REBUTTAL TESTIMONY OF

CATHERINE E. PITTS

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

AND MCI WORLDCOM, INC.

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

Docket No. 990649 - TP

Filed: July 31, 2000

PUBLIC VERSION

1. INTRODUCTION

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

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A. My name is Catherine E. Pitts (formerly Petzinger). I am a District Manager with AT&T in Law and Government Affairs, 295 North Maple Avenue, Basking Ridge, New Jersey.

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Q. **PLEASE DESCRIBE YOUR WORK EXPERIENCE AND EDUCATIONAL BACKGROUND**

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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 Cost Information System ("SCIS"). My experience includes extensive consultation on the use of cost models in various cost studies in the United States and abroad.

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Before joining AT&T in 1996, I worked at Telcordia (formerly Bellcore) for 13 years in the Cost Methods and Models organization. I was one of three individuals who designed the SCIS/IN[1] 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

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[1] SCIS/IN is the SCIS model that determines the costs for vertical features and services.

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1   matter expert on 1ESS, 1A ESS and 5ESS switches. When I was

2   promoted to lead the SCIS group, I had responsibility for the technical

3   development, production, documentation, customer care and cost study

4   consultation for the SCIS family of models.

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

8   A.   Yes, I have presented expert testimony in numerous state proceedings

9   dealing with switching unbundled element cost studies.

10   **2. <u>PURPOSE AND SUMMARY OF TESTIMONY</u>**

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

12   **A.**   The purpose of my testimony is to report my findings regarding

13   BellSouth's switch cost study methodology and the inputs used by

14   BellSouth for developing switch investments. Other witness' testimony

15   analyzes the annual cost factors, investment loading factors and expense

16   factors.   Their proposed recommendations, in conjunction with the

17   proposed changes I make to switch investments, support the UNE switch

18   costs restated in Mr. King's testimony.

1 **Q.** **PLEASE SUMMARIZE THE MAIN POINTS OF YOUR**
2 **TESTIMONY**

3 **A.** Inappropriate switch prices were used as a starting point for BellSouth's
4 cost study, resulting in inflated costs for all switch-related elements.

5 The SST model has inappropriate and unsupported feature cost
6 methodologies that contain numerous errors, causing seriously overstated
7 feature-related costs.

8 **3. OVERVIEW OF BELLSOUTH'S SWITCH COST STUDY**

9 **Q.** **DESCRIBE HOW BELLSOUTH DETERMINES ITS PROPOSED**
10 **COSTS FOR UNBUNDLED SWITCH ELEMENTS.**

11 **A.** BellSouth first used the proprietary Telcordia SCIS/MO model to allocate
12 switch costs to pre-defined traffic sensitive and non-traffic sensitive cost
13 categories. BellSouth then analyzed various data, including proprietary
14 information from the Telcordia SCIS feature module (SCIS/IN), to
15 develop its new Simplified Switching Tool (SST). The BellSouth SST
16 model includes formulas to calculate feature investments and switch usage
17 investments in the SST-Usage workbook, and computes investments for
18 switch ports in the SST-Port workbook. Additional investments for RTU
19 fees, land and building, local telephone company engineering and
20 installation are added to the switch investments. The in-place investments
21 are then converted to annual and/or monthly costs, and switch related and

1   other expenses are added to produce BellSouth's claimed cost for switch

2   UNEs.

4. INAPPROPRIATE SWITCH PRICES WERE USED AS THE FOUNDATION OF BELLSOUTH'S SWITCH ELEMENT COST STUDIES.

6   Q.   **WHAT SWITCH PRICES DID BELLSOUTH USE IN ITS COST**
7   **STUDY?**

8   A.   BellSouth used the new (replacement) switch price for equipment included

9   in the first cost (getting started cost) of the switch and a melded new and

10   growth price for all remaining switch equipment.[2]

11 Q.   **WHAT IMPACT DOES THE USE OF A MELDED DISCOUNT**
12   **HAVE ON SWITCH PRICES?**

13 A.   The vendors often provide a two-tiered pricing structure with higher

14   discounts for new switch purchases and a lower discount for add-on, or

15   growth, equipment. The SCIS/MO model only has list prices. The user

16   must enter discounts as inputs to derive net switch prices. If the new

17   switch discount is melded with the growth discount, the overall switch

18   prices and ultimately the switch element costs will be higher.

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[2]   Page Testimony, pg. 24

1   Even if melding were appropriate, BellSouth's melded discount input to

2   SCIS/MO appears to assume that the majority of lines are at the higher

3   growth price.[3] BellSouth, however, purchases most lines on a switch at

4   the new switch price. BellSouth would recover significantly more than its

5   own switch investment from the ALECs for UNE-P if the switch UNEs

6   are costed using heavily weighted higher growth prices. Not only is cost

7   causation violated, but a barrier to market entry is constructed when

8   ALECs not only pay more than BellSouth for the same resource, but are

9   also required to overcompensate BellSouth, providing it with

10   extraordinary profits.

11 **Q.**   **IS BELLSOUTH'S EXAMPLE OF REPLACEMENT COSTS**
12   **EXCEEDING MELDED REPLACEMENT AND GROWTH COSTS**
13   **REALISTIC?**

14 **A.**   No. BellSouth's example[4] showing that replacement costs "can" lead to a

15   higher cost in the long run falls apart if realistic numbers are assumed for

16   current switch sizes, forward-looking growth rates, realistic discounts for

17   replacement and growth, and a reasonably foreseeable time horizon. In

18   fact, the example that BellSouth uses to support its claim that the use of

19   new (replacement) switch prices "can" lead to higher costs includes

20   growth at 10% per year over 10 years. Ten percent growth is not

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[3]   BellSouth's Response to ATT's 2nd Set of Interrogatories, Item #87, attached as Exhibit CEP-1

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1   reasonable nor is ten years foreseeable in the dynamic telecommunications

2   industry.[5] Moreover, it is doubtful that the switch contracts currently in

3   place would be effective through the year 2010, making the prices pure

4   speculation.[6]

5   In summary, BellSouth's use of higher growth costs in the switching cost

6   study, while not including the impacts of growth costs in interoffice

7   facilities (which would decrease costs), for example, is inconsistent,

8   causes higher switch costs and should be rejected.

9   **Q.   WHAT DISCOUNT INPUTS TO SCIS SHOULD BE USED?**

10   A.   The new switch discounts BellSouth entered into SCIS/MO that are

11   applied to the getting started equipment (first cost) should be used for all

12   switch equipment.

13   **Q.   WHAT IMPACT DOES THIS HAVE ON THE RESULTS?**

14   A.   Correcting the discount inputs, rerunning SCIS/MO and loading the new

15   SCIS/MO results into BellSouth's SST model produces switch

16   investments for ports that are approximately 50% of the port investments

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[4]   Page Testimony, Exhibit JHP-1

[5]   Indeed, BellSouth's switch planning horizon is 2-3 years as stated in Page
      Testimony, pg. 22 Footnote 3.

[6]   As BellSouth requires review of its contracts at its location (unlike other RBOCs
      who do provide this information under protective cover directly to participants in a
      proceeding), AT&T has not yet had an opportunity to determine the precise contract

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1	claimed by BellSouth. Unbundled local switching and trunk ports are
2	approximately 40% and 50%, respectively of BellSouth's claimed
3	BellSouth costs.
4	The restated BellSouth costs sponsored by Mr. King include the corrected
5	discount inputs.
6	Q. **PLEASE EXPLAIN WHY SOME ISDN RESULTS ARE NOT**
7	**RELIABLE.**
8	A. When AT&T attempted to calculate the offices in BellSouth's SCIS/MO,
9	multiple processing errors were displayed associated with calculating
10	ISDN on DMS RSC-S remotes.[7] The ISDN port section of BellSouth's
11	SCIS/MO ISDN Investment report that was included in BellSouth's
12	electronic SCIS/MO filing is excerpted below:
13	***Begin Proprietary***
14	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
15	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
16	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
17	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
18	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
19	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

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expiration dates.

[7] While the user had to click on the error messages indicating that there were missing table items necessary to the calculations, SCIS/MO continued to calculate.

1   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

2   ***End Proprietary***

3

4   Note that subcategory D is the sum of the D1, D2 and D3. Also note that

5   the Min. Inv. per BRI (ISDN 2-wire port) should be the sum of

6   subcategories A, C and D, but obviously it is not. It appears that the D3

7   category value, which is usually minimal, is wrong, but the printed value

8   not being added to the Min. Inv. per BRI.

9   The SST model, when importing the detailed results from SCIS, does load

10   the individual subcategory values to calculate an incorrect investment for

11   ISDN BRI ports.[8] When we removed the wire centers with the DMS

12   RSC-S remote switches from the SCIS/MO study, the individual 'A, C,

13   and D' sub-elements added up correctly to the Min. Inv. per BRI and no

14   error messages were received during calculations.

15 **Q.**   **HOW SHOULD THE ISDN COSTS BE CALCULATED?**

16 A.   We removed the offices that had DMS RSC-S remotes with ISDN in order

17   to have SCIS/MO recalculate the ISDN port investments with corrected

18   discounts without processing errors. Therefore, the restated ISDN port

19   investments in Mr. King's testimony excludes these offices.

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[8]   See, for example, Columns AA and AK of the SCIS Input Worksheeet in FLST_SST-P.

1   **5. THE SST MODEL'S FEATURE STUDY IS FLAWED**

2   **Q.   PLEASE DESCRIBE HOW THE SST MODEL DETERMINES THE**
3   **COST OF FEATURES.**

4   A.   BellSouth's SST-U model categorizes features into thirteen categories,

5   based on the type of switch resource used to operate the feature. BellSouth

6   uses the SCIS/MO model outputs as inputs to SST-U, along with the

7   results of BellSouth's feature Hardware Study, and makes numerous

8   simplifying assumptions about switch resources consumed by features, to

9   calculate a theoretical cost for a given feature category. The features in

10   each category are then added together to generate BellSouth's composite

11   feature, shown as Central Office Features Category 13, that makes up

12   Element B.4.13. An additional feature that purportedly identifies the cost

13   of Centrex Intercom Usage is calculated under the name Centrex

14   Functionality, Element B.4.10.

15 **Q.   PLEASE IDENTIFY THE FEATURE COSTING FLAWS.**

16 A.   BellSouth states that "The key inputs to feature material prices are switch

17   realtime estimates, customer usage characteristics, and special hardware

18   prices."[9] Ironically, these "key inputs" are the ones that have the most

19   serious flaws in BellSouth's feature costing methodology. The following

20   flaws will be described subsequently in more detail.

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[9]   Page Testimony, pg. 26

1   • The SCIS/MO output results used as inputs to SST were generated

2   using melded discount inputs weighted heavily towards higher-priced

3   growth costs rather than new switch prices, and contribute to

4   overstating feature costs.

5   • The Hardware Study uses incorrect investments, incorrect capacities

6   and utilization adjustments that produce inflated hardware costs for

7   features.

8   • The entire conceptual methodology of averaging disparate feature

9   inputs together in an attempt to force the costs to fit a theoretical

10   feature category, and making broad assumptions that are used as

11   critical inputs is flawed.

12 **Q. PLEASE EXPLAIN WHY THE INCORRECTLY DISCOUNTED**
13 **   SCIS/MO RESULTS CONTRIBUTE TO FEATURE COST**
14 **   OVERSTATEMENTS.**

15 A. The SCIS/MO model produces investments for switch functions on a

16   usage-sensitive basis. These unit costs from SCIS/MO (for example, the

17   cost of a processor millisecond, or the cost of a line path, etc.) are then

18   multiplied by BellSouth's guesstimates of the amount of resources used by

19   a feature category. The SCIS/MO results were produced using the

20   inappropriate discounts described previously, and thus produce inflated

21   feature costs. The cost restatements in Mr. King's testimony incorporate

22   the corrected discounts.

6. THE HARDWARE STUDY HAS INVESTMENT, CAPACITY AND UTILIZATION FACTOR ERRORS

Q.   PLEASE EXPLAIN WHAT THE HARDWARE STUDY IS.

A.   BellSouth produced the Hardware Study to calculate the cost of unique feature-related hardware, such as conference circuits and announcements.[10] The hardware category makes up more than 70% of BellSouth's proposed composite feature investment. BellSouth says it obtained investments and capacities from Telcordia's SCIS/IN model and from the switch vendors. BellSouth's Hardware Study divides the investments for specific hardware components by their respective capacities, adjusted for utilization, to produce an average cost per CCS[11] for each feature hardware component. The cost per CCS for each component was then averaged together to produce a simple average cost per CCS for all hardware. Then the cost per CCS was multiplied by an assumed average holding time for all features that use hardware to generate a cost for hardware for the feature category.

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[10]   This hardware is often bundled in the vendor's basic switch design and price, thereby causing no unique investment for features.

[11]   Centum call seconds - an alternative measure to minutes typically used in switch engineering.

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1 **Q. WHAT PROBLEMS DID YOU FIND WITH THIS APPROACH?**

2 A.   There were numerous investment and capacity problems in this study that

3   affected each and every hardware component calculation. Usually, the

4   investments in the numerator were too high and the capacities in the

5   denominator were too low, causing inflated hardware costs per CCS. In

6   addition, the method of averaging the hardware costs, the holding times

7   and the number of calls using the hardware is flawed.

8 **Q. PLEASE DETAIL THE INVESTMENT PROBLEMS.**

9 A.   Feature hardware components are integrated into the switch itself and the

10   prices are discounted by the switch manufacturers in the same manner as

11   the rest of the switch. Using the SCIS/IN model to calculate hardware

12   investments with *no discount at all* produced lower costs for most of the

13   hardware[12] than BellSouth's Hardware Study. We analyzed BellSouth's

14   Hardware Study in detail to determine what caused its net unit investments

15   to be higher than the list price unit investment using SCIS data.

16   There are two hardware items in BellSouth's Hardware Study sourced to

17   SCIS/IN; namely, the Call Waiting Tone circuit and the CLASS Modem

18   Resource Card (required for calling number delivery, calling name

19   delivery, etc.). BellSouth used the list price (with no discount at all) for

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[12] *Only three announcement circuits of the ten hardware components were priced*

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1   the CLASS Modem Resource Card. And although BellSouth's study did

2   show a discount (albeit the heavily weighted growth melded discount) for

3   the Call Waiting Tone, it showed 0 discount for the CLASS Modem

4   Resource Card. In addition, BellSouth shows the source of the Call

5   Waiting Tone as SCIS/IN, but the BellSouth claimed investment could not

6   be found. BellSouth's undocumented investment was 88% higher than the

7   Call Waiting Tone investment listed in SCIS/IN.[13]

8   The remaining hardware investments are sourced to the vendors – Lucent

9   or Nortel. It is unclear from BellSouth's documentation exactly what

10 information was provided by the vendors and what was derived from

11 BellSouth sources[14], but it appears that at least one technology's

12 investments included "loadings" and costs for "associated resources".[15] It

13 is probable that some of these associated resources are double counted

14 here and again in the telco installation factor, and/or other factors

15 subsequently applied to the material investments in the Cost Calculator.

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slightly higher by SCIS/IN's methodology using list prices than BellSouth's study.

[13]   The SCIS/IN hardware investment tables for DMS and 5ESS are attached as Proprietary Exhibit CEP-2.

[14]   See BellSouth's Response to POD #6, Attachment 1 that shows a note to an unknown recipient from Jeff Shadrick requesting costs without specific instructions, attached as Exhibit CEP-3. For example, it is unknown whether the costs requested were discounted costs or list prices. Nor do we know the author of the notes or table entries in the attachment.

[15]   ID. Page 4 "*estimated* prices are *loaded* and include *associated resources* required to add equipment" [emphasis added]

1 **Q. PLEASE EXPLAIN THE CAPACITY PROBLEMS FOUND IN**
2 **BELLSOUTH'S HARDWARE STUDY.**

3 A. The capacity information provided by BellSouth in POD Item #6,

4 Attachment 1 (Exhibit CEP-3), is not in CCS units and BellSouth

5 provided no explanation for the capacities it ultimately used in the

6 Hardware Study.

7 BellSouth used the Call Waiting Tone capacity for one call waiting tone

8 from SCIS/IN, but used an undocumented investment for two circuits.[16]

9 Dividing the investment of two circuits by the capacity of one circuit

10 produced a cost per CCS twice as high as it should have been (not

11 counting other errors).

12 The Hardware Study labels the capacity of the CLASS Modem Resource

13 Card "CCS", but it is actually the number of lines that can share the card,

14 but the estimate is too low. The actual number of lines that can share a

15 CLASS Modem Resource Card is more than ten times what BellSouth has

16 shown.

17 BellSouth used the capacity from SCIS/IN for a DSU2 / RAF / BRCS

18 announcement, but used the investment for a much higher-capacity

19 announcement called an SAS.[17]   BellSouth has mixed an apple with a

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[16] See formula in Call Waiting Tone Material $ cell of Hardware Study worksheet.

[17] See Exhibit CEP-3 - POD #6, Attachment 1, page 4, Note 3

1   crate of oranges. Dividing the high cost SAS announcement by the RAF

2   announcement's comparably smaller capacity results in a seriously

3   overstated cost per CCS.

4   Finally, BellSouth applied utilization factors to all the capacities that

5   further inflate the costs. Most of the values in SCIS/IN's capacity table

6   for hardware are already utilization values, not ultimate capacity.

7   Applying a utilization factor to SCIS/IN values double counts spare

8   capacity, thereby contributing to overstated feature costs.

9 Q. **IS THERE A MORE ACCURATE WAY TO DETERMINE THE**
10   **COSTS OF THIS HARDWARE?**

11 A. Yes. SCIS/IN does have the hardware investments in the model and we

12   have been able to use its investments, formulas and capacities to restate

13   BellSouth's hardware study results shown in Proprietary Exhibit CEP- 4.

14   Even using BellSouth's original melded discount for the hardware

15   components, SCIS/IN produced results approximately 50% of BellSouth's

16   study. Correcting the discount input to reflect new switch prices produces

17   results that are approximately 33% of BellSouth's claimed hardware

18   investments. The restated costs in Mr. King's testimony include the

19   hardware corrections.

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1 **7. BELLSOUTH'S FEATURE COST METHODOLOGY USES FLAWED**

2 **CUSTOMER USAGE CHARACTERISTICS AND SWITCH**

3 **REALTIME ESTIMATES**

4 **Q. WHAT SIMPLIFYING ASSUMPTIONS HAS BELLSOUTH MADE**
5 **TO COST FEATURES?**

6 **A.** The following simplifications were made to streamline the feature costing

7 methodology.

8 BellSouth collapsed the "400 or so SCIS switch features" into 13 SST

9 feature categories, based on the types of switch resources the features

10 consume.

11 BellSouth mixed and matched busy hour call usages for individual

12 features, that are themselves suspect, to derive an average busy hour call

13 usage per line for an entire category of features.

14 BellSouth assumes that every feature uses the same amount of central

15 processor time; in fact, it assumes that each and every feature uses the

16 same amount of processing time as a regular call set-up. In addition,

17 BellSouth's methodology assumes that both the Lucent and Nortel

18 switches process all feature calls in the central processor.

19 BellSouth averages the holding times of hardware components performing

20 vastly different functions to derive an average holding time for all

21 hardware.

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1　Q.　**WHAT ARE THE FEATURE CATEGORIES DEFINED BY**
2　　　**BELLSOUTH?**

3　A.　The major categories are switch functions; i.e., features that use the

4　　　processor, a line path, special hardware, a line port, or SS7 and then these

5　　　five are mixed and matched to produce an additional eight combination

6　　　categories for a total of thirteen categories.

7　Q.　**WHAT IS NEEDED TO DETERMINE THE COST OF A**
8　　　**CATEGORY OF FEATURES?**

9　A.　An individual feature is basically the cost of a switch resource (e.g., cost

10　　　per hardware CCS) times the number of times the feature is used in the

11　　　busy hour[18] and the holding time of the call using the feature (BellSouth

12　　　refers to these as key inputs). BellSouth's approach was to derive the "key

13　　　inputs" for customer usage characteristics for an entire category of

14　　　features.

15　Q.　**HOW DID BELLSOUTH DETERMINE THE BUSY HOUR CALL**
16　　　**USAGE FOR EACH OF THE 56 FEATURES REVIEWED?**

17　A.　When asked for supporting documents, analysis and calculations to

18　　　support the busy hour call estimates per feature category[19], BellSouth

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[18]　Switches are engineered to the busy hour. Features used out of the busy hour have
　　　no economic usage cost. Indeed, processors in digital switches do not limit the
　　　capacity of the switch, instead, switches are port limited as will be discussed in
　　　detail subsequently.

[19]　See POD #14l, Attachment No. 1, attached as Exhibit CEP-5.

1   provided a listing and indicated that the source was its own retail study

2   inputs.[20] Just a casual review causes concern that these inputs are not

3   correct. For example, 3-way calling is shown as ***Begin

4   Proprietary*** x ***End Proprietary*** calls in the busy hour. In

5   BellSouth's study, lines average just over ***Begin Proprietary*** xxx

6   ***End Proprietary*** calls in the busy hour, and this would mean that

7   an inordinately high one of every ***Begin Proprietary*** xx ***End

8   Proprietary*** calls would have to be a conference call. Another

9   example is Night Service which allows an attendant to close down the

10   attendant console and divert incoming calls to another station in the

11   business group. BellSouth's inputs indicate that the console would be

12   closed down ***Begin Proprietary*** xx ***End Proprietary*** in

13   the switch's busy hour, which is highly unlikely.[21]

14 **Q. HOW DID BELLSOUTH CONVERT THE INDIVIDUAL**
15   **FEATURE CALL USAGES TO ONE CALL USAGE FOR AN**
16   **ENTIRE CATEGORY?**

17 A.   BellSouth took the simple average (mean) of all the inputs for the features

18   in a category to derive the average number of times a feature is used. The

19   features that make up a category are disparate; for example, PBX attendant

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[20] See POD #14, attached as Exhibit CEP-6.

[21] Night Service would typically be activated at the end of the business day – usually not the busy hour for a switch serving business customers. A switch serving business customers typically experiences a 10-11a.m. busy hour.

1   features, residential features, Centrex features, multiline group features

2   and trunk-side connection features all go into one category.

3   Q.   WHAT CONCERNS DO YOU HAVE WITH BELLSOUTH'S
4   DERIVATION OF ONE CALL USAGE FOR AN ENTIRE
5   CATEGORY?

6   A.   There are two significant problems. First, taking a simple average, rather

7   than a weighted average, of all the features ignores that some features have

8   high penetrations (e.g., Caller ID for residence and business) and some are

9   quite rare (e.g., Trunk Answer Any Station when an attendant's console is

10   shut down to enable any station in the group to answer a call), causing a

11   distorted result.

12   Second, some inputs for these features are on a single line basis, some are

13   on a per business group basis, and some are on a trunk group basis.

14   BellSouth takes Caller ID usage per *line*, Uniform Call Distribution whose

15   input is on a per hunt *group*[22] basis, and Night Service activations per

16   *attendant*; and then averages them together to illogically come up with an

17   average usage *per port*. Call usages that are per line, per trunk, per

18   attendant and per group cannot be simply added up and divided by the

19   number of features that BellSouth then assumes is a per port average.

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[22]   This is not the only group basis input used – there are multiple features whose inputs
       are per group.

1 Q. **HOW DOES BELLSOUTH USE THE FLAWED AVERAGE**
2   **USAGE PER CATEGORY PER LINE?**

3 A. BellSouth takes the call usage, multiplies it by the average number of

4   features per line times the averaged cost of the resources used in the

5   switch for a given category to generate the composite feature investment.

6   The number of busy hour calls per feature category that are used up to

7   make up the composite feature[23] is:

8   ***Begin Proprietary***

XXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXX
XXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXX
XXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXX
XXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXX
XXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXX

9   ***End Proprietary***

10   BellSouth stated that "… it can be concluded that the typical user activates

11   about 4.5 features *in the busy hour*."[24] However, according to BellSouth's

12   SCIS inputs, originating and terminating calls only average less than

13   ***Begin Proprietary*** xxx ***End Proprietary*** requiring more

14   than *** Begin Proprietary*** xxx ***End Proprietary*** features to

15   be active on every originating and every terminating call.

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[23]   See BellSouth's response to POD #141, Attachment 1 included as Exhibit CEP-5.

[24]   BellSouth's response to ATT Item #89, attached as Exhibit CEP-7.

20

1 Q. **WHAT OTHER AVERAGE CUSTOMER USAGE DATA IS USED**
2   **BY BELLSOUTH?**

3 A. BellSouth uses the estimates of holding times of five hardware

4   components to derive a simple average, rather than a weighted average,

5   holding time for all hardware. BellSouth mixes holding times for different

6   types of announcements with holding times of conference circuits with no

7   regard to whether there are more announcements of one type versus

8   another announcement type, or the number of conference circuits

9   compared to announcements in the network. As in the case of the busy

10   hour call averages, BellSouth's broad generalizations and use of the

11   simple arithmetic average produces inaccurate inputs that will result in

12   inaccurate cost results.

13   We were not able to correct these input problems for two reasons: [1] we

14   do not have accurate call usage data; and [2] even if did have it,

15   BellSouth's SST model methodology requires only one call usage input

16   per feature category. We know of no legitimate method of averaging

17   together such disparate inputs without making many more additional error-

18   prone assumptions.

21

1 Q. THE THIRD TYPE OF INPUT BELLSOUTH STATES IS KEY TO
2   FEATURE COSTS IS PROCESSOR REALTIME. PLEASE
3   EXPLAIN WHAT PROCESSOR REALTIMES ARE AND HOW
4   BELLSOUTH USED THE PROCESSOR REALTIMES.

5 A. Processor realtimes are the individual measurements of central and/or

6   distributed processor time it takes to activate or use a feature. The

7   processor-related costs are 13% of BellSouth's claimed feature costs,

8   second only to the hardware costs. One of the incorrect simplifying

9   assumptions that BellSouth makes is that every feature uses the exact same

10   processing time – in fact, it assumes that each feature uses the same

11   processing time as one regular call set-up.

12   BellSouth also assumes that the processor is used in the same way for both

13   the DMS switch and the 5E switch. The Lucent switch has distributed

14   processors that perform the bulk of the feature call processing (which

15   BellSouth's model includes as an additional and separate cost item) and

16   only rarely does the 5ESS central processor become involved in a feature.

17   BellSouth, however, assigns a central processor regular call-setup to each

18   feature for both the Nortel switch and the Lucent switch, even though the

19   Lucent switch's central processor doesn't get involved with most features.

20   Assigning costs that do not exist clearly violates cost causation principles.

21   Most importantly, BellSouth's presumption that features, because they use

22   the processor, must pay for the processor is misguided. The processor

23   must be purchased for basic call processing and is part of the switch's first

22

1   cost – adding features do not cause BellSouth to purchase additional

2   processing equipment. The processor, along with the rest of the getting

3   started cost of the switch is a fixed cost and feature usage does not impact

4   the level of getting started investment. Historically, analog and earlier

5   digital switches could be call processing limited, but this is no longer true

6   with the dramatic increases in computer processing power.[25] The limiting

7   capacity of the current generation of switches is ports, not call processing.

8   When a switch's port capacity is reached, an additional switch must be

9   placed, thus incurring an additional getting started cost. A cost study,

10 based on true cost-causation, would allocate the processor and getting

11 started cost to all the ports in the switch, not the traffic sensitive minute of

12 use and feature costs.

13 Q.   **WHAT   IS   THE   SWITCH   ELEMENT   CENTREX**
14   **FUNCTIONALITY?**

15 A.   BellSouth's Centrex functionality feature costs out intra-Centrex intercom

16   usage and assigns it as a flat-rate port additive.

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[25]   In fact, BellSouth's inputs to SCIS/MO show less than ***Begin Proprietary***
       xxx ***End Proprietary*** average processor utilization, including features.
       Features that simply add usage to a processor that will not exhaust has no economic
       processor-related cost. .

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1 Q. **WHAT IS WRONG WITH FLAT-RATING THE CENTREX**
2   **USAGE?**

3 A. It is our understanding that all ALEC UNE-P lines generate UNE MOU

4   switch charges for every minute the line uses. BellSouth's separate and

5   additional Centrex intercom usage feature would, therefore, be a double

6   count and result in double recovery. This element should be set to 0.

7 Q. **HAVE YOU IDENTIFIED OTHER ERRORS?**

8 A. Yes. BellSouth's example for charging a line path to a feature is incorrect.

9   The SST Methodology documentation (Appendix D-76) states:

10   "Some of the features also tie-up an additional call path.
11   For example, a three-way call invokes another call path in
12   addition to the one established with the original call."

13   The SST developers either misunderstand the 3-way call functionality or

14   confuse the interactions between total feature costs and existing charging

15   schemes. The problems in BellSouth's 3-way calling example can best be

16   understood by example. Assume that Subscriber A lives in Tallahassee,

17   Subscriber B lives in Atlanta and Subscriber C lives in San Francisco.[26]

18   When Subscriber A calls Subscriber B, a standard call is made and minute

19   of use charges are incurred. When Subscriber A invokes 3-way calling

20   and makes a second call to Subscriber C a second line path is not used by

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[26] The following example works whether the calls are local, intraLATA toll, or
      interLATA toll because the ALEC will be charged UNE MOU charges regardless of
      the jurisdiction of the call.

1   Subscriber A (after all there is only one line path between the switch and

2   the end user). The role of the 3-port conference circuit (invoked via a

3   switch-hook flash) is to put the first call on "hold" in the switch and

4   Subscriber A re-uses its one and only path to dial Subscriber C. It is

5   important to note that the re-use of the path is being "paid for" by the first

6   call, which is still incurring MOU charges as if the entire call path were

7   being used. The second call is made from Subscriber A to Subscriber C

8   and minute of use charges are now incurred for the second call while the

9   minute of use charges are still in effect for the first call. In fact, the re-use

10   of the line path during the second call is recovered twice in the existing

11   charging schemes – once from the original call and a second time by the

12   second call.[27] There is no incremental line path to be charged as part of the

13   3-way feature cost that isn't already recovered via the two calls' charges.

14   **Q.**   **WHAT DO YOU RECOMMEND REGARDING THE LINE PATH**
15   **COSTS FOR FEATURES?**

16   **A.**   The Line Path cost category accounted for only 2% of BellSouth's claimed

17   composite feature cost. As described above, BellSouth's explanation for

18   including line path costs is flawed and therefore does not adequately

19   support these claimed costs. Mr. King's restated feature cost excludes the

20   cost of line paths.

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[27]   The rest of the second call (the trunk port and facility usage, etc. are incremental and are appropriately recovered via the second call charges).

1 Q. **WHAT PROBLEMS DID YOU FIND WITH RESPECT TO CALLER ID AND REMOTE CALL FORWARDING?**

3 A. One of the key inputs to these features is the percent penetration of Caller

4 ID (for the CLASS Modem Card hardware cost) and Remote Call

5 Forwarding (for assignment of a second line port). BellSouth's support

6 for these penetration levels provided in BellSouth's response to POD Item

7 33 and its Attachment 1 (attached as Exhibit CEP-8) uses the number of

8 lines per office in order to develop the penetration of Caller ID (shown as

9 Calling Number Delivery –CND on BellSouth's POD) and lines that are

10 remotely call forwarded. BellSouth's SCIS inputs show different average

11 office line counts than what BellSouth used in its separate analysis

12 documented in POD Item #33 for these two features as shown below:

13 *****Begin Proprietary*****

14 xxxxxxxxxxxxxxxx

15

16 *****End Proprietary***** Replacing the POD Item #33 line counts causes

17 with the SCIS line counts results in penetrations of *****Begin**

18 **Proprietary***** xxxxxxxxxxx *****End Proprietary***** for Caller ID

19 and RCF, respectively. These corrections are reflected in Mr. King's

20 restated costs.

26

1 Q. **PLEASE STATE YOUR CONCLUSIONS REGARDING**
2   **BELLSOUTH'S FEATURE COST PORTION OF THE SST-U**
3   **WORKBOOK.**

4 A. BellSouth has not met its burden of proof to document and support its

5   costs for features. There are problems with inputs, assumptions and

6   methodology throughout BellSouth's feature cost study. BellSouth's

7   feature cost model and its costs should be rejected.

8 **8. SUMMARY AND CONCLUSION**

9 Q. **PLEASE SUMMARIZE YOUR FINDINGS.**

10 A. BellSouth's use of melded discounts that presume that a majority of lines

11   of a reconstructed network are purchased at the higher growth prices

12   produced inflated switch UNE costs. The new switch discounts that

13   BellSouth used for the getting started equipment should be used

14   throughout the switch study.

15   Critical investment and capacity problems in the feature hardware study

16   cause seriously overstate feature costs.

17   The overly simplistic averaging of widely disparate (and often wrong)

18   inputs just to arrive at one feature category input cannot produce accurate

19   results.

20   Miscellaneous feature costing errors were corrected as described

21   previously and have been incorporated into the restated costs in Mr.

1   King's testimony. Some other errors (such as call usage inputs and

2   BellSouth's flawed premise that features cause incremental costs in the

3   fixed getting started equipment of the switch) cannot be corrected within

4   the confines of BellSouth's model.

5 Q. **PLEASE STATE YOUR CONCLUSION.**

6 A. The Simplified Switching Tool BellSouth developed to produce switch

7   element investments has too many errors, generalizations and

8   methodological faults and should be rejected. The following alternative

9   methodology is recommended:

10   1. Obtain the line and trunk port costs from SCIS/MO, using the correct

11   new switch discounts.

12   2. Allocate the total Getting Started Cost of the switch, from SCIS/MO

13   using the correct new switch discounts, to all ports.

14   3. Divide the trunk port cost from SCIS/MO using the correct new switch

15   discounts, by the minutes per trunk to produce the investment per

16   trunk MOU.[28]

17   4. The remainder of the total switch investment (after subtracting out the

18   above items) from SCIS/MO using the new switch discounts, is the

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[28] Use the same methodology to derive the tandem trunk port MOU cost.

1   traffic sensitive cost. Divide this total investment (augmented by the

2   corrected feature hardware costs) by total minutes to calculate the

3   investment per end office switch MOU.[29]

4   The above simplified methodology uses Florida-specific investments

5   assigned to UNE elements using accurate, cost-causation principles. It

6   accounts for the full cost of forward-looking switches, maintains cost-

7   causation relationships, and eliminates the error-prone feature cost inputs,

8   assumptions and methodologies found in BellSouth's SST model.

9   Should this Commission not reject the SST Model for the reasons detailed

10   above, then the switch UNE restated costs in Mr. King's testimony,

11   reflecting the corrections to the investments proposed here, should be

12   adopted.

13   Q.   DOES THIS CONCLUDE YOUR TESTIMONY?

14   A.   Yes.

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[29]   Use the same methodology (without feature hardware) to derive the tandem switch
       MOU cost.

BellSouth Telecommunications, Inc.
FPSC Docket No. 990649-TP
AT&T's 2nd Set of Interrogatories
May 12, 2000
Item No. 87
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REQUEST: From page 23, lines 3 and 4 of Mr. Page's May 1, 2000 Direct Testimony,
please explain fully the statement "The majority of BellSouth's forward-
looking switching equipment expenditures are for growth jobs" and
provide an example of a digital switch purchased to replace an analog
switch showing what portion of the expenditures would be for replacement
and what portion would be for growth. Fully explain all assumptions.

RESPONSE: Mr. Page's testimony is based upon the fact that each year BellSouth
purchases more lines for purposes of growth than for replacement.
Presently, BellSouth is pursuing an aggressive course of analog switch
replacement in order to provide digital switching even more widely. All
small and medium sized analog switches have already been replaced.
Current plans are to replace the largest analog switches with digital
switches by the fourth quarter of 2004. Even with that aggressive plan,
growth demand forecasts indicate that only 45% of BellSouth's line
purchases from vendors from 1999 through 2002 will be for replacement
purposes. Growth is expected to account for 55% of line purchases during
that time period. Given that BellSouth's vendor growth discount is
substantially less than the replacement discount, expenditures for growth
will exceed that for replacement even during this time of aggressive
replacement. If longer range forecasts of growth lines were available
beyond 2004, they would reveal a slow down of replacements and
therefore exacerbate the expenditures for growth relative to that of
replacement.

BellSouth does not break down individual switch purchases to identify
expenditures for replacement and for growth and therefore cannot offer a
specific example of that type purchase. Also, one example of a single
switch replacement would not be reflective of the universe of switch
replacements. Also, see BellSouth's response to AT&T Interrogatory
Item No. 88c.

RESPONSE PROVIDED BY: Robert McKnight
                                     Director
                                     3535 Colonnade Parkway
                                     Birmingham, Alabama 35243
                                     BellSouth Telecommunications, Inc.

REDACTED REBUTTAL TESTIMONY EXHIBITS OF

CATHERINE E. PITTS

Exhibit No. CEP-2, 3 pages, all confidential

Exhibit No. CEP-3, 8 pages, all confidential

Exhibit No. CEP-4, 1 page, all confidential

Exhibit No. CEP-5, 2 pages, all confidential

Exhibit No. CEP-6, 4 pages, all confidential

Exhibit No. CEP-8, 2 pages, all confidential

BellSouth Telecommunications, Inc.
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REQUEST: In reference to page 27, lines 21 and 22, please confirm or deny whether the statement "the typical end user customer utilizes 4 vertical features" means that the customer uses four vertical features in the busy hour.

RESPONSE: BellSouth denies that "the typical end user customer utilizes 4 vertical features" means that the customer uses four vertical features in the busy hour. The meaning of this statement, as explained in Mr. Page's testimony, is that the typical customer has on average 4 features that he uses regularly. The number of busy hour calls per vertical feature varies by feature, but averages approximately 1.1 calls for the set of features that BellSouth reviewed. Therefore it can be concluded that the typical user activates about 4.5 features in the busy hour. BellSouth believes this number is reasonable because it includes both originating and terminating features.

RESPONSE PROVIDED BY: Joseph H. Page
                                          Manager
                                          675 West Peachtree Street
                                          Atlanta, Georgia 30375

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