONY SHOW RELATIVE TO THESE WITNESSES POSITIONS?

A. My rebuttal testimony will show that even though these witnesses allege that the 10.4% overhead rate used in their cost models represents a competitive overhead rate, BST's shared and common costs methodology is an appropriate procedure which produces reasonable results. A simple analysis of

the shared and common cost factors which BST has utilized in determining its total costs for UNEs clearly demonstrates that the amount of shared and common costs included are reasonable and representative of efficient, forward-looking costs.

Q. BASED ON THE TESTIMONIES WHICH HAVE BEEN FILED IN THIS PROCEEDING, PLEASE SUMMARIZE THE ISSUES RELATED TO THE LEVEL OF SHARED AND COMMON COSTS WHICH HAS BEEN PROPOSED.

A. Mr. Klick's testimony presents AT&T's and MCI's Collocation Model. In that model, he uses a 10.4% markup to estimate common overhead costs.
Mr. Lynott's testimony presents AT&T's and MCI's Non-Recurring Cost (NRC) Model. In that model, he uses a 10.4% variable overhead loading. In the Non-Recurring Cost Model Description, page 17, under item 10, Variable Overhead, he states, "This input represents the loading variable overhead expenses not already captured in the model. The default is 10.4% and is derived from Hatfield Model support documentation."

This apparently is the same 10.4% used by Mr. Klick and presumably is also based on the Hatfield Model. Although the Hatfield Model was not filed in support of the 10.4% overhead rates used by Mr. Klick and Mr. Lynott, I am familiar with the calculation of the 10.4%.

Beginning on page 15 of 43 of Exhibit JCK-1, Mr. Klick claims that the 10.4% is based on the variable support expense in competitive industries (such as the interexchange industry). Based on my review of the Hatfield Model, the 10.4% is actually calculated from AT&T's 1994 expense and revenue data as reported to the Federal Communications Commission in its ARMIS reports. On page 8 of his testimony, beginning at line 20, Mr. Klick states that, "..it is important that ILECs *prove* the nature and magnitude of any forward-looking costs that they seek to impose on potential entrants." While my testimony does not address the methodologies used in either the Collocation Model or the NRC Model, I will demonstrate through a simple analysis that the "nature and magnitude" of BellSouth's shared and common cost are reasonable.

SIMPLE ANALYSIS OF SHARED AND COMMON COST FACTORS

Q. HOW IS BST'S SIMPLE ANALYSIS OF THE SHARED AND COMMON COST FACTORS STRUCTURED?

A. The simple analysis of the shared and common cost factors compares the level of the forward-looking factors which BST has proposed in this proceeding to the factors which would have been produced if BST had merely used historical data in its methodology. In addition, a comparison is made between BST's proposed common costs factor and the 10.4% variable overhead factors which Mr. Klick and Mr. Lynott have testified are reasonable.

Q. DO YOU HAVE AN EXHIBIT WHICH DISPLAYS THE COMPANY'S ANALYSIS?

A. Yes. My rebuttal Exhibit WSR-6, pages 1 through 4, displays BST's analysis. The first three pages of this exhibit compare BST's proposed shared and common cost factors in this proceeding to factors which would have been produced if BST had used historical data to calculate these factors. These historical factors were computed by replacing all of the expense

and investment development factors (factors used to convert the historical data to projected amounts) in BST's Shared and Common Costs Model with the number 1 (one). The resulting output reports from this computation are the factors which would have resulted from the use of 1995 historical results to compute the shared and common costs factors.

Also, shown on these pages is the percent change between the historical factors and the proposed forward-looking factors. This percent change demonstrates the significant reductions in shared and common costs which BST has incorporated in its forward-looking methodology.

Page 4 of the analysis provides three separate calculations of the common cost factor using the Hatfield formula. The first calculation illustrates the common cost factor calculated in the Hatfield Model using AT&T's historic data for 1994. This results in the 10.4% common cost factor adopted by AT&T/MCI witnesses. The second calculation uses the Hatfield formula to calculate a common cost factor with BST's historic data for 1994 as the input values. The third calculation uses the Hatfield

formula to calculate a common cost factor with BST's projected data as the input values.

Q. PLEASE SUMMARIZE THE RESULTS OF BST'S ANALYSIS.

A. The analysis shown on Rebuttal Exhibit WSR-6 clearly demonstrates that BST's shared and common cost factors are forward-looking and reflect significant operational improvements. The comparison of BST's proposed shared and common cost factors to historical based factors shows that: BST's forward-looking shared cost factors are on average approximately 32% lower than historical levels; BST's proposed common cost factor is 31% lower than historical levels; and BST's shared labor factors are on average approximately 10% higher than historical levels. The shared labor factors are higher due to the fact that operational improvements significantly impact the denominator of the equation (i.e., salaries and wages) as well as the shared costs which constitute the numerator. It is clear from this comparison that BST has incorporated significant operational improvements in its forward-looking factors.

With regard to the analysis of the Hatfield Model's common cost factor, the analysis shows that the common cost factor included in BST's cost studies is actually significantly lower than the 10.4% rate used in the Hatfield Model. BST's analysis shows that a common cost factor calculated using the Hatfield Model's formula and BST's forward-looking projections of expense underlying its shared and common cost factors, produces an equivalent factor of only 6.4%.

This factor differs from the 5.30% common cost factor shown on Revised Exhibit WSR-4 of my direct testimony because some of the expense accounts which BST has treated as shared costs are treated as common costs in the Hatfield Model's formula. The calculations for the 6.4% comparative common cost factor treats all expense accounts as they are treated by the Hatfield Model's formula. This allows an apples to apples comparison between BST's and the Hatfield Model's common cost relationships.

Q. WHAT CONCLUSION HAVE YOU DRAWN FROM THIS COMPARISON?

A. The Hatfield Model's calculation of the 10.4% common cost factor is developed from 1994 AT&T embedded

operating data. According to AT&T and MCI Witness Mr. Klick at page 10 of his direct testimony; "Insofar as the 10.4% markup captures all of the relevant overhead costs, it includes any element-specific costs and a reasonable share of any common overhead costs." If Mr. Klick's contention is true, then BST's common cost markup included in its cost studies is, if anything, too low.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

(Exhibit 17 marked for identification.)

Q (By Mr. Twomey) Mr. Reid, do you have a brief summary of your testimony?

A Yes, I do.

Q Would you please give it?

A Yes, I will. And I have an exhibit I want to pass out. It's WSR-6 to my rebuttal testimony that I'll describe at one point in my summary.

Good morning, Commissioners. I'm here today to explain to you how BellSouth treats shared and common costs in its cost studies, and to respond to the comments made by other parties regarding BellSouth's procedures.

I will begin my summary by describing the types of costs that are included in shared and common cost. Typical shared costs are motor vehicle expenses, general purpose computer expenses, office equipment expenses, et cetera, which are necessary for the production of two or more products or services. Common costs, on the other hand, are those costs that are generally incurred by the business as a whole, such as the cost for the company's accounting department.

There's no question that shared and common costs must be considered in unbundled network element

cost studies. Other state and federal regulators who have addressed this issue acknowledge that shared and common cost should be consider in the UNE cost studies. In addition, all parties who have filed testimony in this proceeding regarding the treatment of shared and common costs seem to agree that some measure of these costs need to be recovered in the UNE prices.

BellSouth's methodology for treating shared and common cost is a forward-looking procedure that utilizes cost causative principles to develop appropriate shared and common cost factors.

The application of these forward-looking shared and common cost factors to the appropriate cost elements in the cost studies results in the inclusion of a reasonable amount of shared and common costs in the total cost of each UNE.

BellSouth's methodology utilizes historical data as the starting point to develop a projection of average cost and investments for the period 1997 to 1999. Cost causative principles, primarily the same as those derived -- or excuse me, described in BellSouth's cost allocation manual, or CAM, were utilized to attribute various projected shared cost amounts to accounts which are representative of

specific unbundled network elements.

The CAM methodology is a methodology that has been used for numberous years to attribute cost to nonregulated products or services. Projected costs were also attributed by this process to a common cost category for use in developing the common cost factor.

I would like to turn now to my rebuttal testimony. In my rebuttal I address the position regarding shared and common cost treatment which was taken in the direct testimony by witnesses from AT&T and MCI. These witnesses indicate that shared and common costs used in cost studies should be forward-looking and they recommend that a 10.4% common cost factor is appropriate.

My rebuttal testimony presents a simple analysis which demonstrates that BellSouth's methodology results in a reasonable forward-looking amount of shared and common costs in the total cost for UNEs. A quick review of the exhibits to my rebuttal testimony will demonstrate this fact. Now, I'd like to describe the exhibits to my rebuttal testimony.

The simple analysis which I performed was basically two-pronged. The first three sheets of the exhibit represent an analysis which I did going in to

our shared and common cost model and using just 1995 actual results as the input.

Q Mr. Reid, are you referring to WSR-6 which I have made part of hearing exhibit 17, correct?

A That's correct. Rebuttal exhibit WSR-6.

The first page of that exhibit represents the analysis -- in the TELRIC study the common cost factor was 5.30% based on forward-looking data. If I had used just 1995 data, and inputted into the methodology the same way that I did the forward-looking data, I would have had a factor of 7.69 computed. That indicates that there's a 31% reduction in the factor that I'm using based on the fact I used the forward-looking data. So I think that's a significant representation of productivity in the study.

The second page of Exhibit WSR-6 is the shared cost comparison. Likewise, here I inputted the 1995 data to the cost model, and using that data, the weighted average of the shared cost factors would be .0497 compared to the weighted average in the cost study of .0337. So that would have been a 32% -- in fact, I had a 32% lower number by using the forward-looking data than I did with using 1995 actual data.

Page 3 of Exhibit WSR-6 is the shared labor comparison. And in this case, using 1995 data actually produced approximately a 10% higher composite average than was used in the -- excuse me, used in the TELRIC study was about 10% higher than with 1995 actual data. The reason here is because salaries and wages is the denominator of the equation and it was impacted by productivity as well.

And my final sheet of the exhibit WSR-6 provides another analysis. In this analysis I compare the Hatfield Model's 10.4%, which is the common cost factor used in the Hatfield Model, to BellSouth data using the same calculation methodology.

The Hatfield Model uses AT&T 1994 results reported to the FCC in order to develop the 10.4% that is recommended by AT&T and MCI witnesses. Using BST historical data for 1994, the same report to the FCC, ARMIS Reports, Form M, I would have produced a 9.7% factor, which would indicate that BellSouth at that point was very comparable to the level that AT&T and -- that the AT&T and MCI witnesses have used as a competitive level of common cost.

Using BST's projected data in the same formula, I would have derived a common cost factor of 6.4%, which indicates the common cost factors in my

study are certainly very comparable, and, in fact, very conservative compared to the AT&T and MCI model.

That completes my summary.

Q Thank you.

MR. TWOMEY: Chairman Johnson, the witness is available for cross examination.

MR. COX: Before we begin cross examination of Mr. Reid, Staff would ask that the packet we distributed identified as WSR-7 be marked as Exhibit 18.

MR. TWOMEY: No objection.

MR. COX: That includes the January 13, 1998, deposition transcript of Mr. Reid, the deposition and late-filed exhibit numbers 1 through 8 and the errata sheet to his deposition.

CHAIRMAN JOHNSON: WSR-7 would be marked as Exhibit 18.

(Exhibit 18 marked for identification.)

MR. SELF: I have no questions.

MR. LEMMER: Go morning, Madam Chairman. Tom Lemmer again for AT&T. Good morning, Commissioners.

CROSS EXAMINATION

BY MR. LEMMER:

Q Good morning, Mr. Reid.

A Good morning, Mr. Lemmer.

Q The shared and common factors that you are presenting testimony regarding result from the calculation of a numerator and a denominator that results in a percentage calculation; isn't that correct?

A That's correct.

Q And numerator is a grouping together of certain costs. Fair statement? In other words, if it's a shared factor we're talking about the numerator is a collection of costs that have been denoted as shared costs?

A That's correct.

Q And if we're talking the common factor, we're talking about a numerator that's a grouping together of common costs?

A I'll agree with that.

Q If you would turn to your direct testimony, and I'm looking at Exhibit WSR-2, please. Do you have that, sir?

A Yes, I have that before me.

Q The first page of that exhibit, it says at

the top "Typical Shared Costs" then there's a listing of certain costs under that heading. Do you see that?

A I see that.

Q What you're saying on this exhibit is the types of costs that are listed here, general purpose computers, information management, et cetera. These activities generate costs that are denoted as shared costs by BellSouth, correct?

A That's correct.

Q Now, can you tell me which one of these types of costs, if any, are caused because BellSouth engages in activities relating to the ordering, provisioning or installation of services?

A Ordering -- would you -- excuse me, would you repeat that?

Q Can you tell me looking at this listing under costs under Typical Shared Costs, which of these types of costs, if any, are incurred because BellSouth engages in activities relating to the ordering, provisioning and installation of services?

A Well, a number of these would be incurred because of those activities and are associated with those activities. For example, the general purpose computer expense would certainly be something that would be required to handle ordering, provisioning of

services and so forth. Human resources expense would certainly be supportive and associated with the employees that are doing the ordering and provisioning and so forth.

Q Let me try the question from another angle. Any of these typical shared types of costs that you see on Exhibit WSR-2, would any of those costs cease to exist if there were no activities relating to provisioning, ordering and installation?

A Some portion of those costs potentially would cease to exist, yes.

Q Do you have any information as to how much of any of these particular categories of cost would not be incurred if there were no ordering, provisioning, installation activities?

A No, I do not. We have determined cost causative measures which associate these expenses with the various unbundled network element activities. And we have used that cost causative basis to -- associated with it, and that's certainly in the study and can be followed throughout the study.

For example, human resources, the associated driver there that we've used is salaries and wages, which links it to the employees that the human resources department, human resources expenses, are

associated with. So that's the linkage there.

Q Would human resources costs change in, say, 1998 if BellSouth were to, say, increase its ordering or turnup of services by 10%?

A I don't know. It would depend on the impact that would have on the employee force count that we had and on the human resources support thereof.

We have linked this expenditure with a cost driver that it's linked to, which is salaries and wages. We are trying to compute a forward-looking cost methodology that would link our expenditure types, the shared and the common costs, to the provision of unbundled network elements. And I think we've accomplished that. I can't tell you if we varied by 10% what the end result would be in each one of these expenditures, but I can tell you that there's a cost causative linkage there that we've represented in the study.

Q You would agree with me, wouldn't you, that continuing to look at human resources as a example, that if BellSouth were to add one additional technician in 1998 for purposes of dealing with service installations or installations of unbundled network elements, that that would not impact the level of human resource cost; isn't that correct?

A I would say most likely there would be an indetectable level associated with the addition of one technician. Now, if it was someone hired off the street, obviously human resources expenditures would be required to accomplish that hiring.

Q That's not my question. My question is will human resources costs increase -- I'm not asking whether they do some activities relating to that individual -- I'm asking whether the costs of human resources will increase because BellSouth hired that one technician?

A Well, if it was an incremental increase in the force count, and let's say we hired someone off the street, there would be some incremental human resources cost associated with that.

Q So there would be additional people hired into human resources because you hired one technician?

A Not necessarily additional human resources people, but there would be work performed by the human resources organization that would probably have some incremental expenditure associated with it.

No, I won't quibble with you here about one employee added to a force count the size of BellSouth. It's probably not going to be distinguishable. But there will be some incremental cost there for the

hiring function. There's going to have to be some certainly paperwork involved with that. There's going to have to be probably meetings and background checks on the individual and so forth.

Q But all of the people involved in those activities, the paperwork, the background checks are already employees of BellSouth being paid a salary, correct?

A Most likely, in that particular example that you're giving.

Q So then the hiring of this one technician would not cause an increase in the amount of costs incurred by the human resources department.

MR. TWOMEY: I'm going to object to the form of the question. He's asked and answered that question twice by my count.

CHAIRMAN JOHNSON: Is there a response?

MR. LEMMER: I'll just move on. Madam Chairman, I'll just move on.

CHAIRMAN JOHNSON: Okay.

Q **(By Mr. Lemmer)** Mr. Reid, I'd like to show you a document. It is Exhibit 11 to Mr. Lerma's testimony.

MR. LEMMER: Madam Chairman, we don't need to mark this as an exhibit. It will be introduced

through Mr. Lerma's testimony. I'd like to use it for discussion purposes. (Hands documents out to Commissioners and witness.)

Q (By Mr. Lemmer) Mr. Reid, have you seen this document before? (Witness examines document.)

A Yes, sir.

Q And this is a document that BellSouth filed with the Georgia State Commission and was used in response to a BellSouth production and a document request in South Carolina; isn't that correct?

A I believe that's correct.

Q The pages of this particular exhibit, the 17 pages, have to do with BellSouth's projection of cost growth factors for 1997 through 1999; is that correct?

A That's correct.

Q And the pages that you have in your hand are not included in the cost study provided to this Commission here in Florida; isn't that correct?

A I thought they were, but I -- I thought that these exhibits were included.

Q Now, the focusing over on Pages 8 and 9 in particular of this document, if you would please, the various growth factors that you see indicated on Pages 8 and 9 of rebuttal exhibit number 11 to Mr. Lerma's testimony, they were not baced upon BellSouth's budget

forecast for 1997 through 1999, are they?

A Not directly. They were prepared by our budget organization based on input from our network organization to the budget group. But basically our procedure here was to prepare a reasonable and supportable projection that could be simply verified and that you could look at the assumptions we would be using for growth and productivity offsets and so forth.

Q Let's look at Page 8 of this exhibit. The one that says "Growth Factors" on the top?

A Yes.

Q There are two sources indicated for growth factors on this page, correct?

A That's correct.

Q And one of them is BSRTPI, do you see that?

A I see that.

Q That stands for BellSouth regional telephone plant index; isn't that correct?

A That's correct.

Q That appears several times on this page and there is a consistent statement of growth factors for each of the three years, 3.4 in 1997, 3.5 in 1998, 3.5 in 1999. Do you see that?

A I see that.

Q Now, is there any report for these figures that have been provided to this Commission?

A The support is included in this package. Basically these are forecasted telephone plant index percentages, or growth rates, which are certainly reasonable on the face of the document, and they are provided by our budget organization as our best estimate of the growth rate that would be associated with these accounts that are listed as BSRTPI as the source.

Q Now, you indicate that you believe these numbers are reasonable?

A Yes, that's correct.

Q Isn't it true that the particular percentages reflected on this Page 8 don't reflect any impact on future cost levels due to improvements in technology?

A I would agree that the TPI itself, it does not include the technology impacts that you are describing. However, the forecast methodology that we applied, we did include a number of productivity aspects that took that into account.

Q But for these particular percentages here, it does not reflect any cost impacts, cost reductions through improvements in technology; isn't that

correct?

A That's my understanding based on the TPI calculations.

Q And similarly these growth factors on this page for the BSRTPI labeled "inputs" don't reflect any impact on productivity improvements; isn't that correct?

A That's my understanding for the TPI percentages themselves. Again, there are a number of ways that we have included productivity in our study.

Q Isn't it also true that these particular BSRTPI percentages don't reflect any assessment of how competition, the advent of competition is going to impact BellSouth's cost?

A I don't believe they would include the competition. But again as I said before, that's in our study and it's taken into account in the way we perform the study. This is just one piece/part of the study you're pointing out here.

Q Now, the other growth factor specified on Page 8 are from network. Do you see those?

A Yes, I see those.

Q And again those apply growth factors by year; you have 5.1 for 1997, 4.5 for 1998, 4.2 for 1999. Do you see those?

A I see those.

Q And is the derivation of those particular numbers shown anywhere in this particular document attached to Mr. Lerma's rebuttal testimony?

A Yes. The derivation of those numbers is on the next page, which is Page 9 of 17 of the exhibit.

Q And looking at this Page 9 of 17 there's a series of numbers at the top that lead down to a number that says "load driven expense." Do you see that?

A Yes, I see that.

Q And then there are numbers at the bottom under the term "Other Factors." Do you see that?

A I see that.

Q Now, looking at the load driven expense numbers that you see, 5.1, 4.5, 4.2, those are the numbers that are used over for the network inputs that we see over on Page 8; isn't that correct?

A That is correct.

Q The factors that you see at the bottom of that page have a minus sign in front of them. What does that indicate?

A The minus sign would be a reduction.

Q And it would be -- from a mathematical point of view when you say reduction, if you're looking at

the column for 1997 for load driven expense it says 5.1 and then for other factors it sums down to a minus 4.4. So if you netted those two you would have a .7 figure, isn't that correct?

A That is correct mathematically. That wouldn't be the appropriate thing to do.

We have taken a procedure where we have identified the cost drivers that we determine were the most appropriate for looking at network-related expenses, and that's shown on the upper half of the sheet and that's the load change. In other words, we looked at what type of load is driving our expenditures in the network area, and that was related to the number of access lines we're gaining, the inward movement we have, the increase in access lines. Those are typical measures in the telephone business of the load that you're experiencing.

We had productivity changes or offsets against that load change that were estimated by our network organization, and then that netted down to a load driven expense percentage.

Now, the other factors are from our network organization, but they are more goal oriented from the network standpoint. They are not specific items. In fact, one of the largest ones itself says

"unspecified." These are just goals or stretches that the network organization is trying to incorporate in this information that would relate more to a budgeted level.

Now, what we have done in place of these other unspecified items is we've gone in and specifically priced out the impact of the 11,300 force reduction, which was a known item, and, in fact, does have a impact on these other factors. But we specifically calculated it out and overlaid the calculation on the end result. So we have substituted for these other factors which were unspecified and budget driven.

Q So if I understand what you're saying, the other factors listed on Page 9 that we're looking at were not specifically used for purposes of determining shared and common costs projections?

A No, they were not. Not the factors themselves. Again, as I said, we certainly priced out the effect of our force change that we have announced and have proceeded with. We also normalized a lot of results for 1996 that were in the book data but were abnormal, such as we had a hurricane in North Carolina, we eliminated that from the data. We had the Olympics in Georgia, we took that out. So we did

do some adjustments that really would be reflected in budget changes year to year as well.

Q Now, I believe regarding the other factors you stated that these were goal oriented numbers in?

A Yes.

Q And by goal oriented you mean that these are goals that are given to various managers to achieve in a particular year; isn't that correct?

A Somewhat. Basically they are focused on that area of goals for specific managers to meet, but it's more of what I would -- in the past here in Florida I've testified on our forecasting methodology, and we've discussed things called stretch. And it's similar in nature to what would be called a stretch. It's -- the company's, obviously, in looking out into the future, trying to maintain certain earnings forecasts and so forth. So when it comes to a budget, in setting a budget, in some cases the specifics on how you would get to a certain earnings level are not there at the time you're doing the budget. So it's more of a goal oriented, expenses are going to have to go down by a certain amount or else revenues would have to be higher in order to meet your budgeted goals.

So these are more in the line of the stretch

or the goal oriented way to meet an earnings objective when you're putting a budget together.

Q But the purpose of a stretch that relates to cost is to incentivize managers to reduce cost; isn't that correct?

A In this particular case it's that, but it's also to set up a budget that would meet your earnings objectives. So whether the expenditure level can actually be achieved or not is not so much the issue at that point as it is in setting the overall budget to reach an objective.

Q Let me ask you to go back to Exhibit 2 to your direct testimony.

A I'm there.

Q We talked a little bit about shared costs, and then there's a grouping called typical common cost, which include, for example, accounting and finance. And my question to you is does BellSouth incur additional accounting and finance costs when it hires an additional employee?

A Well, I think we're probably going to go down the same road we did with the human resources. Again, from a incremental standpoint, you're going to have to have payroll related expenses associated with the addition of a new employee. Common costs are a

little bit further distance from a cost causative basis than are typical shared costs, although there would be some accounting in finance related cost. I would agree that, for example, on filling out our tax return you probably wouldn't have any additional tax return expenses, or in recording the books and records of the company you probably wouldn't see an incremental amount, but you could have some. But the typical common cost, the cost causation linkage is not as identifible there.

MR. LEMMER: That's all I have. Thank you. Thank you, Mr. Reid.

CROSS EXAMINATION

BY MR. BOND:

Q Good morning. I'm Tom Bond on behalf of MCI Telecommunications.

A Good morning, Mr. Bond.

Q Mr. Reid, you relied on CAM, that's BellSouth's cost allocation manual for your analysis; is that correct?

A Yes. To a large extent we have cost causative drivers that are identified in our cost allocation manual, or CAM, that are used to associate expenditures, or to attribute expenditures between related and nonrelated services. And we utilize to

the maximum extent we could those same cost causative drivers in associating our shared costs with accounts that are related to unbundled network elements.

Q And is it correct CAM has been used for years in rate of return proceedings?

A Yes, since around 1988, when it was first implemented, I believe, it's been used for the purpose of separating regulated and nonregulated.

Q So in other words, you referred to something developed and used in rate base rate of return proceedings for your analysis?

A Basically what we did was utilize intelligence and information that has been developed. Granted, it was developed in rate of return days. It's specified in a lot of cases by the FCC as far as the type of methodology that would yield a cost causative result. Yes, I would agree that it was developed during a rate base regulation year. However, that's no reason to throw away good knowledge.

MR. BOND: I have no further questions. Thank you.

MR. COX: Staff has no questions.

CHAIRMAN JOHNSON: Commissioners.

COMMISSIONER DEASON: Mr. Reid, when you

were going over your Exhibit WSR-6 you were making some comparisons of forward-looking results with historical results, and you indicated a trend there, but there was -- for shared labor factor the forward-looking data resulted in a higher number than historical.

WITNESS REID: Yes, it did.

COMMISSIONER DEASON: Why was that?

WITNESS REID: The main reason I attribute that to it is that denominator of the equation is salary and wages, which would have been impacted by some of the productivity that we included in the study as well. The expense development factors in forecasting out to 1997 to 1999 are applied against the salaries and wages, which would -- since it's the denominator in the equation, it would have been impacted by the productivity as well as the numerator. The numerator is basically shared costs that are attributed based on salaries and wages. So that was basically the reason.

The other two categories, the shared cost factors and the common cost factor, have more influence in the denominator from investment related items because, for example, in the shared cost factor the denominator is average investment, and as that

goes out into the future, it doesn't have as much of the offset to productivity necessarily as the expense levels.

I'll also mention that on the investment related, we used a current cost to book cost ratio, which stated the investment at a current cost level so that increased the denominator there as well.

COMMISSIONER DEASON: For the labor factor, which is on Page 3 of Exhibit 6, because of the productivity, are you saying that even though the factor which is .43, it's higher than historical is because the productivity is being applied against a smaller base on a going-forward basis, or am I looking at it too simplistically?

WITNESS REID: I'm not sure I totally captured your comment there, Commissioner.

COMMISSIONER DEASON: If you were strictly going to use historical data -- I assume this is, under the historical data column the .39, that is a factor that was a result -- a weighted average factor of all of those items above.

WITNESS REID: That's correct.

COMMISSIONER DEASON: If you were going to use historical data, what would you have used that .39 factor for?

WITNESS REID: The .39 factor is itself not used in the study.

COMMISSIONER DEASON: I know, but --

WITNESS REID: It's representative of the weighted average of all of the factors that would have been used in the study if historical data had been used.

COMMISSIONER DEASON: The items above, if historical data were going to be used, just take the very first one, address and facility inventory. How would the .4322 have been used in the cost study?

WITNESS REID: It would have been used as a part of the direct labor -- or excuse me, of the labor rate that's involved in the TELRIC study or in the cost study. It would have been a component of the labor rate, as was the .4813, which was actually used in the TELRIC study.

COMMISSIONER DEASON: But the .43 would have been applied to historical data to have resulted in whatever the cost result was of your cost study, correct? Or would it have been applied to a forward-looking basis?

WITNESS REID: It would have been applied on a forward-looking basis. In the study it would have just been using historical data.

The way the historical data column was computed, we have in the study what we call expense and investment development factors, which are really the projected average for 1997 to '99, divided by the 1995 actual. It's a conversion factor to convert it into forward-looking data.

The way I computed this is I just went into the model and replaced those forward-looking conversion factors with the number 1, which when applied against the '95 data, just extended the '95 data into the study as the only data used.

COMMISSIONER DEASON: I guess the difficulty I'm having, I'm trying to reconcile, is the reason you've indicated that the factor has gone up using forward-looking information is because of productivity, but it results in a higher factor.

WITNESS REID: Yes, sir, but it affects both the numerator and denominator.

COMMISSIONER DEASON: That's what I'm trying to get to.

WITNESS REID: The denominator of this equation as salaries and wages, and the numerator is shared cost or it's -- attributed based on salaries and wages. A lot of the shared cost would be salaries and wages related or other expenditure related. And

in this particular example, of applying just historical data, this one would have gone up.

Now, if you look at the methodology that other parties have used in the proceeding, or in the Hatfield Model basically, they are basically using 1995 ARMIS data and developing a ratio between expense and investment, and in many cases using that or adjusting it by a 50% factor or something, and using it in their study.

What we've done is in the TELRIC study we've got a factor we developed by taking projected shared cost, dividing it by projected salaries and wages, and we use that in our study, but we're applying it to the forward-looking investment, or the forward-looking labor requirements. So you get a productivity --

COMMISSIONER DEASON: Which has productivity selected there as well.

WITNESS REID: Yes, that's correct. That's another way we get productivity in here.

COMMISSIONER DEASON: Thank you.

CHAIRMAN JOHNSON: Any other questions?

MR. TWOMEY: Just a few questions, Chairman Johnson.

REDIRECT EXAMINATION

BY MR. TWOMEY:

Q Mr. Reid, do you remember Mr. Lemmer asking you questions about Lerma Rebuttal Exhibit 11, Pages 8 and 9?

A Yes, I do.

Q In response to one of Mr. Lemmer's question you indicated that BellSouth had reflected productivity in other ways in the study. Do you remember that response?

A Yes, I recall that.

Q Would you explain how BellSouth reflected productivity in the cost studies?

A Yes. And there are several ways that we've reflected it in the cost study.

One is a Page 9 of 17, when we were developing the load driven expense factors, we included a network operations productivity offset against the load of about -- well, of 2.9% per year, which is included in the calculations.

In addition to that, the document that's attached to Mr. Lerma's testimony, AR-11, on later sheets, documents, where we have normalized 1996 data for things like hurricanes -- we took Hurricane Fran out, we took the olympics out, normalized to take out

separations cost of employees leaving the payroll. We then grew the expenses based on these growth factors, which included the 2.9% productivity offset for the network areas. We then overlaid the result by reducing those end expenses for the 11,300 employee force count reduction we're experiencing. We priced that out and subtracted those expenses out, so that loaded in some additional productivity.

Then when we developed the factors, as I was explaining to Commissioner Deason, the factors are just that, relationships of projected expense to projected investment, we use those factors, though, in the TELRIC study, to apply against forward-looking investments or forward-looking labor amounts, which have productivity built into them themselves because they are least cost forward-looking in nature.

So of the application of the factor to the forward-looking investment adds an additional amount of productivity in there. So in a number of ways productivity works its way through this study.

MR. TWOMEY: Thank you, Chairman Johnson. I have no further questions.

CHAIRMAN JOHNSON: Exhibits? We have 17 which was BellSouth's.

MR. TWOMEY: Yes.

CHAIRMAN JOHNSON: We'll show that admitted without objection. And 18?

MR. COX: Staff moves Exhibit 18.

CHAIRMAN JOHNSON: Show that admitted without objection.

(Exhibit 17 and 18 received in evidence.)

CHAIRMAN JOHNSON: Thank you. You're excused. We'll take a 15-minute break.

(Brief recess taken.)

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CHAIRMAN JOHNSON: I understand we have one preliminary matter. We have a witness who just entered the room.

MS. WHITE: Yes. Mr. Smith, Ellis Smith, if he could be sworn in.

(Witness sworn.)

MS. WHITE: Thank you, Madam Chairman.

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DANIEL M. BAEZA

was called as a witness on behalf of BellSouth Telecommunications, Inc. and, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MS. WHITE:

Q Mr. Baeza, would you please state your name

and address for the record?

A Yes. My name as Daniel M. Baeza. And my address is 6451 North Federal Highway, Fort Lauderdale, Florida Zip code 33308.

Q And your last name is B-A-E-Z-A?

A Yes, that's correct.

Q By whom are you employed and in what capacity?

A I'm employed by BellSouth Telecommunications. I am the Director of Infrastructure Planning for Mississippi, Alabama, Louisiana and Florida.

Q Have you caused to be prefiled in this case direct testimony consisting of 25 pages?

A Yes, I did.

Q Do you have any changes to that testimony at this time?

A No.

Q If I were to ask you those same questions that are contained in your testimony today, would your answers be the same?

A Yes.

MS. WHITE: I'd like to have the direct testimony of Mr. Baeza inserted into the record as though read. Madam Chairman? I'd like to have the

testimony of Mr. Baeza inserted into the record as though read.

CHAIRMAN JOHNSON: It will be inserted into the record as though read.

BELLSOUTH TELECOMMUNICATIONS, INC.

DIRECT TESTIMONY OF DANIEL M. BAEZA

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NOS. 960833-TP, 960846-TP, 960757-TP, 971140-TP, 960916-TP

NOVEMBER 13, 1997

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Daniel M. Baeza. My business address is 6451 North Federal Highway, Fort Lauderdale, Florida.

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

A. I am employed by BellSouth Telecommunications, Inc. (hereinafter referred to as "BellSouth" or "the Company") as a Director in Infrastructure Planning for the states of Florida, Alabama, Mississippi, and Louisiana.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND, WORK EXPERIENCE, AND CURRENT RESPONSIBILITIES.

A. I received a bachelor of science degree in electrical engineering in 1974, and a master of science degree in electrical engineering in 1979, both from the University of Miami. Also, I have qualified as a registered

professional engineer in the state of Florida. For the past twenty-three years, I have been an employee of BellSouth. From 1974 to mid-1979, I held various assignments within the Florida Planning and Engineering Department, including circuit engineering, switch engineering, and engineering staff. In 1979 I joined the Network Operations Department as a budget analyst and software developer. I returned to the Network Planning and Engineering Department in 1982 and managed the operation of the E911 automatic location identification system for BellSouth. In 1987, I accepted a rotational assignment with Bell Communications Research in New Jersey, providing project management for the development of new operations support systems. In 1990, I returned to Planning and Engineering in Florida. I presently hold the position of Director in Infrastructure Planning where I am responsible for interoffice facility, switching, and fundamental loop planning.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. As a Director in Infrastructure Planning, I know and understand the technology that is deployed in the BellSouth network today and how that network is expected to evolve in the future. The purpose of my testimony is to bring to bear that knowledge in discussing the appropriateness of the network design underlying BellSouth's unbundled network element cost studies. Additionally, I will provide definitions for certain network terminology used in the study and

discuss the appropriateness of certain key assumptions on which the study is founded.

Q. PLEASE DESCRIBE THE NETWORK INFRASTRUCTURE DESIGN USED IN THE COST STUDY.

A. As is the case with any good cost study, the network design of a TSLRIC study should (1) include forward-looking, incremental costs, and (2) be based on the incumbent LEC's existing wire center locations and the most efficient technology available. My testimony focuses on this last point.

Q. WHAT TECHNOLOGIES ARE ASSUMED IN THE COST STUDY?

A. The interoffice infrastructure in the study consists of fiber transmission facilities with sufficient electronics to provide for both 64 kbps (voice grade) and 1.544 mbps (DS1) of transmitted information. This design incorporates SONET OC3, OC12 and OC48 rings.

The loop design provides for copper loops for distances from the central office up to 12 kilofeet. Distances beyond 12 kilofeet are designed to be served with digital loop carrier (DLC) and fiber feeder facilities. For the majority of the loops served by DLC, Next Generation Digital Loop Carrier is provided.

For loops less than 12 kilofeet, the designs reflect the use of 26 gauge copper cable, and if required, 24 gauge cable as feeder facilities. All distribution plant cable has been designed to use 26 gauge cable as well. Bridged tap in the feeder and distribution plant is designed to a maximum of 2500 feet.

All of the technical terms and designs mentioned will receive greater treatment further in the body of my testimony.

Q. PLEASE DEFINE SONET OC12 RINGS, DIGITAL LOOP CARRIER, NEXT GENERATION DIGITAL LOOP CARRIER AND BRIDGED TAPS AS THEY RELATE TO THIS DESIGN.

A. SONET stands for Synchronous Optical Network. It is a family of transmission channels that provide for speeds from ~DS3 (45Mb/s) to 2.4 Gb/s and higher. "OC" stands for Optical Carrier and, in conjunction with a numerical identifier, indicates the transport rate at which information is carried. Thus, a SONET OC12 facility would be a synchronous optical network facility operating at "Optical Carrier rate 12" (or 600 mb/s). Such a facility would carry in excess of 8,000 narrowband channels of up to 64 Kb/s each.

The use of SONET Rings in this design provides the most efficient interoffice design. Not only are greater transport bandwidths available with SONET, optical interfaces become standardized allowing for cost

efficiency. This technology also provides self-healing capabilities that prevent many service interruptions and improves the reliability of the network. Digital Loop Carrier (DLC) is equipment used in the loop to multiplex multiple voice grade circuits onto one or more DS1 facilities for transmission to the central office switch. The remote terminal, so called because it is in the field (i.e., loop), takes the voice grade circuits from the distribution plant and performs the multiplexing function. Once the DS1s reach the central office switch, termination is provided on a Central Office Terminal (COT). The COT performs analog-to-digital/digital-to-analog functions in the process of demultiplexing the DS1s to voice grade circuits. This method of demultiplexing allows the DLC to operate in universal mode. Universal merely means providing the ability to demultiplex to a voice grade level and terminate that circuit wherever it needs to go. This is as opposed to integrated technology which terminates the DS1s into the switch without an intervening demultiplexing/analog to digital conversion step. The universal operation is used in both Series 5 DLC and Next Generation DLC. Integrated DLC is not used in the cost study since BellSouth must be able to provision a loop on a stand-alone basis.

As it relates to the cost study's network design, DLC provides for a more efficient use of facilities by reducing the number of copper pairs required in the feeder plant. In the case of this study, Next Generation DLC (NGDLC) was used in the design for the vast majority of DLC requirements. NGDLC is a new loop transport platform. NGDLC

enables greater flexibility and increased capabilities over DLC including integrated add-drop multiplexing, modular channel shelves and timeslot interchange. These advantages increase the efficiency of the infrastructure design.

In the design of a distribution route, a single pair of wires comprising a telephone line may be routed from the central office to several streets within a subdivision. When that pair is assigned on one of the streets to become a customer's telephone line, the pair of wires on the other streets becomes unusable and is referred to as bridged tap. Bridged tap refers to that situation where a cable pair exists in two different locations. The pair of wires can be used in either location, but not in both. The unused portion of the pair is called "bridged tap". The network design of the cost study only uses bridged taps to a maximum of 2500 feet so that signal degradation can be minimized.

These technologies I have just described are appropriate for the underlying design of an unbundled network element cost study. They meet the criteria for providing the least cost most efficient technology available as well as offering the advantages of current technological innovation.

Q. THE COST STUDIES THAT ARE BEING PRESENTED BY BELLSOUTH ARE BUILT ON A NUMBER OF ASSUMPTIONS,

INCLUDING SUCH THINGS AS "UTILIZATION" LEVELS AND THE NECESSITY FOR WHAT IS CALLED "BRIDGED TAP". CAN YOU ADDRESS THESE ASSUMPTIONS AND THEIR VALIDITY?

A. Yes. In any study which seeks to calculate what something will cost in the future, it is necessary to make assumptions about future conditions. For instance, what technology will be deployed in the interoffice network next year, or two years from now? We have a number of techniques for making such assumptions. In most cases, these "assumptions" are estimates that BellSouth subject matter experts can make based on their experience with the network and their knowledge of what has occurred in the past with regard to that network and what new technologies will be available in the future. I will address certain of these assumptions and explain why they are valid and appropriate for these studies.

Q. PLEASE EXPLAIN THE FACTORS THAT DETERMINE "UTILIZATION" FACTOR AND "FILL" FACTOR LEVELS IN THE NETWORK.

A. One of the primary assumptions in BellSouth's cost studies involves the "fill" factors or the "utilization" factors that we use as we plan and place our network. Obviously a 600 pair cable that only has 300 pairs working, or a utilization factor of 50%, presents the situation where the working 300 pairs have to recover, all other things being equal, the cost

of the 300 spare pairs. In some respects it might be better if there were 450 or 500 working pairs so the cost of each pair would be minimized in terms of the spare capacity that has to be maintained. On the other hand, while you do not want to have 300 spare pairs laying idle, if you are digging a trench and putting cable down Flagler St. in Miami, you want to put enough cable in the first time so that you do not have to dig the street up again in six months in order to lay a second cable to meet the additional demand for service in that area. It should be obvious, but I will say so anyway, that the major cost in placing cable, as in the example above, is not in the difference in the cost of a 300 pair cable and a 600 pair cable, but in the cost of digging up the street to place the cable. Clearly you want to place cable, and for that matter, any plant, in a manner which minimizes the cost of doing so, whether you are talking about the actual cost of placing the plant, or the cost of carrying spare capacity.

Further, the "utilization" of the network turns in many instances on the portion of the network which is being reviewed. A good example is the difference in the "utilization" factors for feeder and distribution plant. In the feeder plant, we expect a utilization factor of about 70%, while in the distribution plant, the fill factor would be expected to range around 40%.

Feeder fill factors or utilization rates represent the number of assigned pairs versus the number of available pairs. This measurement for both

copper and fiber is taken at the main distributing frame of each switch on which feeder cable terminates. Not only is it aggregated at the wire center switch for initial measurement, but is further aggregated to provide a state total utilization rate. BellSouth's copper feeder utilization rate runs generally around 70% and 75% for fiber. There are good reasons why that is so.

BellSouth's analyses indicate that the most economic feeder cable deployment alternative is to size the cable to meet between seven and ten years of demand. That means that in a relatively constant growth rate environment, we would reinforce a feeder cable route every ten years or so. So, why isn't the utilization rate at 100% if cable is sized for seven to ten year demand? The reasons are several. First, actual growth is never constant. A feeder cable sized for ten year demand in 1987 may or may not have achieved the forecasted demand by 1997. If demand moved faster than the forecast, relief may have occurred earlier than anticipated and, as such, caused the utilization rate on that feeder to lower with the availability of more pairs on additional cable diluting the original feeder cable utilization rate. Also, growth may not have transpired according to prediction, resulting, again in a lower than anticipated utilization rate.

Secondly, some pairs or fibers in a feeder cable may be unusable because of defects. This obviously lowers the utilization rate on that cable.

Finally, cable only comes in so many sizes. BellSouth has to consider the economic efficiency of standardizing on certain size cables. This can sometimes result in the placement of more pairs or fibers than are needed because of available packaging. The greater economic necessity is served though the individual feeder utilization rate may suffer slightly.

The results of the factors I have described above have caused BellSouth's feeder utilization rates to run approximately 70% for copper and 75% for fiber feeder for many years. Exhibit DMB-1 to my testimony demonstrates that BellSouth has a better than average utilization rate as compared to other RBOCs. I do not expect these factors to change dramatically over time.

In the case of distribution utilization, BellSouth will place a distribution cable down a street according to the number of forecasted units to be served and the number of projected lines per unit. Now, since cable only comes in certain sizes, an exact match of cable size to pairs forecasted may never take place. This begins the creation of less than 100% utilization.

The lessening of the fill factor goes on from that point. Take this example for instance. A new distribution route is required to serve

a new subdivision. The subdivision will provide homes for 25 families. It will consist of one main street with 7 houses and three side streets with 6 houses each.

BellSouth's review and sizing of this new route would be to place 1.5 pairs for each living unit. (As an aside, 1.5 pairs per living unit is the BellSouth default where specific requirements are not known. The number can be less or more.) In order to do so, a 25 pair cable would have to be placed down each street. So what happens to utilization with this example?

First of all, you start out with 1.5 pairs per unit calculating out to 10.5 pairs on the main street and 9 pairs on the side streets. So you start with an approximate average 37.5% utilization factor if all pairs are occupied. If only one house per street acquires any additional line service, the factor lowers even more since that 1.5 pair per unit doesn't get used by every unit. Also, some families move out and others move into the subdivision, causing churn in the pairs and some pairs become defective. All of these instances effect the fill on that cable. So it's easily seen that, in the distribution, fill factors are lowered by a variety of situations. Those factors are:

-The very frequent mismatch between cable sizes and houses on a street.

-The need to account for future demand without the

expense and disruption of deploying more facilities.

-The probability of defective pairs.

-The need to account for churn requirements.

BellSouth has found that these utilization limiting factors are constant in most cases, particularly in the distribution environment. It should be noted that even with growth in additional line requirements, ALEC demand for unbundled loops will cause even more churn for BellSouth's facilities. In BellSouth, one in five access lines disconnect or move at a given location. That activity doesn't always occur concurrently. In placing cable, 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 relatively constant.

While we do not measure our fill factor at the individual route level, the examples I have provided demonstrate how these experiences clearly affect our overall fill factor even when measured at a more aggregate level. In short, our experience has shown that our actual distribution plant, on average, has a "fill" factor of about 40% and our actual feeder plant has a "fill" factor of 70% for copper and 75% for fiber. There is no reason to believe that our experience in the future will be different

Q. PLEASE EXPLAIN THE DIFFERENCE BETWEEN "OBJECTIVE" AND "ACTUAL" FILL FACTORS.

A. You have to understand the difference between an "objective" fill factor and the "actual" fill factor in order to appreciate why it is appropriate to use projections of the actual fill factors in cost studies. Consider for example a central office switch approaching exhaust. Eventually, the switch completely exhausts, and does not have the capacity to add a single customer. If the company waits until the day that happens, some folks are going to be without telephone service for a long time. Therefore, we don't wait until plant is exhausted to plan its replacement or expansion. Instead, we set a target and when we reach that target, we begin planning to replace or expand the facility in question. For instance, we may know that when a switch hits 90% of its ultimate capacity, we had better have a second switch ready to turn on. In order to accomplish that, we may have to begin when that first switch hits 70% capacity, because of the lead times involved. Those targets, the objective fill factors that we plan for, are just that, targets. They do not represent the level at which the network is operating. In fact, in my example, where one switch was either replaced or expanded, the actual utilization rate would vary widely depending on the date the utilization was checked. On the day of exhaust, the switch would be operating at 100%. On the day after, the replacement switch or the expanded switch, could be operating at 50% or lower.

Q. PLEASE SUMMARIZE YOUR POINTS REGARDING UTILIZATION FACTORS?

A. I have looked at the Florida state feeder and distribution utilization factors for BellSouth. (They are 65.70 for copper feeder, 38.80 for copper distribution, and 74.0 for fiber feeder.) They are reasonable and represent what I believe that our utilization factors will be in the future. The Commission knows, of course, and other parties to the proceeding should know as well that we have not planned our network and the utilization factors we have in order to increase or decrease our costs to new entrants in the local telephone service arena. We have planned our networks to serve our customers efficiently and effectively and that fact is reflected in our utilization factors.

Q. CAN YOU PROVIDE SOME ADDITIONAL INFORMATION ON WHY BELLSOUTH USES A MINIMUM SIZE CABLE OF 25 PAIRS?

A. Yes. BellSouth has determined that 25 pair cable is the most economically efficient cable size to use in our network. Savings from standardizing to a 25 pair minimum rather using a variety of smaller sizes provides BellSouth with the ability to gain economies of scale when negotiating with cable vendors. Additionally, savings are accrued from reduced inventory and warehousing needs and reduced training and administrative costs.

Instead of making the loop less expensive, using a smaller size could lead to higher costs. The truth is that one-sixth of a six pair cable is more expensive that one-twenty fifth of a 25 pair cable. Frankly, the major cost is the installation of the cable. In that light, BellSouth finds it more economic to lay enough cable the first time to serve forecasted future demand, thus preventing further digging up of streets and driveways and saving the costs such activity would incur. Finally, not only are smaller cable sizes more expensive, but because they use coarser gauge wire, we consider them inappropriate to a forward looking design.

Q. ARE THERE DEVICES AVAILABLE TO RAISE UTILIZATION RATES?

A. Yes. Specifically, the Digital Additional Main Line or DAML is frequently mentioned for utilization rate increases by allowing the placement of smaller distribution cables. The assertion that DAML is more economical than provisioning additional cable pairs is only true on a selected basis. 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.

Q. PLEASE EXPLAIN WHAT "BRIDGED TAP" IS AND HOW IT IS REFLECTED IN THE NETWORK?

A. We have attempted to engineer our existing network in the most efficient manner and presumably we and others will do the same in the future. This means that we will do things that at first blush may seem confusing. "Bridged tap" is one of those things, although I understand that even AT&T has agreed that a reasonable amount of "bridged tap" in the network is necessary.

Simply stated, "bridged tap" refers to that situation where a cable pair exists in two different locations. The pair of wires can be used in either location, but not in both. The unused portion of the pair is called "bridged tap".

A common example of where this occurs is in a subdivision. To illustrate how this occurs, imagine a subdivision that has a main street, with 20 houses, and a cross street that runs off of and perpendicular to the main street so that the streets form a "T". For our purposes, we will assume the cross street has another 20 homes on it. A hundred pair distribution cable might be run down the main street in front of all of the houses on the main street. At the cross street, a second fifty pair distribution cable might be "tapped" into the first cable. That is, at the cross street, a fifty pair cable might be multipled onto the hundred pair cable that runs down the main street of the subdivision. If the cable pairs in the 100 pair cable are numbers 1 to 100, it should be easy to see that 50 of the pairs that enter the subdivision run the length of the main street and the length of the cross street. If a pair is used at the

first house on the cross street, it obviously cannot be used further on down the main street beyond the point where the multiple was made. The portion beyond the splice is "bridged tap". On the other hand, if the house on the cross street disconnects its service, the pair is freed up and a subscriber who lives on the main street beyond the multiple could then use the pair. In such circumstances, it is clearly preferable to have a reasonable amount of "bridged tap" than to have to run a second cable from the central office to serve the cross street.

Some might say that tapering and splicing cable to serve the cross street would be more efficient. That isn't necessarily the case. 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. Bridged tap reduces the need for these expenditures where it can be used.

This example also can be used to illustrate another form of "bridged tap". When a cable pair is used to serve the first house in the subdivision, that cable pair continues to exist in the 100 pair cable beyond the point where the first house's drop wire is spliced. However, it is clear that the additional length of the already utilized cable pair cannot be used again. This is actually called "end tap" and, as can be seen, is unavoidable.

Our planning involves a reasonable amount of both types of "bridged tap". It is unavoidable, and in the case of my first example, is actually desirable in many cases, since it avoids the necessity of building additional plant to serve our customers.

Q. THE STUDY ASSUMES THAT AERIAL CABLE DROP LENGTH IS AN AVERAGE 250 FEET AND BURIED CABLE DROPS ARE AN AVERAGE OF 200 FEET. CAN YOU EXPLAIN WHERE THESE FIGURES CAME FROM?

A. Yes. These assumptions were derived via a review by a BellSouth Subject Matter Expert (See Exhibit DMB-2 for a list of BellSouth SMEs providing assumptions to the cost study) of the average length of aerial and buried drops in the states of the BellSouth region. The method used to acquire this information consisted of contacting the Installation and Maintenance Managers in the state for information based on their knowledge of the areas they serve These managers are responsible for the installation of drop wire and would have the best working knowledge of average lengths without actually measuring individual drops. The Subject Matter Expert averaged their responses and provided a state total. Additionally, for buried service wire, the BellSouth group that administers master contracts for burying the drop was consulted and provided footage information from those contracts as a cross check. The assumptions therefore were developed from

actual BellSouth information that considered the variety of demographics for drops in the region.

Drop wire really only comes into play at the residential and small business level. Apartment buildings , strip shopping centers, malls and office buildings don't have drop wire. Obviously, in residential areas, drop length will vary. In Florida, a fair amount of the state is rural. The same is true of a great deal of the BellSouth region. BellSouth chose to use state statistics rather than use old loop surveys covering the entire nation. Any calculation using national data like that supplied by the 1983 loop survey made available from Bellcore that includes the New York City, Boston, Los Angeles and Chicago will reflect drop lengths heavily influenced by dense metropolitan environments. A more rural environment, by its nature, contains drops that can be quite long. Additionally, even suburban areas are not made up of 100% quarter acre lots and houses next to the street. Other assumptions used by other models, such as houses and buildings being place closer to the front of a lot to mitigate snow removal, simply don't apply in Florida as it might in New York or Illinois.

I believe that the drop lengths reflect in BellSouth's unbundled loop study accurately reflect the demographics of Florida. Additionally, I believe that there is no basis to conclude that length of these drops would be expected to change in the future. While changes in

demographics will occur over time, it is highly unlikely that such changes will be apparent within the "long run" element of this study.

Q. HOW DOES THE STUDY HANDLE ADSL/HDSL?

A. The assumption used in the network design for this cost study is that only the transmission facility will be provided. Using a transmission facility only assumption limits the provisioning of ADSL/HDSL to compatible loops of 100% copper at a distance from the central office of 9 kilofeet for HDSL and 18 kilofeet for ADSL. The assumption is that BellSouth will provide the copper pairs where available, and it will be up to the service provider to install the necessary equipment to provide the ADSL/HDSL capability. This approach allows a requesting service provider the least complicated access to the customer as far as costs for the loop. I must make an important point here. These types of loops are not standard loops and may require substantial non-recurring costs to provision. Any offering of such loops must make provision for the substantial non-recurring costs associated with these kinds of loops.

Q. ARE THERE OTHER ISSUES THAT NEED TO BE MADE CLEAR IN SO FAR AS THE STUDY ASSUMPTIONS ARE CONCERNED?

A. Yes, there are a few more. I will handle these by topic as follows:

STRUCTURE:

Some cost study models assume that sharing of structures such as poles, conduit and trenches occurs 100% of the time. This is a ludicrous assumption. It is in BellSouth's best interest to share structure because it is the most economic course of action. We have official practices on how to provide shared structure. It isn't, however, the most practical or possible course all the time.

In the case of trenching, timing is a prevailing issue. In a multitude of developments, power is required up front, so the electric utility company comes in early and digs trenches to bury its facilities. For BellSouth it would be a poor economic decision to place investment that will not be used just to joint trench.

Joint use of poles is the most prevalent arrangement. Even in this arena, joint use may not always be possible. In the case of joint use with a power company, high voltage lines eliminate the possibility due to the interference they cause to telecommunications. If the company owning the pole must make costly adjustments to accommodate a sharing utility, the cost would be passed along to the requester and may not make the shared use an economic choice. With the Telecommunications Act, the cost of any rearrangement must be born by the cost-causer and may eliminate sharing on the basis of economics.

Conduit is a third possible sharing arrangement. Customarily, BellSouth has owned the vast majority of conduit it uses. Although power companies own conduit, safety issues preclude most sharing possibilities. Until the advent of ALECs, telecommunication utilities sharing has not been in great demand. BellSouth allows sharing in conduits we own only with other communications carriers.

BUILDING ENTRANCE TERMINALS:

Although unexposed plant should not require costly station protection, it is very difficult to determine positively that no exposure to electrical interference (lightening or power contact) exists. In a very metropolitan environment where everything is underground, it may be possible to leave off station protection. In most cases, in my opinion, it is better to be safe than sorry. BellSouth has an obligation to protect its customers, their service, our craftspeople and our equipment from damage stemming from such exposure. One would assume that an ALEC would have the same desire.

MULTIPLE VENDORS:

Certain ALECs contend that BellSouth should always provide prices for technology used in its cost study from the least cost vendor. If we were pricing a hypothetical fairy tale network, that would be an appropriate method. We are not doing any such thing. We are providing costs for an unbundled network element based on a forward looking narrowband

network design. It is inappropriate to suppose that the least cost vendor is always satisfactory from a technological perspective.

In the same vein, the use of multiple vendors is an appropriate activity. It would be imprudent of BellSouth to participate in exclusive vendor relationships when multiple vendors allow better price leverage and greater ability to meet technological demand.

REMOTES PER OC3 RING:

An average of ten remotes has been quoted by the ALECs as the appropriate assumption for the number of remotes on an OC-3 Ring. In fact, in some instances that may well be true. In other instances, all the capacity is used up at the first node, precluding any additional. It is BellSouth's experience that an average of three nodes is appropriate for the design of this loop cost study.

SIX VS FOUR FIBER SONET RINGS:

BellSouth's six fiber SONET Ring design considers the needs of our customers to have continuous quality service. With two fibers to transmit, two fibers to receive and two fibers for system upgrades and rapid service restoral, we can assure this fact. One would think that a competitive environment would require this type of service assurance to attract and keep subscribers. BellSouth considers such a design to be part of a forward looking cost effective narrowband network.

EXPENSIVE OPTICAL LINE INTERFACE UNITS:

It has been stated that BellSouth uses the most expensive Optical LineInterface Unit (OLIU) Card for the Lucent DDM2000 OC-3 SONET multiplexer. While it is true that the long range OLIU card is not always necessary in the loop, there are very good reasons to use it. First the difference in material price at a DS0 level is very small. In the DDM2000 system, the difference is an additional $.12 per card or $.24 for the two cards the system requires. For the Fujitsu FLM-150 system, there is no difference in material price between intermediate and long range optic cards. For the LiteSpan 2000 system, the material price is an additional $1.09 at the DS0 level.

In addition to these small price differences, there are significant advantages to stocking only one card that can be used for all applications. Inventory and stocking procedures are simplified which reduces costs. Installation, testing and maintenance are also made much easier when only one type of OLIU is required.

HIGH PRICED DS1 PLUG-IN CARDS:

Certain ALECs have asserted that BellSouth selected the highest priced DS1 plug-in card for the DDM2000 thus inflating the multiplexer investment. The same situation as that found in the OLIU requirement applies here; stocking and inventory procedures are simplified with use of one type of card causing a reduction in costs. There are also

maintenance reasons for using these particular cards. These cards are equipped for performance monitoring. Availability of such a feature minimizes service outages and reduces dispatch time for service technicians. While the price difference at the DS0 level between the two cards is $3.26 for the DDM2000, it is only $.75 for Fujitsu equipment. Finally, Fujitsu is considering not offering the DS1 card.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. My testimony has described the network design used as the infrastructure basis in the unbundled network element cost studies, defined certain complex technical terminology, provided the basis for the use of that technology, and discussed certain assumptions about infrastructure design that have been misunderstood by some.

The design of the infrastructure and the assumptions relating to that design are founded on well understood industry principles of engineering. The assumptions and methodology are consistent with the requirements of cost studies in general and provide the most efficient technology available for the provision of a reliable narrowband telecommunications network.

Q. DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

Q (By Ms. White) Mr. Baeza, did you have any exhibits associated with your testimony?

A Yes. Two exhibits.

Q And were these exhibits prepared by you or under your direction and supervision?

A Yes, they were.

Q Do you have any changes to those exhibits?

A No.

MS. WHITE: Madam Chairman, I'd like to have the exhibits attached to Mr. Baeza's direct testimony marked as Exhibit 19 for identification.

CHAIRMAN JOHNSON: It will be marked as Exhibit 19. It's a composite exhibit then?

MS. WHITE: Yes. Consisting of the two exhibits to Mr. Baeza's direct testimony.

CHAIRMAN JOHNSON: Okay.

(Exhibit 19 marked for identification.)

Q (By Ms. White) Mr. Baeza, do you have a summary of your testimony?

A Yes, I do.

Q Would you please give that.

A Yes. The purpose of my testimony is to describe the network design used in the unbundled network element cost studies. I've defined certain complex technical terminology and provided the basis

for the use of that technology.

In constructing the network design, forward-looking least cost technology as used, digital switching, fiber interoffice facilities, SONET standards and next generation digital loop carrier form the basis for the design elements. These components make up a forward-looking realistically achievable network.

As discussed in my testimony, the cost study assumes next generation digital loop carrier deployed in a nonintegrated fashion using the TR-008 feature package. Let me explain why this is appropriate when designing unbundled network elements.

Today BellSouth Telecommunications provides a service to its retail customers that we refer to as basic local exchange service. This service is provided by taking two network elements, a switch and a loop, and integrating or bundling them together to provide this service.

We also offer this service to ALECs at wholesale via our resale offering. In addition to our resale offering, we also offer to the ALECs the ability to buy parts of our network so they can develop their own services.

To do this we have unbundled or unintegrated

our network so that ALECs can purchase individual network elements, such as a loop or a switch port. The nature of this unbundled or unintegrating of the network is where the discussion around integrated digital loop carrier becomes important. By nature of unbundling or unintegrating the network, we've broken the connection between the switch and the loop apart. Yet integrated digital loop carrier by definition provides a bundling of the switch and loop together. Thus by definition it's impossible to provide unbundled or unintegrated network technology that is designed to bundle or integrate those individual network elements together.

Additionally, I've covered several network assumptions that underlie the network design that are commonly mischaracterized or misinterpreted by the intervenors. Among those, utilization factors, bridge tap, cable sizes and drop wires seem to comprise the major assumptions at issue. Let me briefly summarise utilization factors.

These are factors that represent how much of a given facility, such as a loop, is used in relation to what has been installed.

There are a number of elements that define how utilization factors come to be what they are. Our

opposition would have you believe that a network can be provisioned so incrementally that the utilization factor would be in the 70% to 90% range. This just isn't the case. It's not possible to provision cable facilities one demand at a time. Cables come in finite sizes, 25, 50, 100 pairs and so on. Demand must be forecasted by numbers of living units to be served and the cable laid in a manner that marries size to demand.

Sizing the cable to meet forecasted demand over a specified time frame prevents needless additional installation expense and minimizes the disruption to customer lives from digging up their yards and blocking thoroughfares. When all of these elements are considered, utilization necessarily is lower that the theoretically perfect number calculated by the ALECs testifying in this case.

There are other network assumptions that are contested by our opposition. These issues have importance in and of themselves, but in the interest of time, I'll forego a more detailed explanation. I will say, however, that our opposition has taken the opportunity to misconstrue BellSouth's assumptions with the purpose of gaining lower prices at the expense of appropriate design requirements.

The assumptions used in the development of BellSouth's unbundled network element cost studies are valid. These assumptions use a forward-looking least cost design for provisioning realistic elements in a narrowband voice grade environment. Thank you.

MS. WHITE: Mr. Baeza is available for cross examination.

CHAIRMAN JOHNSON: Okay.

MS. KEATING: Madam Chairman, Staff would ask its exhibit for this witness be marked for record. Staff asks DMB-3 which is the deposition transcript, deposition exhibits and late-filed deposition exhibits from Mr. Baeza's January 16th deposition be marked as Exhibit 20.

CHAIRMAN JOHNSON: We'll mark it as Exhibit 20. Short title DMB-3.

MS. KEATING: Thank you.

(Exhibit 20 marked for identification.)

MR. HATCH: Madam Chairman, before you go any further, I have one minor preliminary matter. I'd like to enter an appearance for Ms. Laureen Seeger of the law firm Morris, Manning & Martin in Atlanta, Georgia. She's a member of the Georgia bar and I'd move for her admittance before the Commission on a limited basis for this proceeding.

CHAIRMAN JOHNSON: Okay. And your name was Seeger?

THE WITNESS: Yes. My name is Seeger. S-E-E-G-E-R. Laureen is L-A-U-R-E-E-N.

CHAIRMAN JOHNSON: Thank you.

MS. SEEGER: Good afternoon, Commissioners and Madam Chairman.

CROSS EXAMINATION

BY MS. SEEGER:

Q Hello, Mr. Baeza.

A Hello.

Q Now, are there any other witnesses from BellSouth testifying in this proceeding about the actual network design assumptions in BellSouth's model?

A None to my knowledge.

Q So you're the person that we should direct all questions to concerning the appropriateness of the design assumptions then?

A Yes.

Q And the purpose of your testimony is to talk about the fact that those design assumptions are forward-looking, correct?

A Yes.

Q And least cost?

A Yes.

Q And I want to clarify what you mean by forward-looking. Do you mean forward-looking over the next three years, or do you mean forward-looking as -- forward-looking as what could be possible in the future?

A I don't really think forward-looking was ever defined as a finite number of years. In the case of these studies, forward-looking defines in the immediate future, and I'd be hard pressed to come up with whether it's a one-year, two-year or three-year look.

Q All right. Now, before we get into some of the main issues of your testimony, I'd like to ask you some follow-up questions to questions directed to Ms. Caldwell in this proceeding.

There were certain questions to her about dedicated outside plants and loops. And for the record, can you state what exactly those are?

A No, I don't know what the questions are.

Q No. Can you state for the record or define what a dedicated loop is?

A Oh, I'm sorry. I misunderstood your question.

A dedicated loop is one that terminates at a

network interface device at the living unit and is dedicated to that living unit.

Q And by "dedicated" does that mean that if it -- if the customer who resides in that living unit moves, the loop is still connected for the next person?

A The loop is still physically connected to that living unit, yes.

Q And Ms. Caldwell indicated that we should direct questions to you concerning the percent of installed loops in Florida which are dedicated. What is that percent?

A You know, I don't really know, but let me offer an opinion.

If a loop terminates at a network interface device, it is dedicated, so essentially all of the loops that terminate at a NID are dedicated to those living units.

Q All right. I also have some questions for you concerning fill factors or utilization factors.

First of all, do you define both of those terms in the same manner, the term "fill factor" and the term "utilization rate"?

A Yes, I would.

Q And what is your definition of utilization

rate?

A Utilization would be the number of available units, whatever the units happen to be, over -- I'm sorry, under the number of units that are actually in use.

Q And the way that BellSouth's cost model works in this proceeding is that it applies these utilization rates to make current users of physical outside plant pay for the full cost of that plant, correct?

A I'm sorry, to make current users --

Q Of the existing outside plant pay for the full cost of that plant.

A Yes.

Q All right. At your deposition I'd asked you certain questions about whether defective cable distribution pairs were included in the numerator and denominator of the utilization rate calculation in BellSouth's model, and you did not know, but you filed a late exhibit, and it's already been made part of the record as -- it's Page 92 of Staff Exhibit No. 20. Do you have that in front of you?

A I don't have it here. Oh, wait a minute. 92?

Q Yes.

A Yes.

Q And this is Item No. 1 of the late-filed exhibits to your deposition, correct?

A Yes.

Q And there the request was is the defective pair rate taken out of the numerator or the denominator when calculating filler utilization factors? And response here is that defective pairs are counted as available when considering utilization.

Does that mean then that defective pairs are included in the denominator of the utilization rate calculation?

A That would be correct.

Q The second response here is that defective pairs are not removed from the numerator. Does that mean that defective pairs could be counted as actually being used by a customer?

A Defective pairs are available for use. They would not be actually used by a customer by nature of the fact that they are defective.

Q Okay. And the defective pair rate for cable distribution plant in Florida and for feeder distribution plant is roughly 10%, correct?

A For distribution, roughly between 9.5 and 11%.

Q All right. So that means that basically when calculating the utilization rate, the denominator, the denominator which reflects available pairs includes -- 10% of that number is for defective pairs, correct?

A Yes.

Q So to the extent that that defective pair rate is too high, that would understate utilization, correct?

A If I understand your question correctly I believe what you're saying is if the defective pair rate -- if the defective pairs are counted as available, that that would understate the utilization rate.

Q No, that's not the question. And I'll rephrase it if there's any confusion?

A Yes.

Q Because of the way that defective pairs are counted in calculating the utilization rate, if that defect pair rate is too high -- let's say in a forward-looking network design that could be reduced significantly, if in BellSouth's model that defective pair rate is not forward-looking and it's too high, that would tend to understate utilization, correct?

A I don't understand what you mean by too

high. Can you help me with that?

Q Versus what a forward-looking network would have in it. Let's say a forward-looking network would only have a 3 or 5% defective pair rate, but BellSouth assumes in its cost model, or in actual use, has a defective pair rate of between 9 and 11%. So if BellSouth's defective pair rate is too high, the way that it incorporates that into the utilization rate would understate possible utilization that could exist in a forward-looking network, correct?

A No, I don't believe so. What you're asking is if we define available pairs to include defective pairs, is that appropriate or not? And then finally is the number of defective pairs in line with what is reasonable?

I can tell you the number of defective pairs is a reasonable number. And we feel that they can be made available for use because, for the most part -- and I cannot guarantee that every defective pair can be repaired -- but for the most part the defective pairs can be repaired if necessary.

Q And what is the cost of repairing -- the typical cost of repairing a defective pair?

A I don't know. I read somewhere that it was $42, but I don't know that for a fact. That was my

recollection of a number I read somewhere.

Q All right. And in tying the defective pair rate to the actual utilization rate, it may be easier to get an answer to that previous question I had by referring to your testimony. And do you have a copy of that in front of you?

A Yes.

Q Will you turn to Page 11, please? At least there, beginning on Lines 12 on Page 11, and ending with Lines 3 on Page 12, you explain in your prefiled testimony here that the probability of defective pairs impacts the fill factor and possibly lowers it, correct?

A Yes.

Q Can you describe for the record here, Mr. Baeza, what actions BellSouth has taken to decrease the occurrence of defective pairs?

A Well, in general there are things that are done as procedural activities when installing cable pairs to limit the defective pair rate, and these have been in place for many years, namely, training to make good splices, teaching care to prevent a pair from being nicked inadvertently and possibly shorted.

So these are ongoing training procedures that I cannot point specifically to a -- any kind of

recent program or anything other than what has always been ongoing.

All right. Also with regard to utilization rate, Ms. Caldwell, in her testimony indicated that she did not know if the experts who determined that a utilization rate in BellSouth's existing network would not improve going forward in the future. She doesn't know whether those experts consider the effects of competition. Do you know whether the BellSouth experts who decided that the utilization rate may not improve going forward consider the effects of competition?

A Yes. The effects of competition were considered, and it was determined that there would be minimal effect to the utilization rates.

Q And that conclusion, or that statement that you made, is based on what discussions that you have had with those experts?

A I did not personally discuss this with the subject matter experts. However, this is a topic that is discussed fairly frequently in BellSouth, namely, the effects of competition. And it is our intent to have our plant available for our customers and to have plant available for ALECs for resale, so we attempt to factor all those things in.

Q All right. Let me make this clear then. So you're not aware, are you, of any particular analysis, or specific analysis that's occurred within BellSouth concerning the actual and potential impact of competition on the distribution utilization rate?

A I cannot point to a particular study. I don't know if there is a published document or not, no.

Q And do you recollect the identity of the individuals who told you that competition may not improve the utilization rate of BellSouth's distribution plant going forward?

A Again, we have a number of subject matter experts. I can probably make a list of names available, but I don't have them at my fingertips right now.

Q Okay. You also, in your direct testimony filed in this proceeding, talk about the wisdom of using bridge tap. Could you explain, for the record, what bridge tap is?

A Sure. Bridge tap is a cable pair that terminates at a network interface device but also has an extension of that cable pair terminating -- or not terminating, excuse me -- I'm trying to think of a good word -- I'll just say moving down another avenue,

so to speak, and available for, you know, possible reuse.

Q So basically a bridge tap is cable that runs past the home that's actually using that cable. Is that a fair description of it?

A Well, technically what you're describing is an end tap, but for our purposes, yes, that's correct.

Q All right. And basically it's cable -- an extension of an original cable pair that's not -- that the cable pair has been assigned but there's extra yardage out there that's been laid in BellSouth's network?

A Extra -- I didn't hear your word.

Q Extra yardage of that cable pair.

A Footage, yes. We deal in feet.

Q Okay. And in BellSouth's cost model they assume that there's a bridge tap in every one of the sample loops, correct?

A No, I don't believe it was every one of the sample loops but there is some bridge tap in the model, yes.

Q Assumed. Okay.

Now, is one of the rationales, as you state in your testimony, for assuming that bridge tap would exist in a forward-looking network -- is one of your

rationalizations that that cable could possibly then be used by a customer in a different location in the future?

A Well, yes, but not at the same time as a current customer is using it.

Q Is there any other reason than that for BellSouth, assuming the existence of bridge tap in a forward-looking network?

A Yes. The other reason for having a bridge tap pair is in the event of a pair going defective, it is quicker generally to restore the customer service using an existing vacant pair, in which case we might be using the bridge tap pair, and reterminating another customer, or we may just, in fact, have that bridge tap pair vacant and use it for the customer, in other words, change out the pair.

Q Basically, and correct me if I'm wrong, the rationale for assuming bridge tap in the loop sample of BellSouth's cost model is that it could be used; it could possibly be used in the future, correct?

A Yes.

Q All right. How often, what percentage of the bridge tap in BellSouth's network has actually been used in the last five years?

A I don't know. I don't know that we have

records on that.

Q Now, you're responsible and you're testifying in this matter as an individual with knowledge of the network in Florida, correct?

A Yes.

Q Do you have a rough idea of how often BellSouth actually uses bridge tap in its existing network?

A No, I hate to not be able to provide an answer, but I really don't know what percentage. To my knowledge we don't have records on that. We change out pairs and that's the end of it.

Q All right.

A I don't know that we code it out in such a way that we could go back and identify which one was a bridge tap and which one wasn't.

Q Let me ask it this way then, at different points in your career you were actually in the field, correct?

A Well, yes. (Laughter)

Q And did you -- were you ever involved --

A I'm not proud of that.

Q Actually --

COMMISSIONER GARCIA: As opposed to what you're doing now?

WITNESS BAEZA: Touche'.

Q (By Ms. Seeger) Are you personally aware of any situations in which BellSouth has used bridge tap?

A I have not personally done it -- I'm personally aware of it; I've seen it done. But I've not done it myself.

Q And you have no opinions to the frequency of it?

A That's correct.

Q Also another thing that could affect BellSouth -- now BellSouth's assumed utilization rate for cable distribution plant in this model is 38.8%, correct?

A Yes.

Q Now, do you know what the utilization, the actual utilization rate in other states in BellSouth's region is for cable distribution plant?

A Yes. I really didn't have them memorized but I can rattle them off, but they range in the 40% range. 35 to 41 or 42. I think there's even one that goes as high as 52.

Q And aren't most of the actual utilization rates for BellSouth's cable distribution plant in its region higher than the utilization rate in Florida?

A No, they are all right around that, 38, 39, 40%.

Q Okay. And if one state, for example, as you testified, had a cable distribution plant utilization rate of 52%, you are nonetheless asking this Commission to assume that no matter what BellSouth would do in the future, its actual cable distribution utilization rate of 38.8% would not improve?

A That's correct. Florida is a very dynamic state. One in five loops are touched every year. This is higher than the other states in many cases, so I do not foresee anything changing in the immediate future that would allow that utilization rate to increase substantially.

Q You said something interesting in that answer. You used the word "immediate." Does that mean that you're not giving an opinion as to whether a forward-looking network or long-term utilization rate could be improved?

A No. What I meant by that is for the purposes of a TELRIC study, you know, long run incremental cost is just that; it doesn't really imply ten years or anything like that. It's for the purposes of that study.

Q And, in fact, at your deposition you

identified some actions that BellSouth is undertaking to attempt to improve the distribution rate for cable plant going forward in the long term, correct?

A Can you refer me to a page?

Q Page 63 of your transcript.

A What line?

Q Beginning at Line 3 and Line 14, and the question is "At your deposition you identified and described some efforts that BellSouth was undertaking which could possibly improve the utilization --

A Oh, yes --

Q -- of going forward."

A -- yes, yes. Yes. Let me explain that. That's a very good point.

What we're looking at now is what I'll losely term the next generation of distribution plant.

And this is bringing fiber closer to the living unit. We have a very, very small fraction, less than a percentage point, of optical network unit, ONUs, that are fiber fed from a DLC location. And from that ONU, we can serve four to six living units with a copper extension.

So what that does is that moves the fiber closer to the living unit, but as I said, it's a very, very small percentage. It's less than a percentage

point and I don't really remember the number.

And given that much of our plant is already embedded, we're not going back and digging up existing plant and installing ONUs. That would, obviously, be prohibitive. So that's what that was referring to.

Q But if BellSouth had originally -- or was installing their network now using ONUs, there would be an opportunity, would there not, to experience, in a forward-looking network, design architect, a much higher utilization rate than 38.8%?

A No, I don't believe so. And once again, use of an ONU is very nascent at this point. There's not a lot out there. If I can put in 100,000 units a year, it still wouldn't move that percentage to -- in any appreciable bit.

Q It wouldn't move that percentage off of BellSouth's embedded network, correct?

A No. I said this is really not replacing the embedded network. This would be on new starts, new subdivisions, for example.

Q Okay. So let me make this clear then. If you're installing a new subdivision, BellSouth might consider ONU technology to more efficiently design that network?

A Yes, we might consider that.

Q Okay. All right. Now, isn't it true that another factor in BellSouth's study and in BellSouth's actual network, which could possibly contribute to the low utilization rate, is the fact that BellSouth plans on -- and has assumed in its cost study, a minimum of 25-pair cable running down each street?

A Yeah. Our smallest cable size is 25-pair. It's distribution, by the way.

Q Distribution. Correct.

And at your deposition -- and I'll refer you to Page 74, do you have that in front of you? Actually, let's start on Page 73 at Line 15.

A Yes.

Q And I asked you a question there, "In BellSouth's existing network, does it have cable plant, cable distribution plant, that is utilizing fewer than 25 pairs?" And you answered that question with "None to my knowledge," correct?

A That's correct.

Q And I asked you again, "In the whole state of Florida." And you answered, "Right." Correct?

A Right. And then I went on to say that.

Q Can I finish?

A Oh, sorry.

Q And then I asked again "When you say none to

your knowledge," I asked, "are you saying you haven't, you're not sure, or are you saying that you are pretty certain that there is none?" And you answered "We don't use anything less than 25-pair distribution." Correct?

A Yes.

Q Okay. Now, in this case BellSouth filed, as part of Exhibit 13, which was their cost model, they filed an Appendix A to that cost model that was a diagram of each of the actual loop designs of the loops in BellSouth's loop sample, correct?

A Yes.

Q All right. And then BellSouth has redesigned those loops to assume 25-pair distribution cable at a minimum, correct?

A Yes.

MS. SEEGER: May I hand the witness --

Q **(By Ms. Seeger)** Mr. Baeza, what I'm now handing you are some excerpts from Appendix A to BellSouth's cost model, and Mr. Hatch will pass out some of these excerpts to the parties. (Hands document to witness and Commissioners.)

Q And, Mr. Baeza, you're here to testify about the appropriateness of the design assumptions and BellSouth's loop sample, correct?

A Yes.

Q What I've handed you are the actual designs of certain loops of BellSouth in the state of Florida?

A Yes.

Q And for the record, I've handed you Bate stamp -- I've handed you 1995 Loop Survey Diagrams for loops, I think, 111, 112, 114, 183, 191, 201, 257 and 259.

Now, Mr. Baeza, on each one of these pages there's -- on the left-hand side of the diagram in the middle of the page there's the word "CO", does that represent central office?

A Yes, that's correct.

Q Then there's a series of sets of numbers, the first one on the first page for Loop Sample 111, for example, says "3600-26," do you see that?

A Yes.

Q What does that mean?

A That's 3600 pair, 26 gauge.

Q Then going on to the far right of that diagram there's the words "8PR 45C" does that mean 8 pair, 45 gauge?

A Yes. Yes.

Q And on loop sample 112, on the far right that's a 12-pair cable in that actual loop. That's 45

gauge, correct?

A Yes -- no, not 45 gauge. It looks like 45 "C", I think that's an accounting code. I can't really read it.

Q 45C, all right. And each one of these pages I've handed you, as they are diagramed -- and as they currently exist, actually, in BellSouth's region in Florida for these loops, use lower than a 25-pair cable, correct?

A Well, understand, though, that that's the drop wire. It's not --

Q Why do you say that's the drop wire?

A Well, because that's what it is.

COMMISSIONER CLARK: Mr. Baeza, are you saying is it's what goes from the road to the house?

WITNESS BAEZA: From the pedestal.

COMMISSIONER CLARK: -- as opposed from the loop down the street.

WITNESS BAEZA: Right.

COMMISSIONER CLARK: So your position for loops, distribution loops, your position is still you use the 25 gauge.

WITNESS BAEZA: Yes, ma'am.

Q **(By Ms. Seeger)** Thank you for clarifying that. I was wondering. What about the way that this

is written indicates to you that these pairs of cable lower than 25 are actually the drop wire?

A Well, that's the drop wire; that's the last piece going to the house or to the living unit.

Q So this actually goes to the NID when there's a 12-pair, 4-pair, 8-pair cable that actually goes to the NID on the outside of the house?

A To some kind of network interface device. I'm assuming these are all homes, but yes, to a NID.

Q All right. Now, I want to ask you about some other assumptions about BellSouth's network loop sample, and one is the average or estimated length of the drop wire which we were just talking about. And it's true, is it not, that BellSouth assumes that each drop wire in its redesigned loop sample ranges from between 200 and 250 feet depending on whether it's a business user or a residential user?

A The 200 to 250 really referred to buried and aerial cable.

Q Okay. So that's what BellSouth's model assumes as far as length of the drop wire?

A Yes.

Q And you're here to testify about of the reasonableness of that assumption, correct?

A Yes.

Q Now, it's true, is it not, that you did not personally participate in any survey from which those numbers were derived?

A That's correct.

Q And have you seen any documentation that reflects the procedures or the methodology of the survey that was conducted by BellSouth to arrive at those numbers?

A We have a document that I believe it was labeled POD 51 that shows that.

Q Is that the document that I think was presented at your deposition that included the actual result --

A Yes.

Q -- of the survey.

A Yes.

Q My question was more have you seen any documentation or notes concerning the methodology of how BellSouth arrived at those ultimate numbers?

A I don't have a document that shows it. I can describe the process.

Q And that to a certain extent is described in your testimony. A couple more questions about that.

Did you speak directly with the individual from the state of Florida who determined that the

average drop wire length for aerial and buried cable in Florida was 200 to 250 feet?

A No, I did not speak directly. There were 14 individuals that provided input to that to a subject matter expert.

Q Then did you speak directly to the subject matter expert?

A No, I did not.

Q Do you know whether the individuals who performed that drop wire survey weighted the various drop lengths in the state of Florida. In other words, in there were a 100 drop wires that were five feet long, and 20 drop wires that were hundred feet long, if those numbers, in deriving an average, were weighted?

A No, I cannot tell you if they weighted them, but I can also tell you it would be highly unusual -- in fact, I think it would be impossible in a residence to get a five foot drop.

Q Oh, I understand. This is a hypothetical.

A Oh, okay.

Q Your answer is that you don't know whether he weighted --

A That's correct.

Q -- the result -- okay.

And do you know how many residences or businesses were reviewed to determine what the average drop length was in Florida?

A There were 175 residences and 174 businesses, I believe.

Q And those are the number of residences and businesses in the loop sample, correct?

A That's correct.

Q All right. Now, my question was for the survey, the drop survey that was done by BellSouth to arrive at its average numbers in its cost model, do you know how many residences and businesses were reviewed by the subject matter experts in coming up with this average number of 200 to 250 feet?

A No, I do not.

Q Do you know whether in arriving at the figure of 200 to 250 feet the individuals who performed the survey included in that average apartments that have zero drops in many instances?

A No, I don't think there were any apartments in there. I don't know that for a fact, but I don't think so.

Q So if apartments were include in the survey, that might reduce the average drop length, correct?

A If you were to put zero drops, add it to the

numerator and the denominator, remain the same, then yes, that would be true.

Q All right. Do you know --

A Of course, then you'd have riser cable. I don't know how that was calculated.

Q You just don't know?

A No, I don't know.

Q Okay. All right. Now, there was some questions as well posed to Ms. Caldwell about ESSX loops not having been included in the loop sample underlying BellSouth's cost model. How many ESSX loops are there in BellSouth's region in Florida?

A I don't know if I have that number with me or not. Let me just take a quick look. (Pause) Nope, sorry.

Q Do you know what percentage of BellSouth's loops are ESSX in Florida?

A No. That was a number I used to know but unfortunately I do not remember.

Q And ESSX loops in general are shorter loops than other loops, correct?

A In general, yes.

Q So that to the extent that such loops were not included in BellSouth's cost model, the average length of loops might be overstated, correct?

A If you assume that ESSX loops are representative loops. Obviously, if you again add a small number to the numerator and -- in that same small number the denominator, your percentage will go down. But again, ESSX loops are not typical loops. They are mileage sensitive so they don't really want to make them very long.

Q Ms. Caldwell was also asked about HDSL and ADSL technology. And that's new technology in Florida for BellSouth, correct?

A Well, it's -- it's not real, real new. I mean it's been talked about in technical papers for quite a while.

A ADSL. HDSL has been around for a little bit.

Q And Ms. Caldwell indicated in her cross examination that you might know the degree to which ADSL technology will be employed in the future. To what degree will ADSL technology be employed in the future in Florida?

A Third degree. I'm sorry. (Laughter)

That's a very difficult question. Right now we're running a trial of ADSL in the Birmingham area.

ADSL is viewed as one of several technologies that will be able to provide high speed

access and predominantly high speed access to the Internet.

Currently ADSL works only on a copper loop. I think at some point in the future it will work on digital loop carrier as well. But currently it is limited to copper, and it's limited to 18 kilofeet nonloaded pair. So it has a few technological barriers associated with it at this point.

Q All right. Another question concerning drop wires in Ms. Caldwell's examination. Commissioner Clark asked Ms. Caldwell what the incremental cost would be of assuming five drop wires per residence in the model as opposed to two drop wires per residence. And Ms. Caldwell referred or deferred that particular question to you.

Do you know what the incremental cost would be if BellSouth's cost model would assume two drop wires per residence instead of five?

A I don't know offhand but we're talking pennies per foot. There's very little difference between a two pair and a five pair. You know, the more pairs you have in that sheath, the cost per foot does not go up linearly. It's very, very small.

Q Are you responding with respect to material cost, or are you --

A Material cost, yes.

Q All right. So you're not responding with respect to the cost model and how it would take that material cost and possibly add a utilization rate and loading factors, are you?

A No.

Q Okay.

COMMISSIONER CLARK: Mr. Baeza, I needed something clarified with respect to that same point.

Would you look on Page 11 of your testimony?

WITNESS BAEZA: Yes.

COMMISSIONER CLARK: You indicate that BellSouth's review and sizing of its new route would be to place 1.5 pairs for each living unit. How does that reconcile with five pairs in a drop?

WITNESS BAEZA: It doesn't match up with five pairs in a drop. This particular paragraph was citing an example for when we don't know anything about the demographics of the area.

But to your question, a 5-pair drop is for BellSouth an economic minimal size that allows us some flexibility if a pair, or even a couple of pairs, get damaged, or if a customer requests a separate telephone number, separate line in the house.

COMMISSIONER CLARK: You're not answering my

question.

WITNESS BAEZA: I'm sorry.

COMMISSIONER CLARK: How can you have five pairs in a drop if when your -- if when you serve a subdivision you assumed 1.5 pairs per living unit?

WITNESS BAEZA: That's the distribution going to the pedestal. Then from the pedestal to the network interface device, we would install that 5-pair drop wire.

COMMISSIONER CLARK: Well, let me just ask this question: If every household used just two of those pair, you would exceed the capability of -- it's not the feeder -- it's the loop cable, wouldn't you?

WITNESS BAEZA: Well, no, because with bridge tap we have the capability of wiring additional drops to that house. By using a bridge tap design, that allows us to average -- in this case, this was averaging 1.5 pairs per living unit, allows us to average 1.5 pairs per living unit. But we could physically terminate more than 1.5 pairs per living unit using bridge tap. And with a drop wire, of course, we could move those pairs from the distribution pedestal to the network interface device.

COMMISSIONER CLARK: Let's go back to my question.

Suppose you have -- I guess you use seven houses on the main street and six house on each side of the street. And you're going to use the 25-pair cable? If you assume each house needs two pair, is that loop cable going to be sufficient?

WITNESS BAEZA: Okay. I think I understand where your question is going.

If, let's say, we had a seven-house main street and two side street that had six houses each.

COMMISSIONER CLARK: Three sides.

WITNESS BAEZA: Three. Excuse me. In that case that's 25 pairs. We have to put in this case 50 pairs if you wanted two pairs per living unit.

COMMISSIONER CLARK: What I'm having trouble understanding is why you would send in five pairs to a house when the cable you're putting down the street will not accommodate the five pairs to each house.

WITNESS BAEZA: That's correct. It will not accommodate five pairs to each house, but it could accommodate five pairs to some of the houses using the bridge tap design.

See, what happens is -- let's do it with a simple example so that I don't get balled up in the math.

Let's say, for example, we have ten houses

and it's just along a line. And at the end of that street we have two houses going along the cross street. And let say we chose to use a 25-pair cable just for illustration sake. And let's say we --

COMMISSIONER CLARK: Wait a minute. That's what you do use. Right?

WITNESS BAEZA: Yes.

COMMISSIONER CLARK: Okay.

WITNESS BAEZA: I was saying in lieu of maybe a 50-pair cable.

COMMISSIONER CLARK: All right.

WITNESS BAEZA: Let's say it's a 25-pair cable. And, of course, a 25-pair cable would extend to the end of that street. And again for illustration sake, we'll say two pairs per living unit average. Those ten houses would generate 20 pairs required. Now, the houses on the side street, the two houses, require an additional two pair each -- yeah, two pair each. So you'd have -- we'd have 24 pairs. Excuse me, I have to put another couple of houses to make it interesting. Let me put two more houses on the side street so I have a total of four.

COMMISSIONER GARCIA: Is that in addition to the ten you began with?

WITNESS BAEZA: Yes. And I'm working this

as I go along, so I may have to modify it again. Let me think. No, we'll leave it with the two houses and I apologize for doing that.

So we have 24 pairs required. And we have placed a 25-pair cable down the main street, and then we have bridge tapped that cable so that another cable runs across those two houses. And, you know, let's forget that there's only two houses. Perhaps we're assuming more houses will be built.

MS. WHITE: Excuse me. Would it help if we brought in a easel and drew a picture?

COMMISSIONER CLARK: Here's my only problem. I can accept the fact that it makes sense to send in to a house five pair of wires. Because I think with people having computers and more people doing business at home it probably makes sense to do that. But I have difficulty reconciling that with the notion that the wire you send down the street would not accommodate some greater percentage of those people living on the street until you have at least two pair. I don't understand why you would -- for one purpose you use 1.5 per pairs per living unit, but, in fact, you install five. Does that make sense?

COMMISSIONER GARCIA: I think what he was addressing is possibilities and what you're addressing

is averages, right?

WITNESS BAEZA: Yes. You're talking -- and this illustration is talking averages. But the numbers that actually will physically terminate in a home may be one, may then zero, may be five. So our design accommodates that. The 5-pair drop wire is an economical drop wire that encompasses all possible cases -- all reasonable possible cases. We even have homes in South Florida have ten pairs energized and working, so that in that case the 5-pair wouldn't help.

But for all practical purposes a 5-pair drop is sufficient for all possible needs, and we don't have to go back and dig up the yard or reenforce it.

So when you look at this illustration in my testimony, this particular example is for a housing subdivision that we have no knowledge of. We don't know what the demographics are going to be. So, yes, that 1.5 pairs per living unit would be sufficient. Again, the first house might take one, the second house might take four. So our design accommodates that flexibility.

COMMISSIONER CLARK: Okay. I think I understand. Thanks.

WITNESS BAEZA: Sure.

Q (By Ms. Seeger) I have another question following up on that.

You've assumed in the cost model -- and basically this underlies what you're charging AT&T for -- that there are -- that every house could possibly use five lines, and, therefore, have five drop wires assumed for each residence, correct?

A Well, we assumed the possibility that up to five lines could be used, yes.

Q What percentage of BellSouth's customers in Florida currently use five lines?

A I don't know.

Q Is that a relatively high percentage of BellSouth's customers or a relatively low percentage?

A Gosh, I just don't know. I know in my personal experience I have three lines, three distinct phone numbers. I know places in my neighborhood that have more than five lines but I cannot give you an opinion on the number.

Q You don't know.

A In BellSouth.

Q Okay. And if there are only two drop wires attached to a NID at a customer's residence, and let's say I'm that customer and I say "I would like three lines in my home." Is there anything that BellSouth

can do to install that third line without putting another drop in?

A Well, if it were -- it were a rush job and you needed to put the third line in, we could use a DAML.

Q That's what I thought. And a DAML is a technology that's available to add up to two additional lines per residence, correct?

A No. To add one additional line per line.

Q Okay. And a DAML is something that attaches to the NID?

A A DAML is ino two places. DAML stands for digital additional main line. And what that does is derives an additional virtual pair, and it does it by multiplexing the signal coming into the NID from the living unit onto the one pair, one physical pair. And then at the central office it's demultiplexed into two pairs. So there's electronics on both ends.

Q And one of the benefits of DAML technology is that it can be used as needed as opposed to installing it up front to fulfill ultimate demand, correct?

A Well, it can be used on a demand basis. It's not cheap, and it requires a site visit, of course.

Q Okay. All right. One last question or line of questioning for you. In BellSouth's cost model it assumes that BellSouth's feeder utilization rate, it's not going to improve in the future and, therefore, utilizes BellSouth's actual utilization rate of copper feeder plant of about 65%, correct?

A Yeah, I think it's 65.8.

Q Okay. And in your testimony you talk about the fact that that should be okay because that's a better-than-average rate of some other RBOCs that you identify in your testimony, correct?

A Yes. I believe it was Exhibit 1 of my testimony that showed the average across.

Q And you're not stating that that's a better-than-average feeder utilization rate of all RBOCs, just the ones you list there in your testimony?

A Right.

Q Correct?

A Restate that. I didn't quite catch what you said.

Q You're not stating in your testimony that BellSouth's actual feeder utilization rate for cooper in Florida of 65% is a better-than-average feeder utilization rate for all RBOCS in the country, just the ones --

A Not Florida per se. This is a BellSouth number. But it's quite in line with the other RBOCs. The only anomaly you see there is specific to leases. We don't know where that number came from. We suspect that's an error, but that's what was published.

Q You call a feeder utilization rate of 92%, you call that an anomaly but actually that's what's been published by that RBOC as their actual feeder utilization?

A We'd have to challenge it if it came to that. That's not a reasonable number.

Q And the question is are you advocating to this Commission that better than average is okay for Florida as opposed to what's actually potentially available in a forward-looking network?

A No. All I was attempting to show was that our numbers were in line with what the industry practices are.

You know, ideally in an ideal world people don't move and people don't change services, and we could size all of our plant exactly as required, but obviously that's not the case. So that utilization factor is a very reasonable factor in the industry.

Q All right. And you're asking this Commission to assume that it won't improve -- or that

it couldn't approve in a forward-looking network?

A We do not see any factors in the near term that would cause that number to appreciably change up or down.

Q In "near term" you mean you don't think the utilization rate in Florida is going to change in the next three years?

A I'm not aware of any technology that would change that utilization rate. Now tomorrow something could come up and that's possible, but I don't know about it.

Q So then your opinions are based on BellSouth's embedded network?

A Yes.

Q Okay.

MS. SEEGER: That's all I have for this witness.

CROSS EXAMINATION

BY MR. ADELMAN:

Q Good morning, Mr. Baeza. I'm David Adelman. I represent MCI.

A Good morning.

Q Mr. Baeza can you in layman's terms please explain for the Commission what a digital loop carrier does? What is the function of a DLC?

A Sure. A digital loop carrier takes analog distribution pairs and samples it, multiplexes it -- in other words, puts them on the same pipe, so to speak, and transports it the central office where it is demultiplexed and carried to the switch port.

It uses a technology called "sampling", as I mentioned, and it's been shown theoretically and imperically, that if you sample at twice the highest frequency -- in this case the highest frequency is said to be 4,000 hertz -- so if you sample it twice the highest frequency, you can reproduce that signal accurately on the other end. And empirical studies have shown that voice samples, sampled at 8,000 samples per second, and quantized at 8 bits per sample to be a reasonable preproduction of the voice frequency.

Q And in layman's terms, what is a universal digital loop carrier. When you refer to universal DLC in your prefiled testimony, what are you talking about?

A Okay. An universal digital loop carrier is a digital loop carrier system that, once again, multiplexes the analog signals at the customer end, at the living end, into one pipe and carries it to the central office, and then is demultiplexed before it is

terminated in the switch.

Q And for purposes of the cost study sponsored by BellSouth in this proceeding, BellSouth has assumed deployment of universal digital loop carrier technology, correct?

A Yes.

Q But universal digital loop carrier technology is not the least cost most efficient digital loop carrier technology, is it?

A Well, you have to be careful with that, because in order to provide an unbundled loop, the only avenue we have available that is economic is the universal DLC.

Q I understand. We'll get to that. But even BellSouth itself, and your group in doing network planning, does not intend to deploy universal digital loop carrier technology in Florida. It intends to deploy integrated digital loop technology; isn't that correct?

A To the extent possible we would put in integrated, although you can't always put it in either. But, again, let me point out that the study was not what we're doing per se, but what would accommodate this unbundled loop.

Q I understand. But, in fact, in response to

a data request, and during discussion at your deposition, you agreed that BellSouth, and your group at BellSouth, intends to have deployed in Florida, by the year 2005, 75% of its digital loop carriers as integrated digital loop carriers; isn't that correct?

A Yes.

Q And integrate digital carriers utilize the TR-303 protocol, correct?

A It could also use TR-008.

Q And those protocols are the most efficient software and protocols for purposes of digital loop carries, correct?

A I'm afraid I cannot debate the relative efficiency but they are the standard.

Q The forward-looking state-of-the art; is that correct?

A Again, I have to tell you, it's the standard. If a new standard came out that was better, you know, we would look to that.

Q Well, presumably protocols become the standards because the industry determines they are superior to previously deployed technology, correct?

A Ideally, yes. I could cite you examples where that hasn't happened, but that would be for another case.

Q But we don't have any reason to believe that the TR-303 Protocol is an exception to that rule?

A No. We think it's an okay standard.

Q So the assumption BellSouth has made for purposes of the cost study, which I appreciate is being presented in the UNE, or unbundled network element environment, BellSouth has assumed deployment of the universal digital loop carrier technology; not the integrated digital loop carrier technology, correct?

A And that would be the TR-008 interface.

Q So you've assumed the universal digital loop carrier technology, but you are assuming the TR-303 Protocol; is that correct?

A No, no, no. TR-008 for that study.

Q So not the industry standard, correct?

A No, that is an industry standard; make no mistake --

Q But it's the industry standard not for the integrated digital loop carrier, correct?

A No. You can still transport integrated on TR-008.

Q But where BellSouth deploys integrated digital loop carrier, it does not use the TR-008; it uses TR-303, correct?

A Actually we have virtually no TR-303 as of yet. We have one location, I think.

Q But you plan to deploy TR-303 integrated digital loop --

A Yes.

Q -- integrated loop carrier in the future?

A In the future.

Q If we were talking in terms of the forward-looking network in Florida, we would be talking about integrated digital loop carrier deploying TR-303, correct?

A Yeah. Let me qualify that a little bit. I don't want to mislead you. TR-303 works with NGDLC; next generation digital loop carrier. There are still going to be cases where because demand is not as great, an NGDLC cabinet can take up to 2,000 loops, there will still be areas where we would use the smaller DLC, which is the 96-loop carrier.

Q Now, where BellSouth provides to its customers a loop and a port in a combined fashion, you have made the judgment that the integrated digital loop carrier is the best technology, going forward, correct?

A Yes.

Q But for this study why BellSouth would

deploy a loop and a port in a UNE environment to the customer of an ALEC, BellSouth has assumed the universal digital loop carrier technology, not the integrated digital loop carrier technology, correct?

A That's correct.

Q Thank you.

MR. ADELMAN: No further questions.

CROSS EXAMINATION

BY MR. SELF:

Q Mr. Baeza, I'm Floyd Self representing WorldCom. I just have a couple of questions.

A How do you do.

Q In response to a question from Ms. Seeger, I think I heard you say that one in five loops are touched each year. Did I hear that correctly?

A Yes.

Q And is that a high percentage?

A Yes, I think so. 20% of your base is touched.

Q And why is that occurring?

A Movement, disconnects, new connects.

Q Would it also include maintenance upgrades and such?

A Yeah, I suppose so. There's a possibility of that, too, although I don't -- I don't have a

breakdown of that number.

Q Okay. Would it include situations, for example, where if loop conditioning was required for a customer, when you went out to check on that group of loops that contained that particular loop for that customer, would you, in fact, perform maintenance on all of the loops that are in that, perhaps that binder group or that box or that area, however you define it. Is that possible?

A Oh, let's see. If we were to go out and do -- and repair defective pairs, we would not go out to do one; we would do whatever was in that particular cross box or maybe that pedestal even.

I really don't -- I cannot remember a case where we group loop conditioning -- and I think what you're talking about when you say loop conditioning is doing things like removing loading coils, for example.

Q Yes.

A So I do not have any recollection that we would go out and do that a bunch at a time. But I can't tell you we don't either. I don't know.

Q Okay. That's fine. Thank you.

MR. SELF: I have no further questions.

CHAIRMAN JOHNSON: Staff.

CROSS EXAMINATION

BY MS. KEATING:

Q Good morning, Mr. Baeza. Just a couple of questions.

A Sure.

Q I'd like to refer you to BellSouth's response to Staff's Interrogatory No. 70, and that's now part of Exhibit 5.

A Yes.

Q I just want to clarify a statement in there. That response states in part "that cross boxes are generally sized using one-third in and two-third out ratios."

A Yes.

Q So, in other words, the ratio of distribution to feeder cable in a cross-box is approximately two to one; is that correct?

A Yes.

Q Why isn't there an one-to-one ratio of feeder pair to distribution pair?

A I'm sorry?

Q Why isn't there an one-to-one ratio?

A Okay. Well, once again I'll refer us back to the bridge tap example. We would have more distribution pair out there because we try and size

the distribution for the ultimate, and we use the industry standard cross boxes that are designed for one-third in and two-thirds out -- in fact, if you saw it physically, the feeder cable would come up through the center and the distribution punchdowns would fan out on either side of it. So it's for the purposes of flexibility of utilization.

Q So, in other words, it's due to BellSouth's use of the bridge tap design. Is that what you're saying?

A That's a primary driver, yes.

MS. KEATING: Thank you, Mr. Baeza. Madam Chairman, that's all Staff has.

COMMISSIONER CLARK: I have one question.

Would you look at Page 23 of your testimony. And on Lines 10 through 15 you talk about an average of ten remotes have been quoted by the ALECs. And I take it you're refuting that. But then you talk about nodes as opposed to remotes.

WITNESS BAEZA: Yes.

COMMISSIONER CLARK: Can you explain that more fully. Why is the ten remotes incorrect? Is that what your point is?

WITNESS BAEZA: I'm sorry. "Node" and "remote" in this case would be synonymous.

COMMISSIONER CLARK: So you're saying an average of three remotes is appropriate as opposed to ten remotes.

WITNESS BAEZA: Yeah. In this case, remote locations. It's a minor point, but you could have several DLC's at that one remote location.

COMMISSIONER CLARK: Let me just ask this question. Is your purpose for making that point to say the cost would be more or less under what the ALECs are suggesting?

WITNESS BAEZA: The ALECs are suggesting the cost should be lower because they are saying you can put ten remotes on a ring; whereas, we feel our design is appropriate with three.

COMMISSIONER CLARK: Okay.

CHAIRMAN JOHNSON: Redirect.

MS. WHITE: Yes. I just have a few questions.

REDIRECT EXAMINATION

BY MS. WHITE:

Q Mr. Baeza, in reponse to some questions from Commissioner Clark and Ms. Seeger you're talking about a 25-pair cable, do you recall that?

A I'm sorry. I was coughing.

Q A 25-pair cable, do you recall a discussion

about a 25-pair cable --

A Yes.

Q -- with Ms. Seeger and Commissioner Clark.

Is that the only size of cable that BellSouth uses for distribution?

A No. We would also use -- and I believe it's in testimony -- we'd use a 50-pair, 100-pair, 200-pair.

Q So is 25 the smallest BellSouth uses?

A 25 is the smallest increment.

Q For distribution?

A Yes.

Q Mr. Adelman asked you, and I think Ms. Seeger as well, asked you some questions concerning ADSL and HDSL loops?

A Yes.

Q Those are some of the elements that we're trying to find rates for this this proceeding. Do you agree with that?

A Yes.

Q Are these types of loops, ADSL and HDSL -- are they provided on copper or fiber facilities?

A They are provided on copper facilities.

Q Is integrated digital loop carrier used with copper facilities for copper loops?

A Yes, it could. I'm sorry. Let me make sure I understood your question.

Are you asking if the distribution pairs are copper or the feeder pairs are copper?

Q I'm saying if the loop is on copper facilities, can integrated digital loop carrier be used with those copper facilities?

A Yes.

MS. WHITE: I have nothing further. Thank you. May Mr. Baeza be excused?

COMMISSIONER DEASON: Yes. Exhibits.

(Witness Baeza excused.)

MS. WHITE: Exhibit 19, I'd like that to be moved into the record.

COMMISSIONER DEASON: Without objection, show Exhibit 19 admitted.

MS. KEATING: And Staff moves Exhibit 20.

COMMISSIONER DEASON: Without objection show Exhibit 20 is admitted.

(Exhibits 19 and 20 received in evidence.)

COMMISSIONER DEASON: You may call your next witness.

MS. WHITE: BellSouth calls David Garfield.

DAVID GARFIELD

was called as a witness on behalf of BellSouth Telecommunications, Inc. and, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. ROSS:

Q Could you state your full name and business address for the record?

A My name is David Garfield. My business address is 6 Corporate Place in Piscataway, New Jersey.

Q By whom are you employed, Mr. Garfield?

A I'm employed by Bell Communications Research.

Q Mr. Garfield, did you cause to be filed in this case prefiled direct testimony dated November 13, 1997, consisting of 23 pages?

A Yes, I did.

Q Do you have any corrections to that prefiled testimony?

A No, I don't.

Q If I were to ask you the same questions would your answers be the same today?

A Yes, they would.

MR. ROSS: Mr. Commissioner, we'd like to

have Mr. Garfield's November 13, 1997, direct testimony introduced into the record as if read from the stand.

COMMISSIONER DEASON: Without objection it shall be so inserted.

BELL COMMUNICATIONS RESEARCH, INC.

DIRECT TESTIMONY OF DAVID GARFIELD

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NOS. 960833-TP, 960846-TP, 960757-TP, AND 971140-TP, 960916-TP

NOVEMBER 13, 1997

Q. PLEASE STATE YOUR NAME, ADDRESS AND OCCUPATION.

A. My name is David Garfield. My business address is 3 Corporate Place, Piscataway, New Jersey. I am an engineer in the Business Consulting Services Business Unit of Bell Communications Research, Inc. (hereinafter referred to as "Bellcore"). My area of responsibility relates to the analysis of telecommunications switching equipment for the purposes of determining cost of service.

Although I am an employee of Bellcore, I am filing this testimony at the request of BellSouth Telecommunications.

Q. PLEASE GIVE A BRIEF DESCRIPTION OF YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. I attended the University of Delaware, graduating with a Bachelor's of Science Degree in Mathematics in 1976 and Rutgers University, graduating with a Master of Science Degree in Applied Mathematics in 1978. I have attended numerous Bellcore and switch vendor courses relating to switching system provisioning and engineering. I have also attended courses related to service cost studies and economic principles.

My initial employment was with Bell Laboratories in 1978 in Holmdel, New Jersey, in the Local Switching Systems Engineering Department. My initial responsibilities included area planning for remote switching and methodology development for switch replacement studies. I came to Bellcore upon divestiture in 1984, continuing work on switch replacement studies with digital switching systems until 1986, where I briefly worked on DMS-100F model development. Upon conclusion of this work effort, I became involved in CLASS (custom local area signaling services) requirements through 1989, when I transferred to the Business Decision Support organization to work on SCIS. My current responsibilities include model office development for the 5ESS and Fetex-150 switching systems and training.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide an overview of Bellcore's Switching Cost Information System (hereinafter referred to as "SCIS"). This overview will include a description of what SCIS does, who uses it and how it is developed..

Q. WHAT IS SCIS?

A. SCIS is a PC-based software application that determines the central office switching investment required to provide telephone subscribers with services and features. It is competitively neutral in that it apportions costs to all users of the switch on the same basis for BellSouth users and Competitive Local Exchange Companies (CLECs). SCIS has been continuously updated to meet the changing needs of its users for over 18 years.

Q. IS SCIS APPLICABLE ONLY FOR RETAIL BUSINESS PRICING?

A. No. The versatility and flexibility of SCIS is demonstrated by the fact that SCIS has been approved for use in applications other than retail business pricing. In particular, the use of SCIS has been accepted in two Unbundled Network Element proceedings within Bell Atlantic. The proceedings consist of docket number 96-234, order dated July 9, 1997 in the state of Delaware and docket number A-310203-F0002, order dated August 8, 1997 in the state of Pennsylvania.

In the state of Connecticut, SCIS has been accepted in an Unbundled Network Element proceeding, docket number 95-06-17, Part A (order dated December 20, 1995), Part B (order dated June 5, 1996), and Part C (order dated March 25, 1997). Modifications of Unbundled Network Element rates are pending in docket number 97-04-10.

Finally, on behalf of the FCC, Arthur Anderson made an extensive review of SCIS in 1992 in the context of ONA filings made by several RBOCs. Based on this review, SCIS was "found reasonable" by the FCC for use in determining switching costs. [1]

Q. HOW DOES SCIS DETERMINE SWITCHING INVESTMENT?

A. Engineering and pricing information obtained from switch manufacturers is combined with a network provider's configuration and demand characteristics to attribute the cost of deploying switching equipment to basic switching functions and features based on the application of generally accepted economic theory.

Q. WHO USES SCIS?

[1] In the Matter of Open Network Architecture Tariffs of BOCs, CC Docket 92-91. Order by the Commission, released December 15, 1993, at para. 79 - 83 (FCC 93-532).

A. SCIS is used by all of the Regional Bell Operating Companies except for U.S. West, many independent U.S. Local Exchange Carriers, and several telephone companies outside of the United States.

Q. WHY WAS SCIS DEVELOPED?

A. The provisioning of telecommunications services became increasingly complex in the early 1970's. The complexity arose from the proliferation of new technological developments which, in turn, permit the introduction of sophisticated new features and services. Developments in switching technology greatly contributed to this phenomenon. Concurrently, it became increasingly important to obtain a high degree of accuracy in the costing of these sophisticated capabilities for both business decision and tariff purposes.

Prior to the 1970's, switching was mostly mechanical in nature and was used, primarily, to set up POTS (Plain Old Telephone Service) telephone calls. However, the introduction of computerized electronic switching systems raised questions regarding the costing and pricing for the new vertical services these switches could provide. Indeed, since the new services shared the same switching resources within the switch that provided POTS, it became increasingly important for the telephone companies to have a process whereby they could address the shared equipment phenomenon while accurately identifying the individual cost of these new services. Accurate determination of service costs

was essential to the development of just and reasonable rates based on the principle of cost causation and for making informed business decisions.

In analyzing the intricacies of how such a problem could be solved, it became evident that the solution would be both time consuming and costly. Indeed, the new switches were among the most sophisticated computers ever built with a multiplicity of components that were shared by thousands of users and hundreds of services. Nonetheless, the cost analysis solution evolved as a mathematical model and is called the Switching Cost Information System ("SCIS").

The underlying mandate of the model was the need to determine the switching costs required to provide *specific* central office feature functionality. For that reason, the model had to be capable of assigning the investment in shared switching resources to various basic switching functions as well as individual features.

The model not only had to conform to the requirements of that period, but it had to evolve to meet the evolving, and diverse, needs of the user community. SCIS has successfully done so for over 18 years.

Q. WHAT ARE THE KEY PRINCIPLES THAT GOVERNED THE DEVELOPMENT AND EVOLUTION OF SCIS?

A. The first principle is that SCIS is objective. That is, a "bottom-up" approach is incorporated into the development of SCIS. This means that, in the development of the models, the individual components of a switch are examined in order to determine what switching functionality causes them to be provisioned. Total switch investment is built up by aggregating individual components based on the demand for the various basic switching functions.

A top-down approach -- where the total switch investment is considered first and an attempt is made to allocate investment to the various functions -- does not effectively address the shared equipment phenomenon and lacks the certainty of attribution of the basis of causation that is possible with the rigorous analysis needed to implement the bottom-up approach. The bottom-up methodology provides the necessary level of detail to distinguish the use of the switch resources by functionality. Such detail is considered a prerequisite if shared equipment is to be properly assigned to individual services. Thus, one of the underlying principles of SCIS is the development of a set of basic unit resource investments that describe switch provisioning so that the cost of *any* feature, service or switching element can be easily built up from this set.

The second principle is that the system be forward-looking. The model is based on the latest technology, along with up-to-date vendor pricing and engineering information.

The third principle is that the system has a long term perspective. This perspective has the desired effect of reducing cost fluctuations resulting from "lumpy" investments and the sequencing of customers and services. For example, the equipment used to connect an individual subscriber with the rest of a switch is typically provisioned in modules that serve many subscribers. The cost of such a module is not attributed entirely to the one customer who happens along just at the point when existing equipment is fully utilized (with subsequent customers having zero cost until the next module is needed). Instead, a pro-rata share of the module is attributable to each new subscriber. This means that services or customers do not artificially benefit, nor are artificially disadvantaged, from the nature of switching equipment and the order of appearance of customers and services.

The fourth principle is that cost results are based on usage and are competitively neutral. That is, the system expresses the cost of shared equipment as a function of the capacity consumed to perform service specific activities without regard to who is the user of switch capacity. From an objective standpoint, implementation of this principle achieves, among other things, cost causative results and fairness.

Q. PLEASE ELABORATE ON THE TREATMENT OF GETTING STARTED INVESTMENT IN SCIS.

A. SCIS determines a getting started investment for each switching system. This investment models the investment for processor related equipment and other equipment independent of switch size and traffic. The limiting resource of the processor complex is realtime (i. e., milliseconds). SCIS apportions the getting started investment based on realtime. Bellcore obtains precise realtime consumption data from the switch vendors for different types of calls and features and incorporates this information into SCIS. As a result, SCIS provides a mechanism to apportion the getting started investment to individual calls and features based on the realtime actually consumed by such calls and features.

This methodology is supported by the reality of constantly-evolving switch capacity. Switch vendors, such as Lucent and Nortel, have constantly evolved the processor complex of their respective digital switching systems in order to stay one step ahead of realtime demand. This evolution has enabled Lucent and Nortel to achieve advertised processor capacities and avoid processor exhaust situations or near exhaust scenarios that result in service degradation. In today's environment of sophisticated subscribers and services, it is improper and unrealistic to assume that even today's processors would not exhaust throughout their life if not upgraded or retrofitted in the future. Assignment of getting started investment to traffic sensitive switching elements properly accommodates such processor growth and evolution, in a manner that tracks its cause: usage.

Consider Nortel's DMS-100F switching system as an illustration of such switch processor evolution. If a new DMS-100 was purchased in the early 1980's, Nortel supplied their current state of the art processor called NT40. If a new DMS-100 is purchased today, Nortel supplies one of their current state of the art processors, SuperNode 60 or SuperNode 70. The original NT40 processor is no longer available for purchase and can not handle today's realtime demand from subscribers. The SuperNode 60 processor is approximately 6.6 times faster than the original NT40 processor. The SuperNode 70 processor is approximately 11 times faster than the original NT40 processor. Nortel is already developing their processor complex beyond SuperNode 70, providing further evidence that even today's processors are not expected to handle the realtime load throughout the life of the switching system.

As such, BellSouth, using SCIS, apportions the getting started investment on a basis that tracks cost causation, namely, realtime consumption of different call types (line-to-line, line-to-trunk, etc.) and features. There is a strong linkage between processor realtime as a cost recovery mechanism and the getting started investment. This linkage is suppported by the precise realtime consumption data obtained by Bellcore from the switch vendors for different types of calls and features. The getting started investment is apportioned to each call type and feature based on actual realtime consumption.

Q. WHAT SWITCHING SYSTEMS ARE MODELED IN SCIS?

A. BellSouth uses the SCIS models for Lucent Technologies' 5ESS and Northern Telecom's DMS-100F switches.

Note, however that there are a total of seven switching systems, referred to as technologies, currently modeled in the U.S. version of SCIS: Ericsson Network Systems' AXE-10; Lucent Technologies' 1AESS, 4ESS, and 5ESS; Northern Telecom's DMS-100F and DMS-10; and Siemens Stromberg-Carlson's EWSD. An additional three technologies - Alcaltel's System 12; Fujitsu's FETEX-150 and NEC's NEAX-61E -- are modeled, along with international versions of some of the above systems, for licensees outside of the U.S. The inclusion of these various switching systems in SCIS, using a consistent application of the key principles that comprise the SCIS approach to modeling, demonstrates both the flexibility and soundness of the methodologies employed. In addition, the analysis of these various technologies has provided Bellcore with a comprehensive knowledge of switching equipment and its provisioning.

Q. HOW IS SCIS IMPLEMENTED?

A. SCIS is implemented as two distinct, but interrelated, Windows™ applications; SCIS Model Office (SCIS/MO) and SCIS Intelligent Network (SCIS/IN).

SCIS/MO determines unit resource investment, and corresponding total investment, for the various basic switching functions. SCIS/IN utilizes the results from SCIS/MO, combining them with the feature - or service-specific demand for basic switching resources (determined by vendor specific switching requirements and customer usage characteristics) to calculate the investment required to provide a given feature or service.

Q. PLEASE ELABORATE ON SCIS/MO.

A. SCIS/MO analyzes all switching components for purposes of identifying equipment costs associated with the fundamental switching functions and resources. The investment needed to provide a basic switching function is calculated so that the investment behind any feature or service can be determined by the appropriate aggregation of these SCIS/MO results. Examples of SCIS/MO results, referred to as "basic unit resource investments" are the investment of a central processor millisecond; the non-usage sensitive investment per line termination; the investment per originating + terminating (O+T) CCS; the investment per outgoing + incoming (O+I) CCS; and the investment per a call set-up function (e.g. a terminating call function that reflects the hardware -- provisioned as a function of terminating calls -- needed to provide ringing). The basic unit resource investments that apply to each switching system depend on the switching system architecture and vendor specified engineering rules.

The SCIS/MO analysis may involve a single office, or multiple offices. If multiple offices are considered in a user's study, the model analyzes each office individually and provides a weighted average output for each basic unit resource investment by switching system. For all offices included in a study that serve as hosts for remote switching entities, investments of the associated remotes are also determined and weighted in with those of the host.

This weighting process is the basis for the Model Office. In other words, the results of a given SCIS/MO study reflect a "model" office that is representative of entities considered. This approach produces a cost of a particular investment driver (ultimately, a portion of a feature, service or network element) which is the same regardless of the specific switch entity serving the customer, or the particular technology used to provide the switching functionality (e.g. analog vs. integrated digital loop carrier line termination).

Q. PLEASE ELABORATE ON SCIS/IN.

A. As mentioned earlier, SCIS/IN aggregates basic unit resource investments quantified by SCIS/MO based on customer usage characteristics and the vendor specified resources required (e.g., processor real time, CCS, signaling packets) to implement a specific feature in the switch. The output of each feature costing algorithm may be expressed on a per call basis, per line, per customer, per

group, or other basis, depending on the structures of the tariffs, nature of the feature or service, or purposes of the study. Each feature cost output exhibit includes results categorized by basic unit resource investment. SCIS/IN provides investments for individual features by switch technology. Optionally, these results can be combined together to produce a weighted average result across all considered switching systems.

Q. HOW IS SCIS/MO DEVELOPED?

A. The output reports generated by SCIS contain a complex body of analytical work. The primary effort in that work is the establishment of the switching system-specific model used in SCIS/MO. The SCIS/MO model developer creates and maintains this model based on the principles described earlier and a standard methodology that is not dependent on the switch technology. Here is a step-by-step description of the SCIS/MO model development process:

STEP 1. Detailed methods-of-operation, engineering rules and other technical documents, along with component list prices, are obtained from the switch vendor. This information is studied to determine the overall switch architecture and the functional characteristics of each of the major sub-systems. At the model developer's discretion, sample offices are run through the vendor's pricing and provisioning tool to clarify engineering rules and gain further general knowledge.

STEP 2. An understanding of the switch architecture and the functionality of the major sub-systems enables the model developer to establish various basic unit resource investments that express the switch equipment costs by function. The cost drivers for these categories are also identified. For example, consider the capability to terminate a line. This functionality is represented by the Line Termination Investment category, into which all equipment used to terminate a line is grouped. The cost drivers of this category include the quantity of lines in the office and the Busy Hour CCS per line. Another example is the Getting Started Investment. This category includes the central processor along with other equipment, that, while not associated with any particular basic switching function, has central processor real time as an investment driver, since (the exhaust of) the real time resource drives the purchase of a new switch.

STEP 3. Algorithms and formulas are generated that will be translated into the software code that combines various modeling elements -- investment category values, equipment capacities and demand parameters -- based on the office configuration inputs.

STEP 4. Switch components are analyzed to determine functionality and are "assigned" to the appropriate investment categories. This assignment may be made in multiple or fractional quantities based on the engineering rules. This

bottom-up analysis is referred to as the "partitioning process." The results of the partitioning process are the Investment Table entries.

STEP 5. Sample central offices representing a wide range of traffic volumes and line and trunk quantities are selected for purposes of verification of the resulting model. Each office in this verification set is run through the vendor's pricing and provisioning tool. The total investment reported by the vendor tool is compared against the Total Investment result generated by SCIS/MO. If the difference between the vendor's total and the SCIS total is less than or equal to 2%, over the entire set, then the model is released. If the comparison diverges greater than 2%, analysis is done to determine where the greatest material differences are so that appropriate refinements can be made.

Q. WHAT IS THE VALUE OF THE SCIS/MO VERIFICATION PROCESS?

A. The SCIS/MO verification process demonstrates that SCIS/MO correctly models switch engineering rules. Total switch investment is dependent upon quantities of switch equipment which, in turn, are determined by switch engineering rules. The real value of the verification process is its demonstration that SCIS/MO accurately models the switch engineering rules that determine switch component quantities and resulting total investment.

Q. HOW IS SCIS/IN DEVELOPED?

A. The steps required to develop feature costing algorithms are outlined below. Note that the model developer need not perform the following steps in the exact sequence depicted. However, each step must be performed.

STEP 1. The model developer is informed of new features/services from the vendor and/or users request that an existing feature or service not previously considered by SCIS/IN be modeled.

STEP 2. The operation of the feature is researched from both the subscriber's viewpoint and the switch resource perspective.

STEP 3. The types of switch resources being utilized by the feature are identified, including any special hardware required only for vertical services, and the feature activities that consume switch resources are determined (e.g. activation, holding time, etc.). Equations are developed that replicate the use of any special hardware in terms of their respective investment driver (e.g. CCS for a 3-port conference circuit).

STEP 4. Feature specific switch resources measurements for processor(s) real time (milliseconds), CCS, packet utilization and other basic switching

functionality are obtained from the vendor. A determination is also made as to whether or not the switch measures feature usage (e.g. number of activations).

STEP 5. Possible tariff structures are identified. In order to determine the costs of the feature, it is necessary to identify if any part of the feature is already recovered by existing tariff structures (e.g., the forwarded leg of a call is addressed by the normal POTS tariffs on the forwarding station). These tariffs could be local, toll or long-distance. In the above example of call forwarding, if a station forwards its calls from Washington to California, the access and long-distance tariffs would charge for that forwarded leg of the call.

STEP 6. Create the actual feature costing algorithms using SCIS/MO basic unit resource investments, user-entered inputs and vendor supplied switch resource measurements (and, if applicable, feature-only hardware). Additional algorithms may be needed to generate the feature investment output in the same format as the possible tariff structures (e.g., Multiline Hunt Groups may be tariffed per line or per group).

STEP 7. For intelligent network services, it is necessary to identify the SS7 signaling resources utilized. Once identified, separate algorithms are constructed to define these investments using methodology similar to the above.

Q. HOW DOES THE SCIS/MO VERIFICATION PROCESS SUPPORT THE VALIDITY OF SCIS/IN?

A. There are three components to total switch investment related to features.

1. Basic switching components,
2. Feature related hardware, and
3. Right-to-use (RTU) fees.

The SCIS/MO verification process supports the validity of SCIS/IN regarding basic switching components and feature related hardware.

Some features require a path through the switch to access an announcement system or some other special hardware. The engineering rules related to such a path are identical to those modeled in SCIS/MO. That is, engineering rules related to a switching system path are the same for POTS traffic and feature traffic. Both types of traffic require a path through specific switch components (such as a line interface) and quantities for such components are determined by a single set of engineering rules. Therefore, SCIS/MO basic unit resource investments, such as investment per line CCS, are used to model such investment in the feature algorithms of SCIS/IN. The SCIS/MO verification process demonstrates the accuracy of how these engineering rules are modeled.

The resulting basic unit resource investments determined by SCIS/MO are valid for both POTS demand in SCIS/MO and feature demand in SCIS/IN.

Capacity cost techniques similar to those used in SCIS/MO are used to model feature related hardware, such as special announcements or conference circuits, in SCIS/IN. The SCIS/MO verification process demonstrates the validity of these modeling techniques in SCIS/MO. As such, these proven techniques are used in SCIS/IN as well.

RTU fees for features are beyond the scope of SCIS/MO and SCIS/IN and are modeled outside of both applications.

Q. WHAT TYPE OF INFORMATION IS NEEDED FROM THE SWITCH MANUFACTURERS TO DEVELOP SCIS?

A. In order for Bellcore to perform the analyses needed to develop SCIS, certain technical information must be obtained from the vendor of each switching system modeled. This information includes:

- long range product development plans and delivery schedules;
- detailed technical descriptions of the switch architecture;
- current hardware engineering rules and engineered capacities;

- current unit level prices of individual switching components;
- universal discounting schemes;
- automated engineering and pricing tools, for purposes of model verification;
- detailed service descriptions, including how the switch implements the service;
- basic switching resource consumption on a per feature or function basis, as needed; and
- documentation that describes where feature traffic measurements may be obtained (e.g. usage, activations, or deactivations, etc.).

Some of this information -- in addition to being needed for analysis purposes -- is stored directly in the SCIS databases (e.g., real times, memory, signaling packets for ISDN services, equipment capacities, etc.) for use by the model algorithms.

Q. WHAT INFORMATION MUST THE USER PROVIDE?

A. User inputs can be organized into three categories as follows:

The first category contains system-level or "Setup" parameters. System-level parameters include both system configuration settings (e.g. default report formats) and values to be used across all offices or features (e.g. discounts). Note that SCIS/MO and SCIS/IN have separate system-level input sets.

The second category includes the office parameters. These inputs provide hardware configuration information and subscriber demand characteristics on a switch-by-switch basis (hosts, standalones and remotes). Examples of office parameters are line and trunk quantities, line concentration ratios (if known), traffic demand and processor utilization data (hosts only). Office-level inputs are entered into SCIS/MO.

The third category of input is associated with feature and service costing. Each vertical service requires incorporation of a unique data set that is relevant to the feature. Typical SCIS/IN inputs include Busy Hour attempts and holding times. Separate algorithms for each feature combine these inputs with SCIS/MO calculated resource costs to develop feature specific costs.

Q. WHY IS SCIS CONSIDERED PROPRIETARY?

A. SCIS is a trade secret of Bellcore and constitutes valuable intellectual property. It is marketed worldwide and provides commercial value to Bellcore. Public disclosure of such information could adversely impact SCIS's position in the competitive marketplace. SCIS contains the confidential information of various switch vendors, provided to Bellcore pursuant to nondisclosure agreements which preclude Bellcore (and its clients) from disclosing the information to any party absent written consent of the switch vendor. Public disclosure of the switch

vendor's competitively sensitive information could adversely impact their position in the switch manufacturing marketplace.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

BY MR. ROSS:

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

A Yes, I do.

Q Can you give it at this time, please?

A Good morning, Commissioners.

In developing its switching costs, BellSouth has used Bellcore switching cost information system, also known as SCIS or "SCIS."

My testimony provides on overview of SCIS. This includes a description of what SCIS does, who uses it and how it is developed.

The switching system is a network element shared by thousands, or possibly ten of thousands of subscribers, and hundreds of features. SCIS solves the complex problem of assigning costs of the shared network element across all subscribers and features. SCIS has been used by most regional Bell operating companies and other telecommunications companies for over 18 years to solve this problem.

My testimony demonstrates that SCIS is the most appropriate tool for computing switching costs in BellSouth's unbundled network element study. I believe this to be the case due to four key principles that govern the development and evolution of SCIS.

These principles are one, SCIS's objective; two, SCIS is forward looking; three, SCIS takes a long-term perspective, and four, SCIS results are based on usage and are competitively neutral. Let me further explain these principles.

SCIS is objective because it is developed using a bottom-up approach. Bellcore obtains detailed engineering information and switch component prices from switch vendors, and incorporates this information into the model development process. The outcome is objective and physically significant results. We can say with certainty where each component of switch is is modeled in SCIS output and in what quantities.

SCIS is forward-looking. Forward-looking costs are based on the latest and greatest generation of switching equipment available for purchase today. Historical costs, which are not used in SCIS, are typically more expensive than forward-looking costs due to technological improvements that occur over time.

As a result, SCIS models what it would cost today to purchase a switching system based on the most cost-efficient switching technology available. SCIS takes a long-term perspective.

Line and trunk interfaces of a digital

switch are purchased in modules with relatively small capacities. Once a model is purchased, it's filled up before the next one is purchased.

This results in what it called lumpy investment. SCIS smooths out the lumps by attributing a pro rata share of the module to each user. SCIS results are based on usuage and are competitively neutral. The cost of shared equipment is based on capacity, allowing both BellSouth users and competitive local exchange companies to pay for their fair share of using such shared equipment.

Based on these key principles, SCIS is objective, SCIS is forward-looking, SCIS takes a long-term perspective, and SCIS results are based on usage; I believe SCIS is the most appropriate tool for computing switching costs in BellSouth's unbundled network element study. Thank you.

MR. ROSS: Madam Chairman, the witness is available for cross.

MR. SELF: I've no questions.

MR. LAMOUREUX: Good morning, Commissioners. I'm Jim Lamoureux, again for AT&T.

CROSS EXAMINATION

BY MR. LAMOUREUX:

Q Good morning, Mr. Garfield. I'm Jim Lamoureux. I think this is one hearing where we haven't met before and I represent AT&T.

A Good morning.

Q SCIS is a proprietary model; is that correct?

A That's correct.

Q So SCIS is not readily available to the public for public scrutiny, is it?

A That's correct. However, SCIS has been made available to all interested parties who are willing to sign to the appropriate nondisclosure agreement and that has been done.

Q And the only way someone could get access to SCIS other than a Bell operating company who purchases SCIS is through a proceeding and by signing a proprietary agreement in such a proceeding?

A To my knowledge that's true.

Q At your direct testimony on Page 3 you say that SCIS determines the central office switching investment required to provide telephone subscribers with services and features; is that correct?

A Could you tell me what lines you're on?

Q Page 3 of your testimony, Lines 7 through 9.

A That's correct.

Q Okay. And is that consistent with my understanding that SCIS was developed in order to cost retail services, not the provision of unbundled network elements?

A SCIS was developed to develop -- SCIS was developed to determine costs and it doesn't matter who the user of the costs are, whether they are for -- whether they are there to develop retail business services or unbundled network elements, it's independent. Costs are costs.

Q When was SCIS developed?

A Could you repeat the question?

Q When was SCIS developed?

A It was before my time. It was originally developed as actually a main frame tool back in the '70s and evolved to a PC-based tool some time in the '80s.

Q It was developed long before the concept of an unbundled network element was developed. Would you agree with that?

A I would agree with that.

Q And its original purpose and development was to support costs associated with tariff filings for

services in those tariff filings; is that correct?

A That was the application in mind. But again, the primary purpose is to develop costs and they can be used for many purposes.

Q Okay. Bellcore updates the SCIS model several times each year to reflect switch manufacturers' hardware and software upgrades; is that correct?

A That's correct.

Q And is that consistent with your testimony at Page 7, that the model is based on the latest technology along with up-to-date vendor pricing and engineering information?

A That's correct.

Q Okay. And the version of SCIS that is used can make a significant difference in SCIS outputs, and, therefore, upon rates; isn't that correct?

A Sometimes that can happen, sometimes it can't. Sometimes there's very little change from one release to another for one switching system but there is for another. I don't recall the details for every single release.

In the case of BellSouth, the only impact I would see is possibly changing the value of the discounts to reflect a different price level of the

most recent version versus the one that was run -- that was used in a prior release.

Q You cite the FCC order on open network architecture that was released December 15, 1993, in support of the SCIS model; isn't that correct?

A That's correct.

Q Isn't it true that in that order the FCC said that outdated SCIS versions and traffic data can significantly affect SCIS investment studies?

A I'm unfamiliar with that part of it in the order.

MR. LAMOUREUX: May I approach the witness?

(Hands document to witness.)

Q **(By Mr. Lamoureux)** Mr. Garfield, I've handed you my copy of that Order. I think it's Page 448 and I'd ask you again if it's true that the FCC found that outdated versions of SCIS can significantly impact the outputs from SCIS.

A That's what it says here.

I would like to point out that BellSouth ran their studies at the time they did their studies with the most recent version of SCIS that was available at the time.

Q Okay. And if you'll flip over to the next page of that order for me, would you agree with me

that the FCC also found that it's important to use the most current version of SCIS available? I'll give you a second to look at that page if you need it. (Pause)

A That's what they say in there. Again, BellSouth ran the most recent version of SCIS available at the time they did their study. How the study update process works relevant to these proceedings, I don't know.

Q What's the current version of SCIS?

A We just released version 2.5.

Q What's the version of SCIS that BellSouth used for this cost study in Florida?

A They ran version 2.3.

Q SCIS can be run in either two modes as I understand it: a marginal cost mode and an average cost mode; is that correct?

A That's correct.

Q And the choice of average or marginal cost modes has a substantial effect on the unit investment developed by SCIS; is that correct?

A It may or may not. SCIS produces a number of output results, such as investment per milliseconds, minimum investment per line, investment per minute of use. Average and marginal results are the same for some of those cost categories and they

are different for others.

Q Could you turn to Page 451 of that FCC Order that I gave you there, Mr. Garfield? I'll give you as much time as you need to look it over, but would you agree with me that the FCC found that the choice of average or marginal cost modes has a substantial effect on the unit investment developed by SCIS?

(Pause)

A I would need to take some significant time to really read the background information leading up to that. I don't know if they are talking about specific features coming out of IN, or specific results coming out of model office, the other portion of SCIS. But depending on the features and depending on the MO results, average and marginal results can be significantly different or they can be either identical or very close. And we really need to limit the scope of the question to either specific SCIS/MO results or specific features to draw any more conclusions.

Q Now, you cited the FCC Order in your testimony?

A Yes.

Q Have you read the FCC Order?

A Not for a long time.

Q Okay. Have you read the background that went behind the FCC order?

A Repeat the question?

Q Have you read the background information that went into developing the FCC order? For example, there's an Arthur Andersen report that's referenced in the FCC order.

A I've read the Arthur Andersen report at least five years ago. I haven't read it recently.

Q Now, would you agree with me that on Page 451 of that FCC Order the FCC said that the choice of average or marginal call modes has a substantial effect on the unit investment developed by SCIS?

A I would agree it can have, but it has to be -- you have to be talking about that with respect to a certain feature or a certain output result that comes out of the MO portion. I don't see how that statement can be made uniformly across all features and across all output categories that come out of the model office portion of SCIS.

Q All I asked you was did the FCC conclude that?

A It looks like they did.

Q All right. And, in fact, isn't it true that the average cost mode, in some circumstances, can

produce costs that are five to six times higher than the cost generated by the marginal cost mode?

A That can happen for features whose algorithms are solely dependent on the investment per millisecond primitive coming out of the model office portion of SCIS. There are lots of other features that depend on that primitive as well as others, and would not have that type of difference.

Q Which of those features can be five or six times higher if you run them in the average cost mode rather than the marginal cost mode?

A That I don't have off the top of my head. I need to look at features and look at the specific algorithms. I don't know.

Q And you're aware that BellSouth ran SCIS in the average cost mode for this cost proceeding; is that correct?

A That's correct.

Q Would you agree with me generally that the investments that SCIS produces, or costs that SCIS produces, are dependent on the inputs entered into the program?

A That's correct.

Q When BellSouth, or any other local exchange company, purchases a switch, they commonly receive a

discount off the published price for the switch; is that correct?

A That's correct.

Q Okay. And that discount is one of the inputs that's entered into the SCIS model in order to run the model?

A That's correct. Discounts are one of many inputs entered into the model.

Q Would you agree with me that that's a fairly important input to put into the model?

A It can be. It's one of many inputs. It does have a substantial impact.

Q And it has a substantial impact in that that input affects very many of the outputs that are generated by the model; isn't that correct?

A That's correct.

Q Now, where the inputs in the form of the discounts are too low, the switching costs calculated by SCIS will be too high; is that correct?

A That's correct. And the converse is true, if the discounts are too high, the switching costs that would come out of model would also be too low.

Q Would you agree with me that it's important to make sure that the actual switching discounts that an ILEC is receiving in practice are used in the model

in order to get accurate results out of the model.

A That's correct. And I'm not in a position to certify or attest to how BellSouth developed their discounts. We, as model developers, provide mechanisms to model discounts but the user, in this case being BellSouth, would need to justify how they came up with the value that they entered.

Q Are you familiar with any of the inputs BellSouth used in running the SCIS model for this proceeding?

A I'm not familiar with the values they use, no, other than very high level things like average versus marginal.

Q So you really can't say whether BellSouth correctly ran the SCIS model in generating costs for this proceeding, can you?

A As far as entering appropriate values for the inputs, that is correct.

Q Now, I want to be careful. I'm not asking what BellSouth switch discounts are in their contracts. I'm not trying to elicit that information. I understand that's very proprietary. But if you were to look at a BellSouth contract and see a particular discount, and that discount was not the discount that was used in running the SCIS, would you agree with me

that the person running the SCIS had not run it correctly?

A Not on the surface I really couldn't agree or disagree.

Contracts have lots -- it's my understanding that contracts have -- or discounts are stated in lots of different ways in the contracts. And only in a very, very simplistic way would you see, say, a discount of 20% across the board, you would expect to see that number in the system.

Lots of times companies get discounts for subsets of equipment such as one discount for ISDN equipment versus another one for non-ISDN related equipment. Sometimes it goes beyond that. So the discounting arrangements are that the ILECs receive -- are usually much more sophisticated than that. So I wouldn't expect to just look at a number on a contract and expect to see it entered into SCIS directly. There has to be some type of analysis going on behind the scenes to develop the ultimate value that's entered into SCIS.

Q You did agree with me earlier that it is important to make sure that the actual discounts that a local exchange company is getting in practice are the discounts that are used in running SCIS?

A That's correct. But part of that process involves taking the information that's in the contract and developing the appropriate number that goes into the system. There's more to it than just matching a number in the contract to what is in the system.

Q Is what you're saying that the form of the number you need to enter into SCIS may not match precisely the form of the discount as it appears on the contract?

A Yes.

Q Would you agree with me that it's important that you look to the contract as source of the actual discount that the LEC is getting and put that same discount in whatever form it needs to be put into SCIS to run the model?

A Yes, I would, assuming it's the appropriate, correct contract that applies to the area under study.

Q Okay. Now, you're familiar with the phrase verticle features, I assume?

A A little bit.

Q Just so we're clear, a vertical feature is something like call waiting or caller ID or something like that that you can order along with your basic local telephone service? Is that generally correct?

A That's correct.

Q One of the things SCIS does is it costs out the cost of vertical features; is that right?

A That's correct, that's one of the things it does.

Q Okay. And would you agree with me that the main or primary driver of the cost for vertical features is the capacity of the switch that a vertical feature takes up?

A That's correct. The switching -- the resources of the switch that are consumed by vertical features.

Q And we're talking about resources, we're talking about computer capacity basically, aren't we?

A That's one of them. They may also -- some features need connections to announcements, so there's a talking path through the switch related to that feature to access the announcement. Those are the main ones that come to mind right now.

Q Would you agree with me that the primary driver of feature costs is processing time in the switch?

A That's one of them. But there are many featuress, a number of features that require other resources beyond that, such as special hardware for announcements. So in addition to the talking path to

access the announcement, you have to the announcement circuits as well.

Q Well, wouldn't the fact that processing time be the primary driver of cost for features, be consistent if BellSouth had said that there isn't any significant amount of investment associated with features?

A Could you repeat the question?

Q Sure. I'm not sure it was very -- well articulated. Try it again.

If BellSouth had said there isn't any significant investment associated with features, wouldn't that be consistent with the idea that the primary cost driver of features is processing time?

A I'm not sure, because different features consume different amounts of processing resources on a switch. And although the investment for the special hardware for a feature might be minor in totality, it still might be the major cost driver of that particular feature, it may have more investment assigned to it from there than it would from the processor resource.

Q When BellSouth, or any local exchange company buys a switch, typically included when it buys that switch is the equipment and capacity to be able

to provide vertical features; isn't that correct?

A That's correct.

Q Now, along with the FCC's overall conclusion about SCIS, which you reference on Page 4 of your testimony, one of the conclusions reached by the FCC in its order is that historical costs associated with plant already in place are essentially irrelevant to the decision to enter a market since those costs are sunk and unavoidable and are unaffected by a new product decision. I'm looking at Page 455. I'm not trying to tax your memory on that.

Let me go ahead and repeat my question.

Would you agree with me along with the FCC's overall conclusion about SCIS, one of the conclusions reached by the FCC in its order is that historical costs associated with plant already in place are essentially irrelevant to the decision to enter a market since those costs are sunk and unavoidable and are unaffected by a new product decision?

A That's what it says here.

Q Okay. And because of that, then the FCC determined that prospective costs are the economically relevant costs to use in supporting rates in that decision.

A Prospective meaning forward-looking costs?

Q Yes.

A Is that on the next page?

Q I believe it's on 456, but it may also be on 455 as well.

A I see that.

Q So the FCC did conclude that prospective costs are the appropriate costs to use in setting rates in the open network architecture proceeding that was before it?

A Yeah. That's what it says here.

Q So would you agree with me that in that order, with respect to open network architecture at least, the FCC essentially said it's inappropriate to use historical costs in setting rates?

A That's what it says in there. I agree.

Q Okay.

MR. LAMOUREUX: I have no further questions.

CROSS EXAMINATION

BY MR. MELSON:

Q Mr. Garfield, I'm Rick Melson representing MCI. I've got just a couple of questions for you, and they relate to the use of SCIS to determine the cost of vertical features.

Did I understand from your answers to Mr. Lamoureux that part of the cost of the feature is

driven by the utilization that that feature makes of switch resources?

A That's correct. That's one of the drivers.

Q And that includes processor time, is one of the switch resources that is utilized; is that correct?

A That's correct.

Q So when you price a feature, do you have to provide the SCIS model with some input about how many times that particular feature is used on average by a customer, say, during a month?

A Inputs for the features require data, such as busy hour attempts and holding times during the busy hour for those features, and that's how -- that's part of how the switch resource consumption is modeled. However, this is leading up to costs for features, not prices.

Q All right. Again, looking at costs for features, when you say busy hour attempts, what specifically do you mean by that?

A Well, let's take an example like three-way calling. One input for that would be something like how many three-way calling attempts occur in the busy hour? And that's what drives the engineering of any special hardware that feature would need such as --

three-way calling doesn't use -- yeah, such as a conference circuit. And it would also -- that type of data would ultimately lead to the -- contribute to the total load on a processor. Everything is measured or engineered to satisfy demand during a busy hour.

Q And so when you're attempting to develop an input for busy hour attempts, in developing the input, do you have to make some assumption about the number of units of in this case three-way calling that you are actually selling to end users?

A I don't really have expertise in the area of developing the values for the inputs. That's something that BellSouth does when they develop those values. Again, we, as the developers of the model, we need to know this information in order to properly model anything that's relevant to that feature.

Q Let me ask this: When SCIS does develop a cost for a feature, there is some assumption, is there not, in the input value that that feature is actually used -- that feature is actually activated and in use?

A Could you just repeat the question?

Q I will try to. SCIS is designed to develop costs for features that are used and that make demands on processor time; is that correct?

A Well, just features that make demands on

processor time as well as other features -- I don't know. There might be features that don't have demands on processor time. I don't know. I don't know what the universal features are. It's driven by what the vendor offers and what the local exchange companies buy from the vendors themselves. That's what drives us to develop of the features in SCIS.

Q Let me try it a slightly different way. I think I'm not trying to make a very complicated point, so let me try again. I may be overcomplicating it.

If a switch is capable of providing 20 different features, and if one of those features had no units of sale, the LEC was never called on to activate that feature, SCIS I assume, if input values were properly input would show that feature has got no cost. Is that a fair statement?

A If a local exchange company wasn't selling a feature, I can only see them running that feature in case they are changing their minds and they want to decide to sell it, they need to develop a cost for it.

Q And in developing that cost, their input value ought to reflect the total quantity of busy hour attempts that feature will generate?

A That's correct. And how that -- again, how that process works would be better answered by someone

within BellSouth when they -- in terms of collecting the data they need, to populate the inputs for such features.

Q And in this docket you have not reviewed the inputs that BellSouth used in doing its cost development for UNEs?

A That's correct.

MR. MELSON: That's all I have.

MS. KEATING: Staff has no questions.

CHAIRMAN JOHNSON: Redirect.

MR. ROSS: Just two questions, Madam Chairman.

REDIRECT EXAMINATION

BY MR. ROSS:

Q Mr. Garfield, you were asked by Mr. Lamoureux about the average versus marginal mode of SCIS, do you recall that?

A Yes.

Q Could you explain briefly the difference between the average and the marginal mode?

A Okay. In the average mode the algorithms are designed to ensure total cost recovery by taking total investment and portioning it over demand. In the marginal mode, SCIS is looking at developing the cost for the next unit of demand, such as the next

millisecond of real-time or the next line terminated on the switch and so forth.

Q Mr. Garfield, you were also asked by Mr. Lamoureux about the use of historical versus forward-looking cost. Do you recall that?

A Yes, I do.

Q Does SCIS involve the use of historical or does it involve the use of forward-looking switching cost?

A As I mention in my summary, SCIS is based on forward-looking costs.

MR. ROSS: No further questions, Chairman Johnson.

CHAIRMAN JOHNSON: There were no exhibits?

MR. ROSS: No exhibits.

CHAIRMAN JOHNSON: Okay. You are excused, sir.

We're going to take a break until 1:00 for lunch.

(Witness Garfiled excused and a lunch recess was taken.)

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(Transcript continues in sequence in Volume 6.)

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