

ORIGINAL

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

REBUTTAL TESTIMONY OF

CATHERINE E. PETZINGER

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

REDACTED VERSION

Docket Nos. 960833-TP/960846-TP/960916-TP/960757-TP/971140-TP

Filed: December 9, 1997

DOCUMENT NUMBER-DATE
12604 DEC-95
FPSC-RECORDS/REPORTING

ORIGINAL

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

REBUTTAL TESTIMONY OF
CATHERINE E. PETZINGER
ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.
DOCKET NOs: 960833-TP/960846-TP/971140-TP/960757-TP/960916-TP

1.0 INTRODUCTION

Q. PLEASE STATE YOUR NAME, PRESENT POSITION AND BUSINESS ADDRESS

A. My name is Catherine E. Petzinger. I am a District Manager with AT&T Corp. in Regulatory and Legislative Affairs, 295 North Maple Avenue, Basking Ridge, New Jersey.

Q. PLEASE DESCRIBE YOUR WORK EXPERIENCE AND EDUCATIONAL BACKGROUND

A. I have an MBA from Rutgers University, New Jersey, and have thirteen years of experience in the telecommunication industry building, and subsequently leading, a group that developed switching cost models, including the Switching Costs Information System ("SCIS"). My experience includes extensive consultation on the use of cost models in various cost studies in the United States and abroad.

At Bellcore for 13 years, I was one of three individuals who designed the SCIS/IN¹ model and implemented new incremental costing methodology into the program. I also was the lead subject matter expert on feature costing in general as well as a subject matter expert on 1ESS, 1A ESS and 5ESS switches. When I was

1 DOCUMENT NUMBER-DATE
12604 DEC-95
FPSC-RECORDS/REPORTING

1 promoted to lead the SCIS group of approximately 20 people, I had responsibility
2 for the technical development, production, documentation, customer care and cost
3 study consultation or the SCIS family of models. I also had responsibility for
4 marketing the Bellcore cost models in Europe and Asia/Pacific.

5
6 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGARD TO LEC COST**
7 **MODELS IN GENERAL, AND THE SWITCHING COST INFORMATION**
8 **(SCIS) IN PARTICULAR?**

9 **A.** Yes, I have presented expert testimony in numerous State proceedings dealing
10 with local switching unbundled element cost studies.

11
12 **2.0 PURPOSE AND SUMMARY OF TESTIMONY**

13 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

14 **A.** The purpose of my testimony is to report my findings regarding BellSouth's
15 switching investment studies² and recommend new switching investments that
16 serve as the foundation for the 4-wire port switching unbundled element rate
17 sponsored by Mr. Ellison.

18
19 **Q. PLEASE SUMMARIZE THE MAIN POINTS OF YOUR TESTIMONY**

20 **A.** BellSouth's costs for a 4-wire port is flawed in the following major respects:

- 21 1. BellSouth began its entire switching cost process with incorrect switching
22 prices. BellSouth entered the wrong discount to customize the SCIS/MO³
23 switching vendor list prices to reflect the "actual prices" paid by
24 BellSouth. This incorrect discount causes all of BellSouth's switching
25 elements to be significantly overstated. In addition to comparing

1 BellSouth/vendor contracts to the switch prices used by BellSouth in this
2 study, I present publicly available information regarding switching prices
3 paid by Southwestern Bell, Pacific Bell, and U.S. West that provide
4 comparative price points. This publicly available information
5 demonstrates that BellSouth's SCIS switch price estimates are
6 substantially inflated.

7 2. The costs that BellSouth has identified for the limited numbers of features
8 that were included are overstated because of double counting, input errors,
9 and inappropriate costing methodology.

10
11 When BellSouth's switching cost study for the 4-wire port is corrected, using
12 BellSouth's own cost models, to reflect switch prices in BellSouth's vendor
13 contracts and remove double counting of feature investments, the resulting 4-wire
14 port investment *with* features is *less* than BellSouth's port *without* features.

15
16 **3.0 BELLSOUTH'S SWITCHING COST STUDY OVERVIEW**

17 **Q. WHAT ARE THE SCIS MODELS?**

18 **A.** The SCIS programs were originally developed by Bellcore to identify the
19 investments associated with features and services provided from central office
20 switching machines. The SCIS/MO program determines the investments for
21 various functions that a switch performs and the SCIS/TN model calculates the
22 investments for vertical features.

23
24
25

1 **Q. HOW DID BELLSOUTH USE THE SCIS MODELS?**

2 **A.** BellSouth used the SCIS/MO program from Bellcore to calculate investments for
3 the 4-wire analog port. Specifically, they used a subset of the output called
4 Minimum Investment per Line. The Minimum Investment per Line is a melded
5 average of standard analog lines and lines served on integrated digital loop carrier.
6 BellSouth used a special report in SCIS to identify only those costs associated
7 with an analog line.

8
9 The SCIS/IN model utilizes the Unit Investment results from the SCIS/MO
10 program to develop the investment for services and features. BellSouth
11 apparently did not actually use the SCIS/IN program, but copied SCIS/IN
12 algorithms and program data inputs into multiple SCIS/IN-like spreadsheets to
13 calculate investments for the features. Thus, whatever reported integrity between
14 SCIS/MO and SCIS/IN is supposed to exist cannot be assured in the BellSouth
15 study.

16
17 Switching investments were then processed in BellSouth's TELRIC models to
18 include additional loadings, such as land and building; convert the investment to
19 an annual cash flow; and add expenses to generate the costs of switching
20 unbundled elements.

21

22 **4.0 BELLSOUTH'S ACTUAL SWITCH PRICES ARE LOWER THAN THE**
23 **PRICES USED IN THE COST STUDY**

24 **Q. DOES THE SCIS/MO CALCULATE THE ACTUAL PRICES PAID BY**
25 **BELLSOUTH FOR SWITCHES?**

1 A. No. The SCIS/MO model contains vendor list prices and requires the user to
2 enter a discount to customize the switching investments to reflect the "actual
3 prices" paid by the local telephone company, according to locally negotiated
4 contracts and/or agreements.

5

6 The discount factors utilized for each switch type are of critical importance in the
7 evaluation of any SCIS study since these discounts affect every SCIS output (*i.e.*,
8 a discount factor of 50% generates SCIS outputs that are half the values produced
9 using the list price). Therefore, if the discount factors do not reflect the actual
10 price in BellSouth's negotiated agreements with switching vendors, the results
11 produced by SCIS will misstate all of BellSouth's switching investments,
12 including those used as the basis for the 4-wire port.

13

14 **Q. WHAT ARE THE SWITCH PRICES PER LINE IN BELLSOUTH'S**
15 **VENDOR SWITCHING CONTRACTS?**

16 A. BellSouth recently made its switch vendor contracts available to AT&T in
17 response to a data request. The accessibility to these contracts was limited,
18 because BellSouth would not allow copies to be made and AT&T had to review
19 these voluminous contracts on BellSouth's premises. The Nortel contract
20 indicated that BellSouth receives a _____ discount plus up to a _____
21 _____ discount⁴. The contract also references the existence of additional
22 discounts, but these were not specified.

23

24 The Lucent 5E switches are covered via three contracts - one general contract
25 crafted in 1992;⁵ an additional agreement that is more current,⁶ providing prices

1 for specific switch replacements throughout the BellSouth States, and a separate
2 agreement just for switch purchases in Tennessee.⁷ The two recent contracts
3 indicate that BellSouth pays _____ per line⁸ for 5E switches. It is important to
4 note that these prices per _____
5 _____
6 _____.

7
8 It is also interesting to note that BellSouth has an existing contract (1992-1999)
9 and a subsequent Letter of Authorization⁹ with Siemens Stromberg-Carlson for
10 switches with prices even lower than the _____ switches,¹⁰ but these
11 switches have been excluded from BellSouth's studies.

12
13 **Q. WHAT IS THE DIFFERENCE ON A PER LINE BASIS BETWEEN THE**
14 **NORTEL AND LUCENT CONTRACTS?**

15 **A.** The Nortel contract discounts were used by BellSouth as direct inputs to
16 SCIS/MO, which generates a DMS price per line of \$210¹¹ and the Lucent
17 contract explicitly states the price per line is _____ (including significant
18 amounts of additional equipment for features).

19
20 **Q. WHAT EXPLANATIONS COULD THERE BE FOR THIS DISPARITY**
21 **BETWEEN THE VENDORS?**

22 **A.** The fact that BellSouth has included Nortel prices that are more than _____
23 _____ than Lucent prices may indicate that:
24 • The Nortel contract could be a "baseline" contract, equivalent to the older
25 Lucent contract which is also still in effect.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

- There may be additional Nortel agreements that were not provided, that could specify prices competitive with Lucent.
- BellSouth simply may not have plans to place Nortel switches in the near future and has not initiated aggressive negotiations for _____ switching prices as they have done with Lucent.

Q. HOW SHOULD THIS DISPARITY BE TREATED IN THE COST STUDIES?

A. The cost studies should use switch prices per line for both technologies that are comparable and reflect forward-looking, least-cost technology. Lucent and Nortel are aggressively competing in all areas of the switching market, as evidenced by the recent Nortel/US WEST contract described below, these prices should be comparable to the prices in the Lucent/BellSouth contract. It would likewise be anticipated that in any head to head competition for BellSouth's business, bids among the various switch providers would be similarly competitive. AT&T's restated switching element investments for the 4-wire port assume that the average Lucent price per line for switching also applies to the Nortel switches. Corroborating statements made by Southwestern Bell and Pacific Bell indicate that the same price is paid for switching regardless of vendor.¹² If BellSouth is going to place Nortel switches, then it should be expected that BellSouth would negotiate prices that are competitive with Lucent.

5.0 HOW DO THE PRICES IN BELLSOUTH'S COST STUDY COMPARE TO SWITCHING PRICES IN THE INDUSTRY?

1 Q. WHAT ARE THE AVERAGE SWITCH PRICES PER LINE IN THE
2 INDUSTRY?

3 A. The Northern Business Information (NBI) study, "U. S. Central Office Equipment
4 Market", states that the average price for RBOC digital switches per line shipped
5 in 1995 was \$102, and \$99 in 1996. The study also indicates that per line prices
6 are expected to continue to decline slightly through the remainder of the decade.
7 Both Lucent and Nortel have referenced this document's marketing data
8 estimates, which lends credibility to NBI's expertise in the central office
9 equipment market.¹³

10

11 Q. DO THE SWITCH PRICES REPORTED FOR PACIFIC BELL SUPPORT
12 BELLSOUTH'S PRICING?

13 A. No. Four years ago, Pacific Bell negotiated a major contract for approximately
14 \$110 per line.¹⁴ According to the NBI study, the price per line for switching has
15 been declining and is expected to continue to decline. The four-year old data for
16 Pacific Bell, when brought down to current switch prices with a .97 factor per
17 year¹⁵ would result in \$97 per line.¹⁶ There were no separate prices quoted for
18 different size switches, so the deflated \$97 per line either applies to all line size
19 switches or is an average; and the \$97 per line provides a comparative price point
20 to evaluate the BellSouth switching prices.

21

22 Q. DO THE SWITCH PRICES REPORTED BY SPRINT SUPPORT
23 BELLSOUTH'S PRICING?

24 A. No. The January, 1997, BCPM¹⁷ proxy model contained switching prices using a
25 fixed cost of \$261,871 and variable per line amount of \$225¹⁸ that were the results

1 of a survey, based on telephone company inputs to SCIS. Sprint later retracted
 2 these switching prices, stating that "there exists a fundamental disagreement
 3 concerning the costs of switching."¹⁹ Sprint submitted new BCPM inputs for
 4 switching prices of \$150,000 fixed/startup and \$110 per line.²⁰ Sprint said "the
 5 current BCPM values [the new lower values] more closely approximate Sprint's
 6 current costs of switching . . ."²¹ For a 15,000-line switch, allocating the
 7 \$150,000 fixed cost to the lines would result in an overall average price of
 8 switching of \$120 per line. While AT&T does not propose that this is the correct
 9 price, it provides a comparative price point to evaluate the BellSouth switching
 10 prices.

11

12 **Q. DOES SOUTHWESTERN BELL'S SWITCH PRICE PER LINE 1996**
 13 **SUPPORT BELL SOUTH'S PRICING?**

14 **A.** No. Mr. Hugh Raley stated in 1996 testimony that for Southwestern Bell
 15 Telephone, "the Engineered, Furnished and Installed"(EF&I) price was
 16 \$85/line"²² for switching. Mr. Raley stated that \$85 includes "everything that is
 17 required to make the switch work," . . . "the trunks, the fabric, the processors - the
 18 total price from a vendor standpoint divided by the number of lines on the
 19 switch." He also indicated that this figure represents recent bids both from Lucent
 20 and Nortel and that this price was the average *and not the lowest bid price*. Mr.
 21 Raley included in his testimony an Attachment²³, which revealed the following:

22

	1-15,000 lines	15-40,000 lines	40-80,000 lines
EF&I Inv. Per Line	\$140	\$115	\$85

23

1 Q. DOES BELLSOUTH'S MODEL TAKE INTO ACCOUNT THE MOST
2 CURRENT INFORMATION REGARDING THE PRICE OF SWITCHES?

3 A. No. The most current information comes from Nortel's Internet web page²⁴
4 announcing that a contract has been signed with US WEST "in excess of \$US 100
5 million" for 2.2 million DMS-100 lines. This implies switch prices as low as \$45
6 per line. Even allowing for the *in excess* to be an incredible additional 50% of the
7 contract, for a total of \$150 million, \$150 million divided by 2.2 million lines
8 would yield a price per line of only \$68.²⁵ Nortel also indicated that this upgrade
9 of US WEST's network will provide advanced digital features, such as ISDN,
10 network business services and advanced display services. In addition, Nortel
11 stated that "Nortel will keep US WEST's network ready for new services, such as
12 Local Number Portability and for Advanced Intelligent Network AIN features...."

13

14 These prices are similar to the _____ contract prices for BellSouth.

15

16 Q. WHAT SWITCH PRICES HAS BELLSOUTH USED AND WHY ARE
17 THEY INCORRECT?

18 A. BellSouth's average price per line for 5E switches is _____ and _____ for
19 the DMS-100,²⁶ resulting in a melded price of _____ per line. In addition to
20 BellSouth not accurately reflecting their own switch vendor contract prices, a
21 comparison of the prices from other RBOCs with BellSouth's prices demonstrates
22 that BellSouth's prices are significantly overstated by all accounts.

23

24

25

Source	Price Per Line
NBI	~\$100
Pacific Bell	\$110
Sprint Inputs to BCPM	~\$120
Raley Testimony- BellSouth	\$85/115/140
Nortel/US West	~\$68
BellSouth Lucent Contract	_____
<i>BellSouth UNE Cost Study</i>	_____

1

2 **Q. WHAT SCIS/MO DISCOUNT INPUTS DOES AT&T PROPOSE AND**
3 **HOW DID YOU ARRIVE AT THESE DISCOUNTS?**

4 **A.** Using BellSouth's Lucent contract, AT&T has calculated a SCIS/MO discount of
5 _____ . As stated above, SCIS begins with
6 vendor list prices in its investments tables and requires the local telephone
7 company to enter a discount in order to reflect actual prices paid by that company.
8 Each vendor begins with different list price levels and therefore the discounts that
9 the vendors offer will be different to generate approximately the same total switch
10 prices.²⁷

11

12 In order to determine the correct discount that BellSouth should enter into
13 SCIS/MO, the discount necessary for each switch technology to approximately
14 equal the actual contract price of _____ per line was calculated using SCIS
15 results. BellSouth accumulated all of the switches for a given technology into a

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

“study” in SCIS/MO. We used the two studies with BellSouth’s input data, but varied the discount input. The program was run iteratively until we matched the total switching investments calculated from the contract.

Q. WHAT IMPACT WOULD THIS DISCOUNT INPUT CHANGE HAVE ON OUTPUTS?

A. I have rerun the port investment study using BellSouth’s models with BellSouth’s data, but substituted the discounts shown above. These revised investments are compared to BellSouth’s original values below:

	BellSouth ²⁸ 5E Inv.	Revised 5E Inv.	BellSouth DMS Inv.	Revised DMS Inv.
4-wire Port	_____	_____	_____	_____

Note that this is just the switching port investment. Additional investments for converting the 4-wire to 2-wire signaling is added subsequently and is reflected in the prices proposed by Mr. Ellison.

6.0 DESIGNATING SEPARATE COSTS FOR INDIVIDUAL FEATURES IS INAPPROPRIATE

Q. SHOULD FEATURES AVAILABLE IN THE SWITCH BE COSTED SEPARATELY?

A. No, this is inappropriate for several reasons. While BellSouth has costed a small subset of vertical features as if they are each a unique separate element, vertical services and features are an integral part of the switch. This becomes clearer if

1 you think of BellSouth's switch as a personal computer that is delivered by the
2 manufacturer with a suite of software applications.²⁹ Now, whether the owner of
3 the computer utilizes a word processing or spreadsheet program daily or only once
4 a year, the owner does not incur a cost each time he utilizes the program. Instead,
5 these costs are incurred at the outset as a part of the acquisition of the computer.

6
7 In contrast, BellSouth's switching studies are based on the incorrect assumption
8 that each time a feature is used, there is a corresponding cost in the switch. This
9 incorrect assumption that features are usage sensitive has been based on logic
10 contained in the SCIS models.

11
12 **Q. WHY DOES SCIS MAKE THIS ASSUMPTION?**

13 **A.** SCIS assumes that the processing capacity of a switch is the ultimate limiting
14 factor for a switch and that every call or feature that uses this processing capacity
15 should pay its "fair share". In the past, as reviewed in Mr. Garfield's direct
16 testimony, switch vendors struggled to keep processing capacities on par with the
17 demand for new services and features. It was appropriate under those
18 circumstances to determine how much of the switch's capacity specific features
19 and calls were using and assign an allocated portion of the cost to those features
20 and calls.

21
22 **Q. WHY IS THIS ASSUMPTION INCORRECT?**

23 **A.** It is simply no longer true that switches, in general, are limited by processing
24 capacity; instead, they are primarily limited by the numbers of lines and trunks
25 that can be served.³⁰ This is validated by BellSouth's own inputs to the SCIS

1 model that indicate they are currently utilizing only 27% of the processing
2 capacities in switches in Florida. Today's switches provide call processing
3 capacities that far exceed the traffic that is expected over the entire lifetime of
4 these switches, especially given that much of the intelligence of call processing is
5 being moved from the end office switches to the Advanced Intelligent Network.³¹
6 Indeed, the newer, marginal version of SCIS identifies these costs as a fixed up-
7 front investment, depending on the processor utilization inputs, rather than always
8 assuming these costs are sensitive to the processing capacity.

9
10 **Q. WHAT OTHER PROBLEMS EXIST WITH BELLSOUTH'S FEATURE**
11 **COSTING METHODOLOGY?**

12 **A.** BellSouth's complicated methodology of determining individual investments for
13 each feature requires large numbers of inputs and assumptions, many of which are
14 not "measurable" and amount to nothing more than unsubstantiated "estimates"
15 by BellSouth. SCIS was developed at a time when overestimating the costs of
16 features to be sold to subscribers carried no penalty; but that is not the case here.
17 By misallocating costs on a feature-usage basis coupled with the requirement that
18 the feature usage may be mis-estimated by BellSouth, new entrants are seeing
19 excessive costs for features that are entirely inappropriate in a unbundled switch
20 element environment.

21
22 **7.0 BELLSOUTH HAS INAPPROPRIATELY ASSIGNED ALL OF THE**
23 **GETTING STARTED INVESTMENTS TO TRAFFIC SENSITIVE**
24 **SWITCHING UNBUNDLED ELEMENTS**

25

1 **Q. WHAT IS THE SCIS/MO GETTING STARTED INVESTMENT?**

2 **A.** SCIS computes a Getting Started Investment for each switch that includes the
3 initial investment for:

- 4 • Central processor and related equipment;
- 5 • Maintenance and test equipment;
- 6 • Spare components;
- 7 • Miscellaneous equipment; and
- 8 • Investment for underutilized equipment, termed "Breakage".

9

10 **Q. HOW ARE THESE GETTING STARTED INVESTMENTS RECOVERED**
11 **IN SCIS?**

12 **A.** SCIS automatically assigns these getting started investments to a traffic sensitive
13 category, called Getting Started Investment per Millisecond, when SCIS/MO is
14 run in "average" mode (which is the way BellSouth ran the model for its cost
15 studies) based on the assumption that switch replacement occurs due to processor
16 exhaust, as discussed above. SCIS/MO inputs ask for processor utilization at
17 three time periods: (1) at initial installation of the switch, (2) at year 5, and (3) at
18 switch replacement. BellSouth's inputs indicate that utilization at time of switch
19 replacement is projected to be 28%. As correctly modeled in the SCIS/MO
20 marginal mode, the processor investments in BellSouth's study should not be
21 considered traffic sensitive if they are never expected to exhaust. It is simply a
22 fixed cost required to make the switch operational over its life.

23

24 In addition to the processor, there are numerous other items in the SCIS/MO
25 Getting Started Investment, which are one-time fixed investments incurred as a

1 first cost. BellSouth, however, has assumed that the entire Getting Started
 2 Investment for every switch is traffic sensitive. This is inappropriate because it
 3 does not follow the basic TELRIC principle of reflecting costs based on causation.
 4 The non-traffic sensitive getting started investment should be assigned to the non-
 5 traffic sensitive port elements.

6
 7 **Q. HOW DOES ALLOCATING THE GETTING STARTED INVESTMENT**
 8 **TO THE PORT INVESTMENT CHANGE THE PORT INVESTMENTS?**

9 **A.** Allocating the entire Getting Started investment from SCIS/MO over the total
 10 lines increases the port investment. This Getting Started allocation was added to
 11 the investments that AT&T calculated using the corrected discounts to arrive at
 12 new 2-wire analog port investments as shown below:

13

	Line Inv. Per line	GS Additive	Port Investment
5ESS			\$45.39
DMS			\$50.70
Weighted			\$47.03

14
 15 **8.0 GETTING STARTED INVESTMENT TREATMENT FUNDAMENTALLY**
 16 **AFFECTS BELLSOUTH'S ENTIRE COST METHODOLOGY**

17 **Q. WHAT IS THE RELATIONSHIP BETWEEN GETTING STARTED**
 18 **INVESTMENT AND FEATURE INVESTMENT?**

19 **A.** The Bellcore switching models were originally designed to distinguish
 20 investments for vertical features and services from POTS. Most feature

1 functionality is provided through the computer processor in the switch. The SCIS
2 models, therefore, distinguish among various features and call types primarily by
3 the amount of processor milliseconds that are used by each feature.³² BellSouth,
4 using SCIS/MO, has allocated the Getting Started Investment over the number of
5 milliseconds available for call processing (and then inflated it by utilization
6 factors averaging 27%³³).

7
8 **Q. HOW DOES AT&T'S REVISED TREATMENT OF GETTING STARTED**
9 **INVESTMENT AFFECT FEATURE COSTING?**

10 **A.** As stated previously, in the vast majority of features, the only investments
11 assigned to features is the allocated³⁴ Getting Started Investment. AT&T proposes
12 that the entire Getting Started Investment be allocated to, and recovered by, the
13 ports as a non-traffic sensitive investment. In this approach, there are no Getting
14 Started Investments that can be assigned to features without double counting and,
15 therefore, the complicated task of separately identifying feature investments
16 through detailed processor millisecond calculations is not necessary. As shown
17 below, when BellSouth's cost study is corrected for the incorrect discounts, the
18 inclusion of features (via allocating the entire Getting Started Investment to the
19 ports) results in a port investment that is still lower than BellSouth's port
20 investment *without* features.

21

	BellSouth Port <i>without</i> Features	Corrected BellSouth Port <i>with</i> Features
Port Investment	\$57.37	\$47.03

22

1 Q. WHAT INPUTS AND ASSUMPTIONS ARE CRITICAL TO
2 BELLSOUTH'S TREATMENT OF FEATURE INVESTMENTS?

3 A. BellSouth's SCIS/TN-like spreadsheets require busy hour feature utilization inputs
4 in order to calculate feature investments. These inputs usually have a one-to-one
5 relationship with the output. If the busy hour utilization input is estimated at
6 double the actual usage, the feature investment will also be double. Many of these
7 inputs are difficult to obtain because they must be explicitly measured in a special
8 study and many more simply are not measurable at all. Marketing/Product
9 managers are often asked to provide this data, but it is very difficult to estimate
10 how often subscribers use a particular feature. It is even more difficult to express
11 this estimate in terms of busy hour usage.

12

13 In addition, these estimates must average subscribers who frequently use features
14 with subscribers who purchase features, but seldom use them. This difficulty is
15 especially acute when features are bundled or packaged, as in ESSX offerings or
16 residential custom calling packages.

17

18 Q. HOW SHOULD BELLSOUTH RECOVER THE COSTS FOR FEATURES
19 THAT REQUIRE SPECIAL HARDWARE?

20 A. A very small number of features use special hardware; the bulk of this equipment
21 is conference circuits. The Lucent contract includes conference circuits, as well
22 as some voice messaging equipment in the _____; and are therefore
23 included in the port and other basic switching investments. BellSouth's study,
24 however, also adds these conference circuits into the cost of the features; thereby
25 double counting these investments.

1 Q. DOES FEATURE USAGE CAUSE BELLSOUTH TO INCUR
2 ADDITIONAL SWITCH HARDWARE INVESTMENTS?

3 A. No. BellSouth does not incur any additional investment per feature because the
4 special hardware, such as conference circuits, is already included in the basic
5 switching price. As described previously, features do not cause exhaust of
6 processing capacity of the switch, so there should be no processing capacity
7 allocations (in the form of Getting Started Investment per Millisecond costs)
8 based on feature usage.³⁵ BellSouth's feature cost methodology, however,
9 includes processing capacity costs based on feature usage and additives for the
10 already included special hardware.

11

12 Q. WHAT CORRECTIONS TO THE FEATURE COSTING
13 METHODOLOGY DOES AT&T RECOMMEND?

14 A. First, the investments for separate features must be eliminated to:

- 15 ● Eliminate the double counting of special feature hardware, such as the
16 conference circuits.
- 17 ● Eliminate double counting the Getting Started Investment, or first cost, of the
18 switch.
- 19 ● Eliminate double counting feature software right to use fees.

20

21 Second, the BellSouth SCIS input discounts must be revised to accurately reflect
22 the actual forward-looking prices BellSouth pays for switching as stated in the
23 vendor contracts.

24

25

1 AT&T's restatement of BellSouth's cost study shows that the corrected port
2 investment that includes features (via the assignment of the Getting Started
3 Investment to the ports) is less than BellSouth's port without features. This
4 proves that BellSouth's feature additives are incorrect, include double counting,
5 and result in highly inflated port rates.

6

7 **9.0 SUMMARY AND CONCLUSION**

8 **Q. PLEASE SUMMARIZE YOUR TESTIMONY**

9 **A.** BellSouth's methodology, inputs and assumptions are not appropriate for
10 developing the cost of the 4-wire port unbundled network element. The problems
11 include:

- 12 1. Incorrect switching prices
- 13 2. Double counting the costing of vertical features
- 14 3. Various incorrect or inappropriate input data
- 15 4.

16 **Q. WHAT ARE YOUR CONCLUSIONS?**

17 For the reasons stated above, the Commission should reject BellSouth's cost
18 studies and resulting rates for the 4-wire analog port and adopt the rate proposed
19 by Mr. Ellison.

20

21 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

22 **A.** Yes.

23

24

25

1 Endnotes:

- 1 SCIS/IN is the feature costing model in the SCIS family of models.
- 2 There is a technical distinction between "cost" and "investment." In my testimony, investment refers solely to the capital expenditure for the switch. To determine cost, additional capital expenditures for land, building, power, and local telephone company installation are added to the investment. This total is annualized via cost factors into a capital-related cash flow requirement and then expenses are added to determine "cost." I will use the term price to refer to the prices paid by telephone companies to switch vendors.
- 3 As explained more fully below, the SCIS/MO program calculates the investment for various functions performed by a switch.
- 4 Nortel Agreement PR-6900-A. BellSouth used a _____ discount, implying it used a volume discount of _____. The maximum volume discount of _____ would generate an overall discount of _____.
- 5 Lucent Agreement PR-6700-B.
- 6 1/95-12/06.
- 7 Special Tennessee Agreement - "Special Order" 12/1/93-12/31/99
- 8 Id; the price drops from _____ when _____ lines are purchased. Note that the term "price per line" is equivalent to total switching price divided by total number of lines. The price per line is *not* the same as the port investment.
- 9 The Letter of Authorization was crafted to apply only to Tennessee switch purchases, but it is safe to assume that BellSouth could negotiate similar agreements in other states.
- 10 Letter of Authorization 5/31/95: "Siemens offers _____ (EF&I) per equipped line . . ."
- 11 Calculated from total DMS switching investment divided by total DMS lines.
- 12 This is substantiated by Mr. R. Scholl and Mr. J. Caling in Deposition of R. Scholl p. 46, ls 1-5, and Deposition of J. Caling, p. 93, ls 13-18, dated February 12, 1997.

-
- ¹³ Lucent and Nortel October 15, 1996, filings in response to FCC Supplemental Request for Information from Lucent and Nortel, respectively. Cited in FCC 97-125, page 24.
- ¹⁴ Quoted in GTE's Responses to proxy cost model questions in CC Docket 96-45, Federal-State Joint Board on Universal Service Proxy Cost Models, January 7, 1997.
- ¹⁵ Extrapolated from the NBI yearly prices.
- ¹⁶ This data substantiates the prices used in Hatfield. The average switch size for Pacific Bell is 27,200 lines. The average switching price on the Hatfield cost curve for a 27,200 line switch is \$90.
- ¹⁷ The Benchmark Cost Proxy Model ("BCPM") was, until recently, jointly sponsored as a proxy model by Sprint, US WEST and Pacific Bell. Pacific Bell has withdrawn and has been replaced by BellSouth.
- ¹⁸ BCPM Methodology (no date), Page 20.
- ¹⁹ Ex Parte Letter, 3/24/97, from Mr. Warren D. Hannah, Sprint to Mr. William F. Caton, FCC, Attachment A, page 5.
- ²⁰ Id., Attachment BCPM National Results Using Sprint Input Values, Page 3.
- ²¹ Id., Attachment A, Page 3. The remainder of the quote dealt with a recommendation to use the higher rates for USF purposes.
- ²² Direct Testimony of Hugh W. Raley, 9/6/96, Docket Nos. 16189,16196,16226,16285,16290; p. 7, lines 9-10 and Deposition of Hugh Raley, 9/13/96.
- ²³ Note, however, that there are other equipment costs added to Mr. Raley's \$85/line such as taxes. AT&T agrees that these need to be added, but the relevant cost in this analysis is the actual price paid to the vendor which Mr. Raley calls EF&I. This compares to the prices used in the Hatfield Model switch curve that also are switch prices paid to the vendor. The Hatfield Model includes costs for the other components shown on Mr. Raley's chart in subsequent calculations. Mr. Raley was claiming that Southwestern Bell Telephone's \$85 per line was significantly higher than the Hatfield Model's \$59 per line for an 80,000 line switch. This comparison was flawed for two reasons: [1] Mr. Raley stated that the \$85.00 per line was based on an average switch size of 53,653 lines; therefore, Mr. Raley's comparison to the Hatfield Model 80,000 line switch is inappropriate; and [2] the

Hatfield Model's \$59 per line is the price without trunk ports and when these are added back in, the actual price the Hatfield Model calculates for a 53,653 line switch is approximately \$80 per line. Mr. Raley's \$85.00 per line is, in actuality, very close to the \$80 per line that the Hatfield Model calculates.

24 www.nortel.com/home/press/1997b/6_16_9797219_US_West.html

25 Thus substantiating that the large switch price of \$75 per line used in Hatfield is conservative. All switch prices are quoted as prices paid to the vendor just for vendor EF&I switch equipment and do not include taxes, telephone company installation, etc.

26 Calculated from BellSouth's SCIS/MO study outputs by taking total switching investment and dividing by total lines.

27 It is interesting to note that vendors have been consistently raising their list prices over many years, but actual switching prices per line are declining. This phenomenon has two causes - capacities are increasing and vendor discounts have been increasing.

28 These investments, as well as the DMS investments, were taken from the Input Workpapers for Port Elements in BellSouth's Cost Study

29 As noted earlier, BellSouth's switching contracts _____ as part of the base price of the switch, and these costs are already included in the port investments.

30 This was confirmed by a statement by Mr. Scholl, of Pacific Bell, in his February, 1997, deposition that Pacific's switches are overwhelmingly line capacity constrained.

31 It is expected that vendors' efforts to further increase processing capacities are due to expectations of broadband traffic to provide services such as video, which is not relevant in this proceeding.

32 There is a tiny subset of features that have special hardware to make them operational. This issue will be addressed in a subsequent section.

33 This utilization is the average computed by SCIS/MO over the life of the switches, based on BellSouth inputs.. Note that the previous discussion on processor utilization inputs by BellSouth were the utilizations at the end of the switches' lives.