

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of : DOCKET NO. 980696-TP
: :
Determination of the cost of :
basic local telecommunications :
service, pursuant to Section :
Section 364.025, Florida :
Statutes. :
: :

VOLUME 25
Pages 2737 through 2890

PROCEEDINGS: HEARING

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

DATE: Friday, October 16, 1998

TIME: Commenced at 9:05 a.m.

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

REPORTED BY: MARY ALLEN NEEL, RPR
BUREAU OF REPORTING

RECEIVED 10-19-98

DOCUMENT NUMBER-DATE
11604 OCT 16 98
FPSR-RECORDS/REPORTING

APPEARANCES: (As heretofore noted.)

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P R O C E E D I N G S

(Transcript follows in sequence from
Volume 24.)

(Witness Art Lerma on the stand.)

CROSS EXAMINATION

BY MR. MITCHELL:

Q Good morning, Mr. Lerma. Tom Mitchell for
GTE.

A Good morning.

Q Your rebuttal testimony notes as its first
criticism of GTE, as I understand your testimony, that
you didn't have much data to analyze GTE's expense
information. Is that right?

A Yes. At the time that I prepared my
testimony, I didn't. And I subsequently do have the
information that was provided in data request
responses and have even prepared an exhibit that shows
what the comparable adjustments would have been.

Q Okay. And just so the record is clear, I'm
holding up a big fat notebook. Is this about the
quantity of documents that GTE provided you to back
up its expense numbers as reflected in Mr. Norris's
testimony?

A That's representative of what I've seen,
but quantity does not necessarily translate to

1 quality.

2 Q I see. And you got the data response
3 requests that have calculations and things like that
4 that you said in your rebuttal testimony GTE had not
5 provided?

6 A Yes, because they didn't provide them in
7 their filed information, and those data request
8 responses did not -- I did not have those until after
9 the deadline for filing that testimony.

10 Q Now, just to close the loop, with respect
11 to GTE, you've been asked whether you did specific
12 studies of BellSouth and Sprint's efforts to reduce
13 expenses through downsizing. I take it then you
14 didn't do a specific study with respect to GTE about
15 downsizing, did you?

16 A No. I couldn't for two -- for a couple of
17 reasons. One is, I asked for that information about
18 whether there were any expectations of any downsizing
19 or future re-engineering, and the response I got was
20 no.

21 And it also contradicts the fact that --
22 you know, I went into the Internet, and on GTE's Web
23 site, you can click on a button for merger information
24 related to Bell Atlantic and GTE. And one of the
25 biggest things in there is that they expect expense

1 synergies of \$2 billion, of which \$500 million is in
2 common costs and overheads. And there's no indication
3 whatsoever that any of that has been considered in
4 here.

5 Q Would you agree with me, Mr. Lerma, that --
6 for instance, looking at your ALR-3, you have a list
7 of ARMIS account categories there -- that one of the
8 ways you could have done this analysis would be to
9 look back historically for some period of time to see
10 what efficiency gains GTE in Florida had made in each
11 of those categories?

12 A Yes. And I do have -- first it was
13 necessary to find out how GTE came up with its
14 calculations, because regardless of what data that I
15 had available for me to determine whether there were
16 trends downward or not, if I wanted to make an
17 adjustment, I would need to know how GTE went about
18 doing its numbers. And that's what we didn't have.
19 We had the totals, but we didn't have how they went
20 about it.

21 And it involves how did they come up with
22 factors to determine what piece of their total is
23 local so that I could translate that into an
24 adjustment. That's what I didn't have available and
25 what I did receive later in interrogatory responses.

1 Q So it's your testimony that you couldn't
2 reach any conclusion without that backup
3 documentation?

4 A I reached a conclusion enough to determine
5 that the same observable trends that I had for
6 BellSouth was there. I looked at GTE's general and
7 administrative expenses and network operating expenses
8 for a period from 1992 to 1997 off of its ARMIS
9 reports. For network operating expenses, they trended
10 downward, if I recall, about 6.5%, and for general and
11 administrative expenses, they trended about 5%. So I
12 did look at that, and that was the basis for my
13 testimony suggesting that there are declining cost
14 trends for all companies.

15 What I couldn't do is make the adjustments
16 or the actual calculations, because I didn't have the
17 background information as to how GTE came up with its
18 numbers.

19 Q You were here yesterday when Mr. Norris
20 testified, weren't you?

21 A Yes, I was.

22 Q Did you hear him say that GTE had just
23 finished a one- or two- or three-year re-engineering
24 process of its operations in Florida?

25 A Yes.

1 Q And did you hear him say that based on
2 that, GTE doesn't expect to be able to increase its
3 level of efficiency in any substantial way for the
4 next three to five years?

5 A Yes, but that doesn't necessarily mean it
6 won't happen, because the trends were -- the cost
7 trends were there before that took place. The access
8 line growth is such that unit costs will continue to
9 go down. Even if those level of costs are maintained
10 and the access line growth goes up, the units costs
11 will go down.

12 And you factor in -- I presume that GTE has
13 -- publicly feels like there's a good chance of this
14 merger. And if you factor those in, the verbiage that
15 I pulled off of the Internet says that they expect to
16 be able to do those synergies or accomplish those
17 expense synergies as a result of economies of scale
18 and efficiencies.

19 Q Of the merged company; right?

20 A That's correct.

21 Q We're not talking about the merged company
22 here, are we?

23 A No, but if we're talking about
24 forward-looking and what these costs are going to be
25 like in the future, that merged company is where a

1 large amount of those corporate overheads generate.
2 They're eventually allocated to each of the individual
3 states, so there will definitely be a benefit to GTE
4 in Florida as a result of that.

5 Q Well, does that mean then you also assume
6 that BellSouth could merge with somebody and reach
7 these efficiency gains?

8 A Sure, but they don't have anything
9 announced, sir, or otherwise we would be looking at
10 that.

11 Q Right, but they could? They could merge
12 with somebody; right?

13 A Sure.

14 Q Okay. With respect to technology, have you
15 done a specific study of GTE's network to see whether
16 they have made gains in technology over the past
17 couple of years?

18 A No, I have not.

19 Q Okay. Would you expect that one of these
20 gains that you're talking about would be replacing
21 analog switches with digital switches?

22 A I would expect that would be -- that could
23 be a contributor.

24 Q And if a company has already replaced all
25 its analog switches, you wouldn't find any gain there,

1 would you?

2 A That's not necessarily true. I heard in
3 the cross examination of several witnesses yesterday
4 that what you're talking about going forward is not
5 necessarily that you're at -- that you have digital
6 switches in place, but there are next generation
7 systems that are out there, for example, next
8 generation digital loop carrier systems that, once
9 those come in, provide additional efficiencies.

10 MR. MITCHELL: Thank you, Mr. Lerma.
11 That's all I have.

12 CHAIRMAN JOHNSON: Staff?

13 MR. BECK: Madam Chairman, could I ask a
14 few questions, please?

15 CHAIRMAN JOHNSON: All right.

16 CROSS EXAMINATION

17 BY MR. BECK:

18 Q Good morning, Mr. Lerma. My name is
19 Charlie Beck with the Office of Public Counsel.

20 A Good morning.

21 Q I would like to ask you a few questions
22 about the size of a fund attracting competitors. In
23 general, a fund would provide funding for those wire
24 centers where the bench -- where the costs exceed the
25 benchmark, however those things are set; isn't that

1 right?

2 A Yes, generally speaking.

3 Q Suppose that the fund were set large enough
4 so that half of the wire centers in the state received
5 funding. Wouldn't the non-funded exchanges be more
6 attractive to a new entrant than funded exchanges or
7 wire centers?

8 COMMISSIONER GARCIA: Could you repeat the
9 question? I didn't hear it.

10 MR. BECK: I'm asking the witness whether
11 unfunded wire centers would be more attractive to new
12 entrants than funded wire centers for the Universal
13 Service Fund.

14 THE WITNESS: I don't know specifically.
15 I've never done that type of analysis myself. I'm not
16 involved in that. It would -- an opinion would be
17 that the unfunded wire centers are probably some of
18 the larger wire centers where costs of doing business
19 are lower in and of themselves, and so there's
20 probably a lot of companies that are wanting to
21 compete in those wire centers already.

22 Q (By Mr. Beck) Wouldn't a fund, at least in
23 concept, to the extent that it subsidizes the costs to
24 the extent they exceed a benchmark, makes those wire
25 centers look like the costs are the benchmark, doesn't

1 it?

2 A Can you repeat the question again?

3 Q The fund would provide funding to the
4 extent that the costs, however determined, exceed
5 whatever benchmark is picked. Isn't that the
6 fundamental concept?

7 A Yes.

8 Q And to a competitor, if they could rely on
9 that fund, that would make the costs look like they
10 are the benchmark in those funded wire centers,
11 wouldn't it?

12 A Yes, that would be one way of looking at
13 it.

14 Q Now, in the unfunded wire centers, the
15 costs are going to be less than the benchmark, are
16 they not, by definition?

17 A That's by definition the way it should
18 work.

19 Q And so all other things being equal,
20 wouldn't the unfunded wire centers be more attractive
21 to a new entrant than a funded one?

22 A Yes.

23 Q And that assumes that a new entrant could
24 rely on the fund being there and being permanent, not
25 being subject to change every few years too, doesn't

1 it?

2 A Yes.

3 Q Okay. Would uncertainty about the
4 permanence of a fund or the possibility of that fund
5 being changed every few years also affect the
6 attractiveness of funded exchanges to a new entrant?

7 A I would think it would.

8 MR. BECK: Thank you. That's all I have.

9 CROSS EXAMINATION

10 BY MR. COX:

11 Q Good morning, Mr. Lerma. Will Cox on
12 behalf of the Commission Staff.

13 A Good morning.

14 Q In your summary you mentioned -- I'm not
15 sure exactly how you referred to it, but some exhibits
16 or some analyses that you performed that you could
17 provide to the Staff. I'm trying to recall what it
18 was. Do you remember when you mentioned that in your
19 summary?

20 A Yes. I mentioned that initially when I
21 filed my testimony, I would have prepared schedules
22 similar to those that I prepared for BellSouth
23 quantifying how to go about making the adjustments
24 that I recommended for BellSouth. I have put one of
25 those together for GTE since I obtained the

1 interrogatory responses.

2 Q But you did not have one for Sprint? Is
3 that --

4 A No. There was not sufficient information
5 provided, and it was also provided very late, because
6 those data request responses weren't answered until
7 October the 8th, and I just did not have time to put
8 something together.

9 Q Do you think you could provide the
10 BellSouth and GTE adjustment analysis as a late-filed
11 exhibit?

12 A Yes. The BellSouth is already part of the
13 testimony. It's attached to my testimony.

14 Q Oh, it is attached? Okay.

15 A And additional backup information for that
16 was provided in a response to Staff interrogatories to
17 AT&T. But I can provide the GTE analysis as a
18 late-filed exhibit.

19 Q The GTE adjustment analysis?

20 A Yes.

21 MR. COX: Okay. Chairman Johnson, Staff
22 would ask that a late-filed exhibit be marked for
23 identification. It's the GTE -- AT&T's GTE adjustment
24 analysis.

25 CHAIRMAN JOHNSON: It will be marked as

1 Late-filed 92 and identified as stated.

2 (Late-filed Exhibit 92 identified.)

3 Q (By Mr. Cox) I just have one question for
4 you, Mr. Lerma. You mentioned three primary drivers
5 or factors that would lower operating expense unit
6 costs lower than the historical costs of a regulated
7 monopoly, and those were productivity, technology, and
8 competition?

9 A Yes.

10 Q On page 7 of your rebuttal testimony, you
11 discuss the effect that competition would have.

12 A What line are you on?

13 Q Particularly I want you to look at lines 12
14 through 17.

15 A Okay.

16 Q And on those lines -- and I just want a
17 little more explanation of what you're saying here in
18 these lines. You state at line 12, "Although the
19 onset of competition has impacts on operating expenses
20 across the board, it has a particularly significant
21 impact on general and administrative costs." And you
22 go on to say that in a competitive environment, G&A
23 expenses per line are considerably less than those
24 reflected by BellSouth, GTE, and Sprint in their BCPM
25 inputs.

1 A Yes.

2 Q Could you explain -- they're probably tied
3 together -- why and how this occurs, why it would be a
4 particularly significant impact on the G&A costs?

5 A Well, what it's going to drive -- and a
6 good example of that is the timing, for example, of
7 when -- if we look at BellSouth, BellSouth in many of
8 its states has in the last few years gone into
9 alternative regulation. I know that here, I know
10 BellSouth, GTE, and Sprint, alternative regulation
11 began in '96. In very many of the states across the
12 region that BellSouth has been involved in, that's
13 about when their alternative regulation began, '95,
14 '96 time frames.

15 Coincident with that, these major large
16 downsizings and re-engineering processes occurred, and
17 expense levels came down over those period of times
18 when, you know, the incentive probably before
19 alternative regulation when things were pretty much in
20 a monopoly environment was not there to reduce costs.
21 Alternative regulation is rooted in the fact that
22 competition is emerging. It is beginning. Otherwise,
23 the Commission would not have considered doing
24 alternative regulation, because things would have been
25 status quo. So it drove those types of behaviors to

1 bring costs down.

2 What it also has done is, there is
3 observable larger reductions that have occurred as a
4 result of that over those time periods, about there
5 were already reductions occurring even before then
6 that are observable when you look at trends looking at
7 specific ARMIS data.

8 In one of the responses that I provided to
9 the Staff, Staff's fourth request to AT&T for
10 production of documents, under Document No. 25, I
11 provided three trend analyses for BellSouth, GTE, and
12 Sprint that were based off of the ARMIS data. And if
13 you look at that, you can see that costs have been
14 coming down, but you'll see them more pronounced
15 beginning with -- around the time that alternative
16 regulation took place, indicating that, you know,
17 competition is beginning to emerge.

18 Q And that was particularly for the G&A
19 costs?

20 A Yes. The analysis that I provided there
21 was for G&A, because the question that was asked was
22 related to those same words that you just covered
23 relating to general and administrative costs.

24 Q It seems like you discussed the impact of
25 alternative regulation, and you're saying that that

1 sort of is equivalent to or translates into
2 competition?

3 A Not necessarily. What -- because I think
4 in most states, alternative regulation is a step
5 towards even lesser regulation, which ultimately comes
6 when a Commission feels that there is enough
7 competition to not regulate that industry any further.
8 So it indicates that there is some competition
9 beginning.

10 And the fact that you're no longer being
11 rate-of-return regulated, the incentives are
12 different. The incentives are to reduce expenses and
13 reduce investments so that earnings are higher and
14 they're not driven any longer by any target rate of
15 return.

16 Q So am I to understand that you're using the
17 impact of alternative regulation, this historical
18 information, to base your opinion on what the
19 potential impact of competition will be?

20 A That's just one of them.

21 MR. COX: Thank you, Mr. Lerma.

22 CHAIRMAN JOHNSON: Commissioners?

23 Redirect?

24 MR. HATCH: No redirect.

25 CHAIRMAN JOHNSON: Exhibits?

1 MR. HATCH: AT&T would move 91.

2 CHAIRMAN JOHNSON: Show that admitted
3 without objection.

4 (Exhibit 91 received in evidence.)

5 CHAIRMAN JOHNSON: Thank you, sir.

6 THE WITNESS: Thank you.

7 MR. HATCH: AT&T would call Catherine
8 Petzinger to the stand.

9

- - - - -

10 CATHERINE E. PETZINGER
11 was called as a witness on behalf of AT&T and
12 testified as follows:

13 DIRECT EXAMINATION

14 BY MR. HATCH:

15 Q Ms. Petzinger, could you state your name
16 and address for the record?

17 A Yes. My name is Catherine Petzinger, and I
18 work at 295 North Maple Avenue in Basking Ridge, New
19 Jersey.

20 Q By whom are you employed and in what
21 capacity?

22 A I'm a district manager for AT&T.

23 Q Did you prepare and cause to be filed in
24 this proceeding rebuttal testimony consisting of
25 approximately 44 pages?

1 A Yes, I did.

2 Q Do you have any changes or corrections to
3 your rebuttal testimony?

4 A Yes, I have three. In my rebuttal
5 testimony, on page 19, at the top of the page, line
6 number 1, I would like to strike the words "used by
7 GTE," delete those. The sentence -- the question
8 should read, "Please explain why the ALSM method is
9 faulty and why the default regression coefficients may
10 have the same problem."

11 On page 20, there's a simple typo on line
12 number 8. The last word on line 8 should read
13 "outputs," so the "C" before that should be deleted.

14 And then on page 38, at the end of line 13,
15 there were some quotes left off of that. That was the
16 end of a quote, so that should read, "mix meets the
17 least cost principle of TELRIC," unquote.

18 Q Subject to those changes and corrections,
19 if I asked you the same questions as are in your
20 rebuttal testimony, would your answers be the same?

21 A Yes, they would.

22 MR. HATCH: Madam Chairman, I would request
23 that the rebuttal testimony of Ms. Petzinger be
24 inserted into the record as though read.

25 CHAIRMAN JOHNSON: It will be inserted.

1 Q (By Mr. Hatch) Ms. Petzinger, did you also
2 prepare supplemental rebuttal testimony in this
3 proceeding?

4 A Yes, I did.

5 Q Do you have any changes or corrections to
6 your supplemental rebuttal testimony?

7 A No, I do not.

8 Q If I were to ask you the same questions as
9 are in your supplemental rebuttal testimony, would
10 your answers be the same?

11 A Yes, they would.

12 MR. HATCH: Madam Chairman, I would request
13 that Ms. Petzinger's supplemental rebuttal be inserted
14 into the record as though read.

15 CHAIRMAN JOHNSON: It will be inserted.

16 Q (By Mr. Hatch) Ms. Petzinger, did you
17 prepare and cause to be filed with your rebuttal
18 testimony one exhibit labeled CEP-1?

19 A Yes, I did.

20 Q Do you have any changes or corrections to
21 CEP-1?

22 A No, I don't.

23 MR. HATCH: Madam Chairman, could I have
24 that marked for identification, please?

25 CHAIRMAN JOHNSON: It will be marked as 93.

1 (Exhibit 93 marked for identification.)

2 THE WITNESS: That was a proprietary.

3 MR. HATCH: Yes, ma'am, that is a
4 proprietary exhibit.

5 Q (By Mr. Hatch) Did you also prepare and
6 cause to be filed an exhibit to your supplemental
7 rebuttal testimony identified as CEP-2?

8 A Yes, I did.

9 MR. HATCH: Madam Chairman, could I have
10 that marked for identification?

11 CHAIRMAN JOHNSON: It will be marked as 94.

12 (Exhibit 94 marked for identification.)

13 Q (By Mr. Hatch) Do you have any changes or
14 corrections to either your CEP-1 or CEP-2 exhibits?

15 A No, I don't.

16 Q Were they prepared by you or under your
17 supervision?

18 A Yes, they were.

19

20

21

22

23

24

25

1 REBUTTAL TESTIMONY OF
2 CATHERINE E. PETZINGER
3 ON BEHALF OF AT&T COMMUNICATIONS
4 OF THE SOUTHERN STATES, INC
5 DOCKET NO. 980696-TP

6 I. INTRODUCTION

7
8 Q. Please state your name, present position and business address

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

12 Q. Please describe your work experience and educational background

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

19 Before joining AT&T in 1996, I worked at Bellcore for 13 years in the Cost
20 Methods and Models organization. I was one of three individuals who
21 designed the Bellcore SCIS feature model and implemented new incremental

1 costing methodology into the program. I also was the lead subject matter
2 expert on feature costing in general as well as a subject matter expert on
3 1ESS, 1A ESS and 5ESS switches. When I was promoted to lead the SCIS
4 group of approximately 20 people, I had responsibility for the technical
5 development, production, documentation, customer care and cost study
6 consultation for the SCIS family of models.

7 **Q. Have you previously testified in regard to LEC cost models in general,
8 and the Switching Cost Information (SCIS) in particular?**

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

11 **II. PURPOSE AND SUMMARY OF TESTIMONY**

12
13 **Q. What is the purpose of your testimony?**

14 **A. The purpose of my testimony is to report my findings regarding the BCPM
15 switch module methodology and the inputs used by BellSouth, GTE and
16 Sprint.**

17 **Q. Please summarize the main points of your testimony**

18 **A. The BCPM switch model's methodology is deficient in the following major
19 respects:**

- 1 1. The BCPM model is dependent upon the embedded network
2 configuration that does not represent an efficient forward-looking
3 network. For example, BCPM uses the embedded host/remote and
4 standalone configurations from the LERG, modified using
5 undocumented assumptions.

- 6 2. The BCPM switch module is based on proprietary third-party models
7 populated with undocumented input data. Using confidential models
8 is neither necessary nor appropriate for determining USF and violates
9 the FCC's USF Report and Order.

- 10 3. There are a number of model errors that cause overstated switch costs,
11 such as the USF investment per line calculated by BCPM, when
12 multiplied by the number of working lines exceeds the total amount of
13 switch investment identified by BCPM as the total switch investment
14 associated with USF.

- 15 4. Some of the inputs to the BCPM model by GTE, Sprint and BellSouth
16 are incorrect and some are unjustifiably widely divergent. Most
17 importantly, BellSouth, GTE and Sprint use incorrect switch price
18 input data, which causes all the switch costs used to calculate the USF
19 to be inflated.

1 IV. BCPM'S MODELING METHODOLOGY IS NOT FORWARD-
2 LOOKING

3 Q. Describe how BCPM uses an embedded host/remote network
4 configuration.

5 A. BCPM requires the LERG to run. The LERG is a Bellcore database that
6 identifies wire centers and the switches that are deployed in the wire centers.
7 Each switch is identified as a host, remote, or standalone. A standalone
8 switch has no remotes, while a host will have at least one remote. BCPM
9 requires every switch to be identified as host, remote or standalone. BCPM
10 apparently also uses the LERG to identify the host to which a remote
11 belongs.¹

12 Q. Why is the current host/remote network configuration not forward-
13 looking?

14 A. The embedded host/remote/standalone configurations in the LERG are not
15 forward-looking and do not represent an efficient network, primarily because
16 there are many more types of remotes available today than existed in the
17 recent past, and the capacities of remotes have increased compared to remotes
18 of just a few years ago. BellSouth stated "BCPM 3.1 designs a modern
19 network of digital host, remote and stand-alone switches based on the *actual*
20 *in-place network.*"² TELRIC cost methodology does not require using the in-
21 place network; in fact, it only requires the wire center locations to be

1 maintained and the methodology expects that a new, cost-effective network
2 will be put in place. A network planner looking at the current demands for
3 lines, trunks and traffic would definitely place a different mix of equipment,
4 even assuming the same wire center locations. An example of a forward-
5 looking change to the LERG mix of standalones and remotes can be found in
6 BCPM's own documentation, which states: "Discussions with the sponsor
7 companies' engineering subject matter experts indicate that few placements
8 of *small standalone switches*, such as the Nortel DMS-10 are expected in the
9 future. Most small exchanges will be served by 5ESS or DMS *remotes*."³ It
10 is unclear, however, how BCPM treats the DMS-10 switches. A network
11 planner could optimize which wire centers were hosts vs. remotes given
12 today's demands rather than being saddled with host placement decisions
13 made many years ago.

14 **Q. Why is it unclear how BCPM treats DMS-10s?**

15 **A.** BCPM starts with data from the LERG. BCPM, however, appears to edit the
16 LERG data so that only one switch is placed per wire center. AT&T has
17 spent considerable time and effort reviewing equations and cell references in
18 column after column of the switching module, but we have been unable to
19 locate how the switches are translated from the LERG to BCPM. If the
20 LERG shows multiple switches in a wire center, it has not been documented
21 as to how BCPM chooses to identify the one switch it "keeps." Next, the
22 switches that are "kept", are assigned to be either a Nortel DMS-100 or a

1 Lucent 5ESS, regardless of the manufacturer or technology of the actual
2 switch. It is unclear whether a DMS-10 host or standalone switch is changed
3 to a DMS-100 remote (as the developer suggests in the quote above) or
4 whether the DMS-10 standalone or host is converted to a DMS-100 or 5ESS
5 host or standalone switch.

6 **Q. Is it wrong to assign all switches in Florida to be 5ESS or DMS 100s?**

7 **A. Yes.** The 5ESS and DMS-100 are both large switches with huge capacities,
8 and correspondingly large fixed costs. Many of the switches in Florida are
9 small and forcing them to assume the pricing structure of a 5ESS or DMS-
10 100 would seriously overstate the costs for these switches.

11 BCPM provides an optional small switch option that has been used by GTE
12 and Sprint (but not BellSouth) that is an apparent effort to counteract
13 BCPM's using data from the LERG and forcing all switches to be large 5ESS
14 or DMS-100s.

15 **Q. Does forcing all switches to be 5ESS or DMS-100 make the model**
16 **forward-looking?**

17 **A. No.** Although Lucent 5ESS and Nortel DMS-100 are market leaders for large
18 switches, they are not the only suppliers of large switches. There are in
19 Florida, for example, Siemens and Ericsson switches that can also be large
20 switches. Even more importantly for Universal Service cost analyses are the
21 critical assumptions about switches in more rural areas, where small switches

1 may be the norm and there are a number of suppliers of these switches,
2 including Siemens Stromberg-Carlson, Nortel, and many others.

3 **Q. Why is it important to reflect the mixture of switch technologies and**
4 **manufacturers?**

5 **A. The fixed costs are dramatically different for a small standalone switch**
6 **compared to a large one. Equally important, however, is BCPM's**
7 **disaggregation calculations assign switch investment to specific buckets**
8 **based solely on 5ESS and DMS-100 switches. Therefore the costs assigned**
9 **to port, and the multiple usage categories are not relevant for any switches**
10 **other than a 5ESS and DMS-100. Therefore, not only is the total investment**
11 **probably overstated in many cases, but the amount assigned to the**
12 **subcategories, or buckets, is totally inappropriate for other switch**
13 **technologies that would be considered forward-looking as well.**

14 BCPM's small switch option has its own disaggregation percentages. The
15 entire documentation for the development of these percentages is in the
16 Switch Model Inputs, p. 39, "The default data was generated from a *typical*
17 state run of the *large* switch model during BCPM model development." The
18 documentation does not explain what a typical state run is, and so we cannot
19 determine whether it has any relevance. What is clear, however, is that any
20 run of the "large switch model" would certainly not generate relevant or
21 correct percentages for small switches.

1 V. BCPM INAPPROPRIATELY RELIES ON CONFIDENTIAL
2 MODELS AS THE FOUNDATION OF THE SWITCHING MODULE

3
4 Q. Why is it inappropriate to use closed, confidential models?

5 A. First of all, using closed models for determining USF violates the FCC's USF
6 Report and Order.⁴ Closed models make it excessively difficult, and usually
7 impossible, to evaluate whether the models are valid and whether they were
8 used appropriately in the context of USF. For example, what forward-
9 looking assumptions were made about SS7 signaling, digital loop carrier, etc.
10 In addition, the closed models use massive amounts of data that need to be
11 examined for consistency and relevancy with other assumptions in the USF
12 forward-looking cost study methodology. These difficulties have been
13 showcased in this proceeding where the short timeframe between the
14 submission of the hugely complex BCPM switch model, coupled with delays
15 in providing a working BCPM model in the case of GTE and delays in
16 responding to data requests, have made a comprehensive and accurate
17 assessment of the BCPM switch model an impossible task.

18 Q. What inputs to the proprietary models can significantly affect BCPM's
19 methodology?

20 A. The SCIS models are typically run for essentially every switch in the cost
21 study area. For each switch, traffic levels and switch size are entered as

1 office-specific inputs. Types and numbers of subscriber ports are entered; fill
2 factors are inputs for both lines and trunks; types of remotes are entered (for
3 example, copper-based, fiber based, etc.); and discounts are entered for
4 various types of equipment. Without access to the underlying models,
5 however, this is probably only a partial list of inputs that affect BCPM.
6 Should additional information become available as data requests are received,
7 this section will be revised or supplemented, if I have an opportunity to file
8 additional testimony.

9 **Q. Please provide some examples of how these inputs would affect BCPM?**

10 **A.** BCPM and SCIS both use fill factor inputs. It appears at this point that at
11 least one company has entered fill factors into both SCIS and BCPM.³ The
12 investments associated with the spare capacity defined by the fill factor inputs
13 would therefore be double counted. For example, assuming a 95% SCIS fill
14 factor and an 85% BCPM fill factor would result in an approximate 18%
15 overstatement in the port investment.

16 The numbers and types of lines will cause volatile changes in the proprietary
17 model outputs. The costs for different types of ports can vary dramatically,
18 affecting both the overall investment levels as well as distorting the
19 disaggregations. For example, Next Generation Digital Loop Carrier
20 (NGDLC) costs are significantly less than either older Integrated Digital
21 Loop Carrier (IDLC) or analog lines. From the data I have available at this
22 point, it appears that NGDLC has not been entered into SCIS, therefore the

1 port costs will be overstated. In addition, although no NGCLD is in the
2 switch model, apparently NGDLC is assumed in the BCPM loop module,
3 which raises critical questions of inconsistencies within BCPM itself.

4 This volatile differences in costs is also true for the types of remotes –
5 copper-based remotes, for example, are tremendously more expensive than
6 fiber-based. (The cost difference is mainly attributable to the large amount of
7 dedicated equipment at the host that is necessary to terminate copper-based
8 remotes compared to a totally different architecture that requires essentially
9 no dedicated equipment for a fiber-based remote.) At the time of preparing
10 this testimony, I do not have information to determine what types of remotes
11 have been assumed. As this information is made available in data request
12 responses, I will supplement this testimony accordingly.

13 The proprietary cost models for at least one of the sponsors used discount
14 inputs. If we receive the necessary data request responses, this testimony will
15 be supplemented with just such an analysis. The documentation indicates
16 that the discounts "were mathematically eliminated from the results."⁶ There
17 are multiple discount inputs that can affect different outputs in a non-uniform
18 manner and any process that "mathematically eliminated" these discounts
19 would have to have been quite complicated. This mathematical process has
20 not been documented nor explained in any way, and therefore it is highly
21 questionable whether even the undiscounted prices for large switches are
22 correct in BCPM.

1 Q. Are inputs to the proprietary cost models and inputs to BCPM
2 consistent?

3 A. No one knows for sure. It is not clear that even Indetec, a BCPM developer,
4 that purportedly reviewed all the *output* data to generate the regression
5 analyses ever reviewed all of the *input* data used in the proprietary models. It
6 is highly probable that data provided by three separate companies (and
7 possibly multiple organizations within those companies) may not be
8 consistent with the input data used in BCPM. For example, if the inputs to
9 the proprietary models assumed an average line to trunk ratio of eight to one,
10 in a 10,000 line switch, costs for 1,250 trunks would have been included in
11 the BCPM default regression coefficients used by BellSouth, Sprint and GTE.
12 In BCPM, the line to trunk ratio default (and used by BellSouth and Sprint) is
13 fourteen to one, making 714 trunks for a 10,000 line switch. This would
14 mean that the cost for 1,250 trunks included in the regression coefficients
15 would essentially be spread over the 714 trunks calculated in BCPM, thereby
16 overstating the cost by 75%.

17 These are only isolated examples of the potential problems that can exist
18 between the proprietary model input data and BCPM. The bottom line is that
19 without carefully reviewing the voluminous and confidential data inputs to
20 the proprietary models, BCPM cannot be considered to be consistent or
21 accurate and should be rejected.

1 Q. BCPM sponsors claim that other sources can be used for the BCPM
2 switch price data. Is this a viable alternative?

3 A. No. I know of no other switch models that use detailed engineering that
4 would be consistent with the pre-defined output categories in BCPM other
5 than the models used in this proceeding -- all of which are proprietary. If
6 Method #2 is used, then not only do the switch prices need to be entered for
7 each switch, but the data must be broken down into the subcategories, or
8 buckets used by BCPM. The only viable option for Method 2 is to use the
9 same proprietary models used by the BCPM sponsors. Although it is also
10 possible to override the default regression coefficients, the BCPM sponsors
11 themselves caution: "The user can substitute other known relationships for
12 the values in the coefficient matrix table. Caution is advised, however, as the
13 investment results are highly sensitive to some of the coefficient values."

14 Method 3 appears to be more flexible because only the total switch
15 investment needs to be entered. However, BCPM will disaggregate the total
16 switch investment into the buckets using its internal logic, again based on
17 proprietary models' data on only the 5ESS and DMS switches. In the end,
18 BCPM is effectively tied to, and completely dependent upon, these
19 proprietary models and the proprietary input data used to generate the
20 proprietary results.

1 Q. Does the use of the proprietary models that produce highly granular cost
2 outputs increase the accuracy of the switching costs assigned to USF?

3 A. No. Even if the BCPM proprietary model foundations were shown capable of
4 generating accurate subcategory costs, the BCPM sponsors do not justify why
5 their complicated and proprietary analysis, based on a more granular
6 disaggregation of switch costs is any more accurate. Indeed, BellSouth's
7 BCPM runs show that 38% of total switch investment is assigned to the port,
8 whereas HAI uses a user-adjustable input of 37.2% for BellSouth.

9 Q. How does the structure of BCPM insure that the contents of the BCPM
10 model must always be considered proprietary as well?

11 A. As BCPM starts with undiscounted switch prices (although even the
12 undiscounted prices may not be correct, as discussed earlier), users must enter
13 the highly proprietary switch discounts on a *manufacturer-specific basis*.
14 The highly sensitive discount inputs guarantee that BCPM will be considered
15 proprietary not only by the filing company, but by third party switch vendors,
16 as well.

17 When Method #2 is utilized, the discounted switch prices *by switch*
18 *manufacturer* are entered, which again would be considered proprietary by
19 switch manufacturers.

1 VI. BCPM MODEL ERRORS

2

3 Q. Please identify the errors associated with BCPM's switch regression
4 analysis.

5 A. BCPM's regression analysis, used to develop switch prices, purportedly used
6 undiscounted list prices for switching. These prices must be subsequently
7 discounted to reflect real prices paid for switching. The discounts, however,
8 are not applicable uniformly to all of the investment buckets. Through an
9 undocumented BellSouth "special study"⁷ adjustment factors were developed
10 that are applied to the discounts entered by the user to achieve purported
11 *effective* discounts. The bottom line is that the regression analysis was
12 performed on the incorrect undiscounted price data, instead of the real switch
13 prices. Subsequent fudge factors, ranging between 62% and 99%, developed
14 through an undocumented special study does not "fix" the incorrect
15 regression coefficients that form the foundation of all the switch costs using
16 BCPM default switch prices calculated in USF. BellSouth and Sprint used the
17 default BCPM switch prices for all of their switches and GTE used the
18 default BCPM for a large number of switches as well.⁸

1 Q. Please explain how BCPM's results overrecover BCPM's own
2 identification of USF-related switch investments

3 A. Within the Main Logic spreadsheet, BCPM calculates the investment relevant
4 to USF for each switch. In the same spreadsheet is the re-aggregation of the
5 subcategories of investments into an investment per port and a usage per port
6 that appear to be used to develop the final USF costs. The problem is that
7 when the investment per port plus the usage per port is multiplied by the
8 number of working lines, it *always* exceeds the total investment that BCPM
9 started with as the USF-related total switch investment. The actual
10 overrecovery in Florida for each company is significant and is shown below:

Company	Over-recovery
BellSouth	\$36,649,378
GTE	\$13,464,022
Sprint	\$6,012,629
Total	\$56,126,029

11
12 In spite of an extensive review of how the port and usage columns are derived
13 in an attempt to specifically identify what is causing the error, the equations
14 are so complex that we have been unable to locate the precise problem. The
15 fact remains, however, that the investment per port, including USF-related
16 usage, far exceeds the amount BCPM has calculated to be the total USF
17 switch investment.

1 Q. Please describe the error that causes inflated trunk investments in
2 BCPM

3 A. BCPM uses a line to trunk ratio to calculate the number of trunks required for
4 each switch, based on the number of lines calculated in the loop module and
5 passed to the switch module. The engineered lines in a switch is the total
6 number of lines that are equipped compared to the lesser number of these
7 lines that are "working". The difference between the two is the utilization
8 level (often referred to incorrectly as the fill factor).⁹ The number of trunks
9 required in a switch is engineered in the real world based on usage levels, not
10 the number of lines. If the number of lines is used to generate a rough
11 estimate of the number of trunks, the number of lines used should be the
12 working lines that are actually generating traffic. In fact, BCPM's sponsors
13 agree that the line to trunk ratio should be using working lines as stated in
14 BCPM's definition of line to trunk ration: "The average number of *working*
15 lines per local interoffice trunk terminated on the switch."¹⁰ BCPM, however,
16 is calculating the number of trunks based on the *engineered* lines, thereby
17 overstating trunking costs by approximately 15%, assuming an 85% fill
18 factor input.

1 Q. Please explain why the ALSM method ~~method #2~~ is faulty and why
2 the default regression coefficients may have the same problem.

3 A. When BCPM "bundles" the ALSM outputs into categories, it makes
4 numerous errors causing incorrect assignment of investments to cost
5 categories. One example is a subcategory called "Terminating Call Cost."
6 This subcategory of cost identifies the costs of equipment necessary to
7 terminate a call. This cost is caused only when terminating a call and
8 terminating calls are both intraswitch and interswitch. BCPM incorrectly
9 adds the terminating call cost to the trunk usage cost. The trunk usage cost
10 will then be applied to originating and terminating interoffice calls (i.e.,
11 incoming and outgoing calls), but not to calls that stay within the switch,
12 which is simply wrong.

13 Another more egregious example is a little more complicated. BCPM asks
14 users entering switch price data via the ALSM option in Method #2 to input
15 investments as generated by SCIS for two subcategories for [1] usage to carry
16 traffic from a remote to the host (umbilical CCS) and [2] usage within a
17 multiple-remote complex. The two remote-related usage categories should be
18 multiplied only by the number of remote calls and inter-remote calls,
19 respectively. BCPM, however, adds all these usage costs together and
20 multiplies times all local service calls. Since the total local calls is
21 significantly higher than just the calls involving remotes, the total usage
22 investment is significantly inflated.¹¹

1 As these are the same categories of investment that SCIS generates, it is
2 reasonable to assume that the same or similar errors may have been made in
3 the development of the BCPM default regression coefficients prices used by
4 BellSouth, GTE and Sprint.

5 If a user enters data via the SCM input process, as GTE has done, this
6 bundling is not done. There is no explanation in the documentation. We
7 assume it is because of the inherent, undefined and undocumented differences
8 between SCM and SCIS. If the bundling is trying to make the SCIS outputs
9 conform to SCM outputs, that means that SCM, itself, may have these same
10 errors within the model.

11 **Q. Please describe the error associated with the engineering and installation**
12 **factor.**

13 A. BCPM's documentation defines the Telco E&I Factor as "The ratio of
14 telephone company capitalized engineering and installation dollars to switch
15 investment dollars."¹² Also, it states that "The investment function is: Telco
16 E&I Investment = Telco E&I Loading * Vendor EF&I Switch Investment."¹³
17 Vendor EF&I switch investment does not include common equipment and
18 power. The BCPM model, however, applies this factor after the Common
19 Equipment and Power Investment factor has increased the switch investment
20 dollars. This results in overstated engineering and installation costs

1 **VII. INPUT DATA ERRORS THAT GTE, SPRINT AND BELL SOUTH**
2 **HAVE IN COMMON**

3 **Q. Have the Companies entered input data that reflects the forward-looking**
4 **cost of switches?**

5 A. No. They have used incorrect discount inputs to BCPM to modify the default
6 undiscounted prices to forward-looking prices paid for switching.¹⁴ The
7 discount factors utilized for each switch type are of critical importance. If the
8 discount factors do not reflect the actual forward-looking prices, the results
9 produced by BCPM will misstate all of the switching investments used as the
10 basis for USF.

11 **Q. What are the discounted switch prices per line used in BCPM?**

12 A. Total discounted switch investment divided by total lines is an industry
13 standard of measure to evaluate and compare switch prices for end office
14 switches. These prices are switch vendor engineered, furnished and installed
15 (EF&I) investments and do not include local telephone company installation
16 and engineering, power, land or building, but do include the main distributing
17 frame (MDF) and protector. Sprint and BellSouth BCPM data allows us to
18 compare these directly as shown in Table 1 in Rebuttal Exhibit CEP-1.

19 GTE has only provided data that apparently already includes local telephone
20 company installation and engineering and power. These factors are in BCPM
21 for Sprint and BellSouth, and so the table below shows a comparison of total

1 installed investment (including telephone company installation and
2 engineering and power), MDF and protector, but do not include land or
3 building.

4

5 **Q. What is the difference on a per line basis between the Nortel, Lucent and**
6 **GTD switch manufacturers as included in the BCPM filings?**

7 A. Table 3 in Rebuttal Exhibit CEP-1 shows the differences.

8

9 **Q. Is this disparity among the vendors appropriate or acceptable?**

10 A. No. Lucent and Nortel are aggressively competing in all areas of the
11 switching market. As these switches are essentially identical in functionality
12 and features, these vendors compete primarily on price. Corroborating
13 statements made by Southwestern Bell and Pacific Bell indicate that the same
14 price is paid for switching regardless of vendor.¹⁵ It is illogical, and incorrect
15 for a forward-looking cost study, that a telephone company would
16 consistently *plan* to pay more for one switch than another. What is logical is
17 to assume that telephone companies, in the forthcoming competitive
18 environment would choose the low cost provider. The difference in switch
19 price between the GTD-5 and Nortel and Lucent is discussed in the GTE
20 Input Data Section of this document.

1 Q. What if specific switch vendor contracts for one company appear to
2 substantiate the difference? How can that be reconciled with your
3 previous assertions that the switch prices should be similar?

4 A. There are numerous reasons why at a given time, a particular telephone
5 company may produce contracts that appear to justify a large disparity among
6 switch vendors. Some of these reasons are:

- 7 • The contract could be a "baseline" contract. I characterize this as the
8 off-the-shelf contract. It is similar to the first price a car salesman
9 will quote you when you ask how much the dealer wants for the car.
10 These baseline contracts are typically in place with all large telephone
11 companies.
- 12 • There usually are separate agreements, competitive bids or additional
13 contracts that are simultaneously in effect that may not have been
14 provided, that could even the disparity. These prices are the
15 equivalent of the price for a car after hard negotiations and after the
16 salesman has 'approval from his manager.'
- 17 • A particular telephone company simply may not have plans to place
18 switches in the immediate future and has not initiated aggressive
19 negotiations for competitive switch prices, and therefore may not have
20 a contract that reflects forward-looking prices.

1 Q. How should this disparity be treated in the cost studies?

2 A. The cost studies should use switch prices for all technologies that are
3 comparable and reflect least-cost, generally available technology.

4 Q. How do the discounted prices in BCPM used by BellSouth, GTE and
5 Sprint compare to switching prices in the industry?

6 A. The Northern Business Information (NBI) study, "U. S. Central Office
7 Equipment Market", states that the average price for RBOC digital switches
8 per line shipped in 1995 was \$102, and \$99 in 1996. The study also indicates
9 that per line prices are expected to continue to decline slightly through the
10 remainder of the decade.

11 Both Lucent and Nortel have referenced this document's marketing data
12 estimates, which lends credibility to NBI's expertise in the central office
13 equipment market.¹⁶

14 Q. Do the switch prices reported for Pacific Bell support BCPM's prices?

15 A. No. Four years ago, Pacific Bell negotiated a major contract for
16 approximately \$110 per line.¹⁷ According to the NBI study, the price per line
17 for switching has been declining and is expected to continue to decline. The
18 four-year old data for Pacific Bell, when brought down to current switch
19 prices with a .97 factor per year¹⁸ would result in \$97 per line.¹⁹ There were
20 no separate prices quoted for different size switches, so the deflated \$97 per

1 line either applies to all line size switches or is an average; and the \$97 per
2 line provides a comparative price point to evaluate the BellSouth switching
3 prices.

4 **Q. Do the switch prices reported by SPRINT support BCPM's prices?**

5 A. No. The January, 1997, BCPM proxy model contained switching prices
6 using a fixed cost of \$261,871 and variable per line amount of \$225²⁰ that
7 were the results of a survey, based on telephone company inputs to SCIS.
8 Sprint later retracted these switching prices, stating that "there exists a
9 fundamental disagreement concerning the costs of switching."²¹ Sprint
10 submitted new BCPM inputs for switching prices of \$150,000 fixed/startup
11 and \$110 per line.²² Sprint said "the current BCPM values [the new lower
12 values] more closely approximate Sprint's current costs of switching . . ."²³
13 For a 15,000-line switch, allocating the \$150,000 fixed cost to the lines
14 would result in an overall average price of switching of \$120 per line. Note
15 that AT&T does not suggest that this is the correct price; but as shown in the
16 vendor switch price per line table at the end of this section, Sprint's switch
17 prices in this proceeding appear disingenuous, at best.

18 **Q. Does Southwestern Bell's 1996 switch price per line support BCPM's**
19 **prices?**

20 A. No. Mr. Hugh Raley stated in 1996 testimony that for Southwestern Bell
21 Telephone, "the Engineered, Furnished and Installed"(EF&I) price was

1 \$85/line"²⁴ for switching. Mr. Raley stated that \$85 includes "everything that
 2 is required to make the switch work," . . . "the trunks, the fabric, the
 3 processors - the total price from a vendor standpoint divided by the number of
 4 lines on the switch." He also indicated that this figure represents recent bids
 5 both from Lucent and Nortel and that this price was the average *and not the*
 6 *lowest bid price*. Mr Raley included in his testimony an Attachment²⁵, which
 7 revealed the following:

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

8

9 **Q. Do Vendor Announcements support the BCPM's prices?**

10 A. No. The most current information comes from Nortel's Internet web page²⁶
 11 announcing that a contract has been signed with US WEST "in excess of \$US
 12 100 million" for 2.2 million DMS-100 lines. This implies switch prices as
 13 low as \$45 per line. Even allowing for the *in excess* to be an incredible
 14 additional 50% of the contract, for a total of \$150 million, \$150 million
 15 divided by 2.2 million lines would yield a price per line of only \$68.²⁷ Nortel
 16 also indicated that this upgrade of US WEST's network will provide
 17 advanced digital features, such as ISDN, network business services and
 18 advanced display services. In addition, Nortel stated that "Nortel will keep
 19 US WEST's network ready for new services, such as Local Number
 20 Portability and for Advanced Intelligent Network AIN features . . ."

1 Q. Please summarize the switch prices you have discussed and compare
2 them to the prices used in this filing

3 A. The table below compares the average prices per line and demonstrates that
4 BCPM's prices are significantly overstated.

Source	Price Per Line
NBI	~\$100
Pacific Bell	\$110
Sprint Inputs to BCPM	~\$120
Raley Testimony- BellSouth	\$85/115/140
Nortel/US West	~\$50
<i>BellSouth USF Filing</i>	<i>\$188</i>
<i>Sprint USF Filing</i>	<i>\$168</i>

5 GTE's data cannot be entered here because these prices are switch-vendor prices
6 only and apparently GTE's data includes telephone company engineering,
7 installation and power.

8
9 It is valuable to note the information provided in Mr. Pitkin's testimony,
10 Section IV, regarding the dramatic reduction in switch investment that
11 occurred when the BCPM defaults were replaced by US WEST with US
12 WEST-specific data.

1 **VIII. BELLSOUTH INPUT DATA ERRORS**

2

3 **Q. What are the inputs "Percent of Line New" and are they correct?**

4 A. BellSouth's discount inputs are different for "new" lines, meaning lines that
5 are placed at the initial installation of a switch, compared to lines that are
6 added subsequent to initial installation, or "growth" lines. The inputs that
7 identify what percent of lines are new is entered for the 5ESS and DMS-100.

8 These inputs are not correct because they contribute to faulty TELRIC cost
9 calculations in BCPM. Using a TELRIC construct, the percent of new lines
10 for both switch types should be 100% as Sprint has used in this filing.²⁸

11 TELRIC cost study methodology requires that a new network be deployed,
12 using the existing wire centers. That means new switches at new switch
13 prices. We do not advocate that some unreasonably low switch price could
14 be achieved by asking the vendor to quote a price for a total system
15 replacement, but do advocate that the best new switch discount currently
16 available is the correct one to use in a TELRIC study.

17 **Q. Why is the use of growth prices inappropriate?**

18 A. All of the models proposed in this proceeding are "snapshot" models.
19 Performing full, life-cycle analyses costing is extremely difficult and requires
20 a tremendous amount of contentious forecasting. As snapshot, or point-in-
21 time models, they capture the cost of equipment to serve current demand.

1 Incorporating the cost of growth into the switch prices changes the
2 fundamental definition of the models and the cost study. And BCPM uses
3 special growth prices solely for switching, while ignoring "growth" costs
4 with respect to the remainder of the network. It is important to note that
5 "growth" in loop plant, for example, would be cheaper than initial installation
6 per loop because structure (poles, conduit), which are a significant portion of
7 the cost would not be required. The incorporation of growth only in the
8 switch studies is inconsistent with the loop and USF-related other studies and
9 opportune increases costs.

10 **Q. Please define Reserved CCS and explain the problem with the BellSouth**
11 **Input.**

12 **A. Reserved CCS is spare capacity within certain line-related components of a**
13 switch that is due to exhausting a different capacity on the same components,
14 thereby "stranding" the costs of the unused capacity. This issue arises due to
15 differences between the US WEST SCM and Bellcore's SCIS models. To my
16 knowledge, SCIS includes this cost in the port investment, while SCM
17 includes it in the line usage category. According to BCPM documentation, it
18 appears that the BCPM default regression data includes the Reserve CCS cost
19 in the line usage category. The ALSM Method #2, however, include the
20 Reserve CCS in the line port category.²⁹

21 The inputs for Reserve CCS are supposed to add this cost to the port and
22 subtract it from the usage category. When we changed BellSouth's Global

1 Input from Line to Usage, the port investments increased significantly, but
2 the usage investments declined much less.³⁰ In addition, it is not clear given
3 the contradictions within the BCPM model and documentation of the
4 treatment of this investment category that this BellSouth input hasn't already
5 been included in the port investments.

6 BellSouth's input values in the State Default Inputs for the discounted cost of
7 Reserve CCS per line are not correct. First of all, the DMS, unlike the 5ESS,
8 typically has minimal reserve CCS because the inherent nature of its
9 architecture allows "fine-tuning" of the engineering and purchase of the
10 components, drastically reducing any stranded capacity costs. BellSouth's
11 numbers indicate an absolutely huge amount of Reserve CCS for the DMS
12 host, that is almost twice as much as the already inflated 5ESS Reserve CCS.
13 The 5ESS Reserve CCS input values far exceed any costs I have ever seen.
14 When BellSouth's information is provided to the data requests, the
15 quantification of these Reserve CCS overstatements should be possible.

16 As the model methodology concerning this whole area is suspect, BellSouth
17 should set these inputs to 0.

18 **Q. Are BellSouth switch prices inflated due to forcing switches to be 5ESS**
19 **or DMS-100s?**

20 **A.** Yes, it appears that there are approximately 35 BellSouth switches
21 that fall into BCPM's default definition of small switch. Acknowledging that

1 small switches do have different cost characteristics, BCPM provided a small
2 switch option price matrix, but BellSouth chose not to use it. If BellSouth
3 were to use the small switch option, the small switch price matrix should be
4 revised to reflect the prices paid by a large LEC, rather than using the RUS
5 data for very small telephone companies, as described in the following Sprint
6 input data section.

7 **IX. SPRINT INPUT DATA ERRORS**

8
9 **Q. Please identify the problems with the Small Switch price data used by**
10 **Sprint.**

11 **A.** The BCPM sponsors populated the small switch option with data from an
12 FCC presentation by Dr. Gabel.³¹ These prices were obtained for very small
13 independent telephone companies that obtain RUS assistance. These prices
14 certainly would not be applicable to a GTE or Sprint, as the buying power of
15 these companies would certainly allow them to obtain better pricing than the
16 extremely small companies that provided the data in the RUS study. (I also
17 have serious reservations about using Dr. Gabel's data even for small
18 companies purchasing small switches. The widely diverging prices per line
19 between host and remotes is not reasonable, in my experience. The variable
20 price per line does not change significantly between host and remote as it is
21 basically the same equipment. The relevant, significant difference between
22 the two switch types is in the fixed costs.)

1 In addition, the BCPM documentation indicates the website of the final
 2 version of this report with "slightly revised results".³² The following table
 3 illustrates a comparison of the revised results to those used in BCPM that
 4 raises serious questions about the BCPM sponsors' definition of "slightly
 5 revised."

Switch Type		BCPM Input	NRRI Gabel /
Standalone	Fixed per Switch	\$589,263	\$518,307
	Inv. Per Line	\$43	\$44
Host	Fixed per Switch	\$589,263	\$572,988
	Inv. Per Line	\$43	\$44
Remote	Fixed per Switch	\$54,270	\$82,279
	Inv. per Line	\$145	\$140

6

7 Q. What problems appear with the Sprint switch types?

8 A. In response to a data request, Sprint provided a working SCIS model loaded
 9 with data from Sprint's Florida switches. We have been unable to determine
 10 precisely how this data was used in the BCPM filing, but a serious data error
 11 appears to have been made regarding the identification of switches as
 12 hosts/remotes/standalones. In BCPM, Sprint has 139 offices, of which 47 are
 13 standalone, 32 are hosts, and 60 are remotes. Sprint's SCIS data also shows
 14 139 offices, but Sprint's inputs to SCIS indicate that of the 139 offices 38 are
 15 standalone/hosts and 101 are remotes. It would be expected that a higher
 16 ratio of remotes to host/standalones would be more efficient with
 17 corresponding lower costs. BCPM, however uses more than twice the

1 number of standalones and hosts, and therefore the costs may have been
2 overstated.

3 X. GTE Input Data Errors

4

5 Q. What is different about GTE's use of BCPM compared to Sprint and
6 BellSouth?

7 A. GTE has not used the default switch prices based on the BCPM regression
8 coefficients in the model for some of the switches. As GTE's working model
9 was received late, I have not had a full opportunity to review all of the GTE
10 data, and will supplement this testimony, if necessary.

11 The analysis to date has indicated that BCPM entered data for certain
12 switches under the SCM switch price input columns, which are then used to
13 compute the USF. The switches that GTE selected for this special treatment
14 are 52 standalone, 6 host and 11 remote "DTD" switches, which I assume are
15 actually GTD-5 switches. (Apparently, BCPM cannot accept any name that
16 doesn't begin with a 5(5ESS) or a D (DMS-100) and GTE had to fake out the
17 program to get it to run. Entering the real name of the switch causes the
18 BCPM investments to come up as errors.) GTE also selected 21 5ESS and
19 DMS-100 switches that are standalone switches only. No 5E or DMS hosts
20 or remotes were included. There is obviously some bias involved in choosing
21 specific switches to be entered separately by GTE via the SCM inputs. The
22 remaining 208 host and remote switches appear to have used the BCPM

1 default regressions. Interestingly there are significant differences in costs for
 2 GTE's SCM-entered switches and BCPM default costs as shown below:

3

Switch Type	SCM Inv. per Line	BCPM Inv. per Line
Standalone	\$169	\$204
Host	\$182	\$211
Remote	\$164	\$212

4

5 The BCPM default prices apparent bias for overstating costs is also discussed
 6 in Mr. Pitkin's testimony.

7 **Q. Is the GTD-5 switch considered to be forward-looking?**

8 **A.** No. In multiple jurisdictions, GTE has been required to eliminate the GTD-5
 9 switches from forward-looking cost studies. We have been unable to locate
 10 any major shipments of new GTD-5 switches for eight years, except one
 11 outside of the United States. Although the manufacturer still maintains the
 12 switch, the vendor does not appear to promote this switch nor does it seem to
 13 compete with other vendors for GTE's business, which means the vendor has
 14 little incentive to price competitively.

15 GTE formed a joint venture called AG Communication Systems (AGCS)
 16 with AT&T (now Lucent) in January, 1989, for their digital central office

1 switch, GTD-5. GTE held the majority ownership for the first five years,
2 with increasing ownership to Lucent reaching 100% in 2004.

3 As reported in Telephony, January 9, 1989, GTE Chairman James L. "Rocky"
4 Johnson proclaimed that "There are no plans for a massive switch change-
5 out" and AT&T Chairman Robert Allen stated that the joint venture will
6 manage an "orderly transition" to new technology for the GTD-5's installed
7 base.

8 Francis McInerney, an analyst with North River Ventures was quoted in
9 Telephony, April 30, 1990, saying that "GTE wanted to get out of
10 manufacturing because the GTD-5 switch was too expensive to develop. The
11 joint venture with AT&T would meet GTE's needs until the GTD-5 switch
12 was no longer needed."

13 Indeed, Telephony reported on April 30, 1990, that "GTE pulls funding from
14 AG's ISDN development plan". They opined that "questions were raised at
15 the time about the commitment of AT&T and GTE to the GTD-5 switch,
16 given its limited share of the market."

17 In 1992, the Chicago Sun-Times, April 23, reported the AGCS closing of its
18 Northlake facility and said: "Workers were told Wednesday that the
19 manufacturing of big-ticket telephone switching systems will be phased out
20 by the end of next year."

1 The Arizona Business Gazette reported on November 4, 1993, that "AG
2 Communication intends to support its installed base of GTD-5 switches (most
3 of them at telephone operating companies) for the rest of their call-handling
4 lives – perhaps the year 2000 or later. And AG Communication will play a
5 key role in the transition of the GTE systems to AT&T switches." . . . "In the
6 meantime, AG Communication is working to develop new lines of business."

7 In the same article, Ms. Van Fleet, a spokeswoman for AGCS, was quoted
8 "We're not really competing for new business in the switching systems
9 business any longer. Ms. Van Fleet explained. "What we're doing instead is
10 developing new business opportunities where we can use our expertise in
11 telecommunications and apply it to emerging areas of the industry."

12 This appears to be exactly what they have done as evidenced in 1995 with
13 announcements for advanced intelligent network peripheral equipment such
14 as voice recognition, voice-activated dialing and fax storage and forwarding
15 capabilities, called INgage. Their February 23, 1995, announcement quoted
16 Mr. Curtis Steinhoff, an AG Communication spokesman, "The INgage line
17 compares with AG Communication's primary business: servicing its installed
18 base of GTD-5 switching systems. The company no longer makes base
19 systems, but maintains and enhances GTD-5s for its customers, Mr. Steinhoff
20 explained."

21 In addition, in 1997, AGCS announced its new ATM product line.

1 The last announcement of any major sale of GTD-5 switching systems our
2 search could find was in 1989 in Canada.

3 The articles and quotes I have assembled above provide credence that the
4 GTD-5 switch and its historical prices should not be included in a forward-
5 looking TELRIC cost study. In addition, the migration of this embedded
6 base of lines to Lucent and Nortel should increase GTE's volume purchasing
7 power with these vendors; thereby decreasing the cost of switching overall.

8 In Indiana's Generic Proceeding on GTE's Rate for Interconnection Services
9 Unbundled Elements, Transport and Termination approved May 7, 1998,
10 found: The fact that GTE may use this particular switch in its existing
11 network, and may continue to do so for the foreseeable future, does not mean
12 that this is an appropriate technology to include in a long-run cost analysis.
13 Neither GTE's' past choices of equipment for use in its existing network, nor
14 its choice of technology to add to its existing stock of equipment, have any
15 bearing on the issue."

16

17 **Q. What evidence is there that the GTD-5 is not least-cost technology?**

18 **A.** Staff Economist, Nelson Parish, of the Public Utility Commission of Texas,
19 in response to GTE's very similar studies filed in that state, conducted an
20 analysis comparing the unit investments required to furnish a weighted
21 average of various switching services using the GTD-5 versus other

1 switching technologies. Mr. Parish's analysis demonstrates that the GTD-5
2 requires an average of twice the investment needed for the other technologies
3 to provide the same functions.

4 The Indiana Commission Order referenced earlier also found, "GTE witness
5 Steele argued that the inclusion of the GTD-5 switch in the technology mix
6 conforms to TELRIC costing principles as forward looking. He based this
7 conclusion only on the fact that a Canadian telephone company purchased
8 some GTD-5 central office equipment last April. GTE Exh. BIS-R, p.12.
9 Mr. Steele admitted on cross-examination, however, that elimination of the
10 GTD-5 switch from the technology mix would reduce the cost of a two wire
11 port by \$1.76. TR F-38. Given this admission, we fail to see how GTE can
12 claim that its use of the inclusion of the GTD-5 in its switching technology
13 mix meets the "least cost" principle of TELRIC."⁴

14 In this proceeding, the average price per line for the GTD-5 switches is \$195,
15 higher than the average price per line for all 5E or DMS switches for
16 BellSouth, Sprint and GTE. The averages break down to consistently higher
17 prices for GTD-5 standalones, hosts and remotes than the equivalent
18 standalone, host and remote switches in the other switch technologies.

19
20

1 **XI. SUMMARY AND CONCLUSION**

2

3 **Q. Please summarize your testimony**

4 **A.** The BCPM model has numerous errors that make the model inaccurate.
5 Most importantly, however, it is based on confidential models that effectively
6 prohibit interested parties from ensuring that the models are accurate, that the
7 data used to run them is consistent with BCPM inputs and assumptions and
8 the modeling methodologies are compatible. BCPM's claims that alternate
9 sources, presumably non-proprietary, are simply not viable, because the
10 detailed complex engineering-based outputs are only available from
11 proprietary models. Even if the user enters locally developed total switch
12 investment on a switch by switch basis, BCPM's logic invokes all the data to
13 partition the total investment into the individual buckets that was again,
14 obtained from the proprietary models.

15 BCPM's overly complex attempt to granularize switching investment into
16 small, discrete functions does not add any accuracy to the analysis – only
17 complexity and increased probability of errors.

18 BCPM's methodology that attempts to segregate host, remote and standalone
19 switch costs is flawed because it is dependent upon the embedded
20 host/remote configurations that are not forward-looking, nor efficient. Again,
21 BCPM sponsors claim users can enter this data individually switch by switch,
22 overriding the LERG information, but this is next to impossible. Even if a

1 company could enter all the data, including the precise host-remote
2 affiliations, how could it be verified as efficient? The best estimate that
3 exists today of the efficiencies gained by forward-looking
4 host/remote/standalone configurations would be the blended costs in the
5 Northern Business Report used in the HAI model because those costs
6 represent the current mix of host/remote/standalone switches being shipped
7 today.

8 Should this Commission favor the flawed BCPM model, then the filing
9 companies' input data must be corrected. In addition, more time should be
10 granted in order to ensure a thorough review of all underlying data inputs to
11 the proprietary models to ensure they are consistent with the way BCPM uses
12 them and the filing companies enter their input data.

13 **Q. Does this conclude your testimony.**

14 **A.** For now. When the complete responses are received to the data responses
15 that were not available at the time of this testimony preparation, this
16 testimony may require modification and/or supplemental testimony may be
17 necessary to ensure as complete an analysis is made available to the
18 Commission on the BCPM switch model.

¹ This is how Sprint and BellSouth determined these additives. GTE apparently included unknown additives in its starting prices for engineering, installation, common equipment and power, and were not added separately in BCPM.

² Bowman Direct Testimony, p. 12. [emphasis added]

³ BCPM 3.1 Model Methodology, Appendix D - Switch Curve Methodology, Page 132 [emphasis added]

⁴ See USF Report and Order ¶ 242. Also, e.g., Staff Cost Model Analysis ¶ 15; State Cost Study Criteria

⁵ Based on the incomplete response received from Sprint and no responses at the time this testimony was written to requests for the SCIS models used to support BCPM.

⁶ Ibid.

⁷ This special study is not documented nor even described in any detail. BCPM 3.1 Model Methodology, Page 68-69.

⁸ BellSouth, Sprint and GTE all used the default BCPM switch prices. GTE used the defaults for 70% of its switches along with GTE-entered data for some switches identified as using the US West SCM model.

⁹ In switching, the "fill factor" is typically an administrative fill – those lines permanently reserved for testing and other administrative functions and do not include spare capacity. Utilization factor is a more accurate term in switching to describe the total difference between engineered and working lines.

¹⁰ BCPM 3.1 Switch Model Inputs, Page 20. [emphasis added]

¹¹ The BCPM "bundling" of ALSM investment categories can be found in the ALSM input sheet, columns R-V.

¹² Telephone Company Engineering and Installation Factor, BCPM 3.1 Switch Model Inputs, Page 17

¹³ Ibid., Page 17-18

¹⁴ As the time of preparing this testimony, I have not received the actual switch vendor contracts, except for one contract for one company and therefore my testimony is limited. It is crucial that the switch investment reflect the efficient forward-looking cost of switching as evidenced by competitive bid or seriously negotiation contracts with switch vendors. When I receive this data, this testimony will be supplemented, if allowed the opportunity.

¹⁵ 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.

¹⁶ 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.

¹⁷ 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.

¹⁸ Extrapolated from the NBI yearly prices.

¹⁹ 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.

²⁰ BCPM Methodology (no date), Page 20.

²¹ Ex Parte Letter, 3/24/97, from Mr. Warren D. Hannah, Sprint to Mr. William F. Caton, FCC, Attachment A, page 5.

²² Id., Attachment BCPM National Results Using Sprint Input Values, Page 3.

²³ Id., Attachment A, Page 3. The remainder of the quote dealt with a recommendation to use the higher rates for USF purposes.

²⁴ 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.

²⁵ 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.

²⁶ www.nortel.com/home/press/1997b/6_16_9797219_US_West.html

²⁷ 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.

²⁸ Sprint affirmatively stated in February 16, 1998 testimony before the North Carolina Utilities Commission (Bollinger Supplemental Direct) in Docket No. P-100, Sub 133d that "The switching cost study has been changed to incorporate the switch discount associated with new switch purchases. The original cost study reflected a growth switch discount representative of additional investment to current switches. Sprint has determined that a new switch discount is more representative of forward looking switching costs than a growth switch discount." Pp 1-2

²⁹ This can be seen in the ALSM input sheet. The column labeled Min. Inv. per Line from SCIS includes the Reserve CCS. None of the other columns subtract the Reserve CCS before attributing the cost to the port, and therefore Method #2 used by GTE automatically includes Reserve CCS in the port investments. This is contrary to the information provided in the Switch Model Inputs, pp. 23-24.

³⁰ This appears to occur for every switch. One example is switch CLLI ABDFLXa96H where the port increased by \$_____, and the usage per line decreased by only \$_____ for a net *increase* per port of \$_____.

³¹ BCPM 3.1 Switch Model Inputs, p. 37

³² Ibid.

1 **SUPPLEMENTAL TESTIMONY OF**
2 **CATHERINE E. PETZINGER**
3 **ON BEHALF OF AT&T COMMUNICATIONS**
4 **OF THE SOUTHERN STATES, INC**
5 **DOCKET NO. 980696-TP**

6 **I. INTRODUCTION**

7
8 **Q. Please state your name, present position and business address**

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

12 **II. PURPOSE OF TESTIMONY**

13
14 **Q. Please describe why you are filing supplemental testimony**

15 **A. BellSouth's response to AT&T's Request for Production of switch vendor**
16 **contracts (AT&T's Third Request for Production of Documents to BellSouth**
17 **Telecommunications, Item 21) indicated that AT&T would have to review the**
18 **documents at BellSouth's Atlanta office. Upon review, it is clear that the**
19 **information contained in these vendor contracts would tremendously impact**

1 not only the switch price inputs used in BCPM, but the underlying cost
2 structure of the BCPM switch module methodology as well.

3 Q. Please explain why this information was not included in your Rebuttal
4 Testimony

5 A. BellSouth's response to the above Document Request was dated Friday,
6 August 28, 1998 requiring AT&T to review the information at BellSouth's
7 Atlanta offices. There simply was no possible way to travel from New Jersey
8 to Atlanta to review the contracts, digest the information and include the
9 material in the Wednesday, September 2 Rebuttal Testimony filing.

10 II. NEW PRICE INFORMATION AFFECTS BELL SOUTH'S BCPM
11 INPUTS

12 Q. Please provide the switch prices you found in the latest BellSouth
13 contracts for new Lucent switches.

14 A. The price per line for Lucent switches that are replacing analog 1AESS
15 switches is [] and the price for all other new switches is []
16 . The 1AESS replacement price is contained in Amendment No. 1 -
17 Appendix A to Letter of Agreement #24, effective January 1, 1998 on page 8
18 of 19. The [] for all other new switches is contained in
19 Amendment No. 1 - Appendix B to Letter of Agreement #24, effective January

1 1, 1998 on page 1 of 10. The specified contract pages are attached to this
2 testimony as Exhibit A.

3 Q. What prices did you find in the latest BellSouth contracts for adding
4 growth equipment to Lucent switches?

5 A. Amendment No. 1, Appendix A, described above also included the "Growth
6 Discount Applicable to BST's Embedded Base of Switches". These prices are
7 in the familiar form of "percent discount from list" and are [
8]. This information can
9 be found on Pages 8 and 9 of Appendix A. These pages are attached to this
10 testimony as Exhibit B.

11 Q. How do these Lucent prices compare to the prices used by BellSouth in
12 BCPM?

13 A. The growth discount BellSouth used in BCPM was compared to the
14 BellSouth will receive in 1998-2003. A direct comparison of the
15 new switch price is difficult because the contract information is a [
16], while BellSouth used a percent discount from list in BCPM. To make
17 the appropriate comparison, we ran BCPM at 100% SESS switches with 100%
18 of the switches being new in order to have BCPM calculate the price of new
19 SESS switches. The average BellSouth-filed BCPM price is , compared
20 to the and in BellSouth's contracts.

1 Q. Please provide the switch prices you found in the latest BellSouth
2 contracts for new Nortel switches.

3 A. The Nortel contract indicates that the price of new switches is dependent upon
4 the [line size of the switch]. This information can be found in Letter of
5 Agreement No. 34, effective 1/96-12/02, Attachment G, labeled Flexible
6 Schedule Pricing Matrix. The prices range from [

7

8]. The arithmetic average BellSouth switch size in
9 BCPM is 24,0137 lines, which would be according to the Nortel
10 contract. These contract pages are attached as Exhibit C.

11 Q. How do these prices compare to the Nortel prices used by BellSouth in
12 BCPM?

13 A. We used the BCPM switch size information to calculate the cost of each switch
14 using the Nortel contract Flexible Schedule Pricing Matrix in Attachment G.
15 Assuming 100% Nortel switches, the average price for a new Nortel switch
16 using the contract prices is This number differs from the price shown
17 above because this is a "weighted" average for all switches in Florida and
18 captures the fact that there are more small switches than large switches. The
19 average price for new Nortel switches as filed by BellSouth in BCPM is

20

1 Q. Why do you assume 100% of the switches are one technology or another
2 when comparing the contract prices to the BCPM prices?

3 A. BellSouth has not explicitly identified which switches are Nortel and which are
4 Lucent. It has entered user inputs indicating of switches are Lucent and
5 are Nortel. Assuming 100% of the switches are the technology being
6 reviewed allows us to compare apples to apples; in this case, new switch
7 contract prices for each technology to the new switch price used by BellSouth
8 in BCPM.

9 Q. What would be the new switch contract price using the Lucent and
10 Nortel melding used by BellSouth?

11 A. The average price for new switches would be

12 Q. Are these low new switch prices per line reasonable?

13 A. Yes. As stated in my Rebuttal testimony, the most recent information
14 available indicated that numbers of this magnitude are being reported, and that
15 prices are continuing to decline. In my experience, these are reasonable prices
16 for new switch purchases and these most recent BellSouth contracts show
17 lower prices than earlier contracts I reviewed. Growth prices are also declining
18 as can be seen in the larger discounts for growth in BellSouth's most recent
19 contracts. In addition, the price difference between the two switch

1 manufacturers is not large -- for Lucent compared to for Nortel.
2 This difference is understandable as it appears BellSouth purchases
3 significantly [
4]].

5 **III. NEW PRICE INFORMATION THAT AFFECTS BCPM'S OVERALL**
6 **SWITCH METHODOLOGY**

7 **Q. You stated that these contracts impact more than just the price inputs to**
8 **BCPM. Please explain.**

9 **A. BCPM infers that it has superior switch cost methodology because it can**
10 **accurately assign the costs to subcategories of switching, based on cost**
11 **causation. Examples of these categories include processor, trunk, line usage,**
12 **etc. (see Functional Investment Category Rationale included in BCPM3.1**
13 **Switch Curve Methodology, page 131.) These subcategories are required by**
14 **BCPM's methodological structure in order to calculate call set-up costs and**
15 **other micro-functions that are subsequently aggregated into the USF-related**
16 **usage and line port categories. These new contracts highlight the fact that**
17 **BellSouth's forward-looking costs are not caused by these micro-functions.**
18 **The contracts unequivocally specify a [], making the [number**
19 **of lines] the true cost causer. BellSouth's use of BCPM's functional cost**
20 **categorization, with all its complexity that attempts to imply more accuracy,**

1 ends up being an arbitrary allocation of the straight-forward cost per line
2 clearly stated in the contract.

3 **IV. SUMMARY AND CONCLUSION**

4 **Q. Please summarize your testimony**

5 **A. BellSouth's latest switch vendor contracts demonstrate that the BCPM model**
6 **methodology does not accurately reflect cost causation because new switches**
7 **are purchased on a [], and not BCPM's functional categories.**
8 **BCPM's detailed identification of subcategory switch costs is not only overly**
9 **complex and dependent upon proprietary models, it does not accurately reflect**
10 **the cost-causation of BellSouth's forward-looking switch costs.**

11 **The contracts also prove that BellSouth's discount inputs are causing the**
12 **BCPM switch cost results to be seriously overstating the forward-looking**
13 **switch investment as specified in BellSouth's own contracts and should not be**
14 **accepted. Please refer to Exhibit D showing a summary of BellSouth's BCPM**
15 **wire center results when the new switch contract prices are substituted for the**
16 **as-filed prices. Exhibit E is the wire center by wire center results.**

17 **Q. How should BellSouth's inputs be corrected?**

18 **A. As detailed in my rebuttal testimony, the only valid cost for a switch is the new**
19 **switch price for an incremental, long-run cost study that assumes that the entire**

1 network is being purchased new and the increment of demand is the total
2 demand being served. AT&T also recommends the HAI model be used as
3 discussed by Mr. Wood. However, should this Commission decide that the
4 BCPM model should be used and that growth prices should be included, the
5 BellSouth inputs must be made to reflect the growth price percentages in its
6 latest contracts. In addition, the percent of growth pricing as input by
7 BellSouth is [] which is illogical, given that all the current demand must
8 be priced at new switch prices. For new switch discount inputs, BellSouth will
9 have to iteratively run the BCPM model to determine what discount input
10 would be required to generate new switch priced that reflect the contract prices.

11 Q. Does this conclude your testimony.

12 A. Yes, it does.

13

14

15

16

17

18

19

1 Q (By Mr. Hatch) Do you have a summary of
2 your testimony, Ms. Petzinger?

3 A Yes, I do.

4 Q Could you give that, please?

5 A Do I need to be sworn in?

6 CHAIRMAN JOHNSON: Yes.

7 MR. HATCH: My apologies.

8 CHAIRMAN JOHNSON: It would help.

9 MR. HATCH: I thought they were sworn in
10 yesterday. I'm sorry, Madam Chairman.

11 CHAIRMAN JOHNSON: So did I. If you could
12 raise your right hand.

13 (Witness sworn.)

14 CHAIRMAN JOHNSON: Thank you. And do we
15 have CEP-2?

16 MR. HATCH: It is a proprietary exhibit.
17 In fact, let me hand that out to you.

18 CHAIRMAN JOHNSON: Okay.

19 Staff, were we supposed to have -- we have
20 like redacted copies of CEP-1. Were we supposed to
21 have --

22 MR. COX: I think we have the other
23 available.

24 CHAIRMAN JOHNSON: Okay.

25 COMMISSIONER DEASON: Can we get the

1 unredacted version? Is that in a folder you can hand
2 out?

3 MR. COX: Yes, we can bring that to you.

4 CHAIRMAN JOHNSON: Okay. Mr. Hatch?

5 MR. HATCH: I forgot where we were.

6 Q (By Mr. Hatch) Do you have a summary of
7 your testimony?

8 A Yes, I do.

9 Q Could you give that, please?

10 A Certainly.

11 Good morning. My name is Catherine
12 Petzinger, and I'm here to discuss the switch module
13 methodology within BCPM, as well as the switch inputs
14 that were used by BellSouth, GTE, and Sprint in this
15 proceeding.

16 The BCPM switch module methodology is
17 dependent upon the proprietary SCM model from U.S.
18 West, which was a sponsor of BCPM, and the SCIS model
19 from Bellcore.

20 And before I continue, I would like to
21 share a little of my background. Prior to joining
22 AT&T in 1996, I was a director of the switch modeling
23 group at Bellcore responsible for the methodology, the
24 software development, and the client support of the
25 SCI model, as well as numerous cost study

1 consultations. And prior to becoming director, I
2 worked as a subject matter expert on the model in
3 numerous areas, and most importantly, for the Lucent
4 SESS switch module methodology, as well as all the
5 feature costing in all of SCIS.

6 Back to my analysis of BCPM. I found some
7 serious flaws in the fundamental construct of the
8 model, of the switch module, a number of apparent
9 modeling errors, and switch inputs that are simply not
10 reasonable. I will briefly describe each problem.

11 The first fundamental construct flaw is
12 BCPM's reliance upon a proprietary SCIS model that was
13 run with undocumented input data. BCPM has multiple
14 ways of entering switch price data. However,
15 ultimately, they all rely at one point or another in
16 the processing upon data that has been extracted from
17 the proprietary models.

18 I cannot emphasize strongly enough that
19 despite assertions that BCPM is not completely
20 dependent on these models, that there are alternate
21 ways of entering data, at some point in the
22 processing, it still relies on data from those models.

23 Now, besides the obvious inappropriateness
24 of using closed models for determining a universal
25 service funding level, there are concrete modeling

1 problems within BCPM as well. For example, there are
2 apparent inconsistencies between the data that was run
3 in SCIS that forms the foundation for some of the data
4 in BCPM, compared to the same data that is entered
5 into BCPM. The information is inconsistent.

6 One example, another example of an
7 inconsistency in BCPM is the line fill factors. Fill
8 factors were used in one company's supply of SCIS
9 data, and that upwardly adjusts the cost to account
10 for fill. That information, as I understand it, went
11 into the development of the BCPM regression prices
12 that are in the model.

13 Fill factors were then again entered into
14 BCPM itself, further altering the investments. This
15 is an inconsistency then between data that was entered
16 in SCIS and then data that was entered in BCPM.

17 Just as important, or maybe even more
18 important, is what assumptions were made when SCIS was
19 run to generate the default prices in BCPM for
20 switching regarding what type of line port you have in
21 the network. Analog and digital loop carrier line
22 ports have very different costs. The SCIS model
23 substantiates that. And it not only has different
24 costs for analog and digital loop carrier, but it
25 generates different costs for old digital loop carrier

1 equipment compared to next generation digital loop
2 carrier equipment, which is the forward-looking
3 technology.

4 Now, the next generation digital loop
5 carrier is currently available and is being deployed,
6 as was mentioned by Mr. Dickerson in his testimony.
7 It does have a lower port cost, as Mr. Dickerson
8 mentioned, in the switch portion where you connect
9 those ports into the switch than the older types of
10 digital loop carrier.

11 That means that if the data inputs into the
12 SCIS model that formed the foundational pricing for
13 port costs in BCPM did not include digital loop
14 carrier, and specifically next generation digital loop
15 carrier, those default prices in BCPM are going to be
16 overstated. They're going to have the wrong type of
17 line ports in them, or the wrong mix of line ports.
18 Let me put it that way.

19 Now, when we looked at data provided by
20 Sprint, of the 139 offices in Florida only two of
21 them included any next generation digital loop carrier
22 ports at all. And we understand that Sprint, being a
23 sponsor, would have submitted their data as the
24 foundation.

25 My testimony considers a number of these

1 examples, and they all highlight the difficulties of
2 attempting to validate a USF proxy model that is
3 fundamentally dependent on proprietary models that
4 makes it almost impossible for other parties to review
5 and understand exactly the interactions going on
6 between the proprietary model and the assumptions that
7 are made in that model compared to assumptions made in
8 the BCPM model.

9 In addition, the BCPM model relies on the
10 LERG, which is from Bellcore, for the construct of the
11 network as far as deciding where hosts and remote
12 switches are placed. Now, in this cost study, we're
13 supposed to be doing a long run incremental cost study
14 that holds fixed the customer locations and the wire
15 centers. It does not hold fixed which switches are
16 hosts and which switches are remotes. Those decisions
17 were often made decades ago using old technology and
18 demands that were in effect at that time.

19 If in the current type of cost study where
20 you are going to be replacing and building a new
21 network, a cost-efficient network, those old decisions
22 made decades ago about which switches are host and
23 which ones are remotes and how many of each that you
24 place are outdated and inefficient. There is new
25 technology. Remote switches have increased capacities

1 tremendously, and therefore, where originally a host
2 switch may have been placed or a stand-alone, today a
3 remote could be placed there at much less cost.

4 My testimony also highlights a number of
5 modeling errors that contribute the BCPM's incorrect
6 switch results.

7 One example is that the formula calculating
8 the number of trunks required was based on engineered
9 lines rather than working lines. Even the BCPM
10 documentation says it should have been based on
11 working lines. You only engineer trunks to carry
12 traffic that lines are generating. You don't need
13 trunks for lines that are engineered but are not
14 working, and therefore have no traffic on them.

15 Another error involves an incorrect formula
16 compared to the documentation regarding how
17 engineering and installation costs for switching are
18 developed within the model. And again, the details
19 are in my testimony.

20 Another apparent error I found when I was
21 reviewing two portions of the switch module, in one
22 place BCPM identifies what is the cost per port and
23 what is the usage assigned to USF on a per line
24 basis. So we have a per port, which is basically a
25 per line number, and you have usage associated with

1 basic local service identified, and that is achieved
2 through extensive calculations that disaggregate and
3 then reaggregate things back up multiple times over
4 different jurisdictions, jurisdictions meaning either
5 wire center or rate center, which are different. I
6 don't mean to say it's outside of Florida.

7 In another place, however, in BCPM, there's
8 a fairly straightforward calculation that says here's
9 the total investment in switching by wire center
10 assignable to USF.

11 If I take the per line number, the usage
12 and the port number and multiply it times the number
13 of lines in that wire center and compare it to the
14 total investment in this other section that says this
15 is the amount of investment in this wire center
16 associated with USF, in every instance that line and
17 port usage multiplied times the number of lines
18 greatly exceeds the total amount that BCPM itself says
19 belongs associated with USF.

20 The calculations were way too complex. I
21 just could not find where the precise error was, but
22 it definitely needs to be corrected if this Commission
23 should decide to go with the BCPM model.

24 I would like to briefly discuss the input
25 errors.

1 The one input error shared by all three
2 companies as far as I'm concerned is the starting
3 switch price. If the starting prices for switches
4 going into the model as adjusted by their discount
5 input entries, there is absolutely no hope that the
6 outputs will be accurate or reflect a forward-looking
7 cost of these companies.

8 Now, as can be seen in the proprietary
9 attachment to my rebuttal testimony, which is labeled
10 CEP-1, there is a comparison there of the switch
11 prices per line of the three companies. They are
12 proprietary. I won't mention the numbers, but they
13 are very, very high. These are the investments that
14 BCPM is using for the switch prices paid to the vendor
15 in the top Table 1.

16 These numbers simply do not correspond to
17 the data that is publicly available about what the
18 price of switching is, nor does it comply with the
19 contract data that I have recently been able to review
20 that I received from Sprint, which was an old contract
21 that -- the one I reviewed was an out-of-date
22 contract. I understand now that that contract has
23 been extended, but apparently no new negotiations were
24 conducted to improve the discounts received in that
25 contract.

1 Switch prices are coming down, even as the
2 Turner Plant Index have shown, and there's no reason
3 to expect that a discount derived many years ago would
4 still accurately reflect forward-locking costs.

5 Now, in my supplemental testimony, I also
6 had an opportunity to review the BellSouth contracts.
7 And those numbers were discussed somewhat with Daoane
8 Caldwell, but they are located in my CEP-2 attached to
9 my supplemental. And those contract prices again are
10 very proprietary, but the table in my CEP-1 shows that
11 they are radically higher than the contract prices,
12 and it cannot be explained away because of taxes or
13 transport.

14 All the companies should be using switch
15 prices that reflect the best price that can be
16 obtained for new switches, as appropriate for a long
17 run study where a new network is being placed, and
18 where only the wire center and customer locations are
19 fixed.

20 In my opinion, one of GTE's input errors is
21 the inclusion of the GTD-5 switch. Simply because
22 they have sold some switches to Canada does not make
23 them forward-looking in Florida. On average, GTE is
24 placing new switches with the Lucent or Nortel
25 technology. They are not, in my experience, been

1 shown to be placing on any major effort any GTD-5
2 switches. And I have quite a lot of information in my
3 testimony about why I think the GTD-5 switch is not
4 appropriate for a forward-looking cost study.

5 In addition, for example, the Texas
6 Commission in the unbundled network element proceeding
7 had disqualified the GTD-5 switch as forward-looking
8 or least-cost.

9 GTE used multiple processes within BCPM to
10 enter their switch price data. In one case they used
11 what they called the SCM input price -- process,
12 excuse me. I don't understand why. SCM is a U.S.
13 West model. GTE uses SCIS. Why they didn't use the
14 SCIS input process for this is not clear at all. They
15 did that for a number of switches.

16 For the remainder of the switches, however,
17 they did rely on the BCPM default prices. There was a
18 huge disparity between the prices used in the default
19 BCPM versus what was done in this SCM input process.
20 Again, we don't know the reason for this. It could be
21 both a modeling and an input problem.

22 BellSouth has described its switch discount
23 methodology as a melding of new and growth discounts.
24 New switches sometimes receive a larger discount than
25 add-on growth equipment and therefore would cost

1 less. Now, BellSouth has used this melding only in
2 the case of switching.

3 These models, all of them, BCPM and CIS and
4 HAI, are what they call static models. It is the
5 industry standard. You're trying to capture at this
6 point in time what is the total cost of developing the
7 network for the current demand, not five or ten years'
8 worth of growth, current demand, with some allowance
9 through the application of fill factors for maybe some
10 growth. That was done on the loop, and fill factors
11 are also on the switch.

12 On top of that, BellSouth has incorporated
13 the use of growth pricing over extended periods of
14 time. It just simply does not fall within the realm
15 of a long run incremental cost study and is totally
16 inconsistent with everything else they've done in the
17 rest of the cost study in BCPM, so it should not be
18 allowed. They must use consistent modeling
19 methodology assumptions throughout the cost study.

20 In addition, by the way, Sprint did use
21 100% new switch pricing. I don't necessarily agree
22 with their number they used, but I do agree with the
23 idea that they used 100% new switches.

24 Now, one other item is that Sprint used the
25 BCPM small switch option in BCPM, and these small

1 switch prices are based on Dr. Gable's data submitted
2 to the FCC for switch prices as reported by the Rural
3 Utility Service.

4 The Rural Utility Service supports
5 extremely small rural telephone companies in the
6 United States and in the U.S. territories, for
7 example, Marshall Island with like two switches. And
8 many of these companies literally only have one switch
9 in their entire network. These extremely small
10 company prices simply cannot reflect the economies
11 that a Sprint size company would be able to obtain
12 from a switch manufacturer. It simply is not relevant
13 to use that data for small switches.

14 In addition, Mr. Dickerson indicated he
15 thought those numbers were being discounted
16 yesterday. That is not true. If you look at the
17 inputs to the BCPM model, there is an input for a
18 small switch discount input. It has not been
19 activated. There is no discount adjusting those
20 numbers in Sprint's filing.

21 In summary, I believe BCPM is fatally
22 flawed as a model for the switch module. It is
23 relying on massive amounts of data that is proprietary
24 and on models that are proprietary that other parties
25 -- makes it reasonably impossible to do a really good

1 validation. And we have shown that there are numerous
2 inconsistencies between what little we did obtain
3 about the inputs to the SCIS model versus what goes
4 into BCPM making the outputs inaccurate.

5 Again, because of the proprietary nature of
6 these models, some of the data requests were rejected
7 from some of the companies that refused to answer our
8 data requests, and we have not been able to perform as
9 thorough an analysis as we would like, and I am sure
10 there are more error lurking in the models that we
11 have not been able to uncover.

12 BCPM's overly complex modeling to
13 granularize switching investment into very small,
14 discrete functions does not add accuracy to the
15 analysis. It doesn't add accuracy to the model, and
16 it certainly doesn't add accuracy to the results for
17 USF funding. It only adds complexity. It precludes
18 others from viewing the model, for all practical
19 purposes, and tremendously increases the probability
20 of errors. The more complex it is, the more
21 probability you have for errors.

22 Now, should this Commission decide in favor
23 of the BCPM model despite what I've said, then the
24 inputs must be corrected, at a minimum, for the switch
25 price is by far the most important piece, as well as

1 the other input errors I detailed in my testimony.

2 I again emphasize that due the complexity
3 of the model and the lack of the information on the
4 assumptions and the data in the proprietary models
5 that were used to develop the important BCPM pricing,
6 I am so sure that there are numerous errors that I
7 have not been able to uncover at this time given the
8 short time frame between when we received the model
9 and these hearings.

10 Thank you. That concludes my summary.

11 MR. HATCH: Tender the witness for cross.

12 COMMISSIONER DEASON: Before we begin,
13 Staff, I still don't have an unredacted CEP-1. I
14 don't see it in this folder.

15 (Document tendered to Commissioner Deason.)

16 CHAIRMAN JOHNSON: BellSouth?

17 MR. CARVER: Sprint will go first this
18 time, if that's okay.

19 CROSS EXAMINATION

20 BY MR. FONS:

21 Q Good morning, Ms. Petzinger. My name is
22 John Fons, and I'm representing Sprint-Florida.

23 A Good morning.

24 Q As an AT&T district manager in regulatory
25 and legislative, what are your duties?

1 A Recently? Well, I've only been with AT&T
2 since 1996.

3 Q Well, during that time --

4 A In the past year and a half, I would say I
5 have been almost exclusively devoted to researching
6 unbundled network element cost studies filed by the
7 incumbent carriers, the switching cost studies.

8 Q Based on that, am I correct that you don't
9 have any role in the analysis of switch proposals
10 submitted to AT&T or its divisions or departments or
11 subsidiaries from any switch vendor or manufacturer?

12 A I don't have any role in the procurement or
13 negotiating of contracts for switches. Was that your
14 question?

15 Q Yes.

16 A No, I don't have any role. I don't deal
17 with that at all.

18 Q Prior to your employment at AT&T in 1966,
19 you worked for Bellcore for about 13 years?

20 A 1996?

21 Q Yes, 19 -- what did I say? I'm --

22 A 1966. I'm not that old yet. I'm getting
23 there, but not yet.

24 Q Forgive me. That was not intended. Let's
25 try it again.

1 You worked for Bellcore for 13 years prior
2 to 1996?

3 A That's correct.

4 Q And in that capacity, you stated that you
5 participated or led a group that developed switching
6 cost models, including the Switching Cost Information
7 System or SCIS; isn't that correct?

8 A Yes.

9 Q Is there more than one variety of the SCIS
10 model?

11 A I'm not sure what you mean by variety.

12 Q Is there a SCIS model for the switching
13 processor, and is there a SCIS model for the features?

14 A There is a model called SCIS-IN, which is
15 the feature module. There is a model called SCIS-MO,
16 which is -- I would not characterize it as a
17 processor. I would characterize it as the basic
18 switch analysis. Those two models talk to each
19 other. They are linked when running. The features
20 need the basic MO model to run.

21 Q And I believe your testimony was that you
22 had a role in the development of the SCIS-IN; is that
23 correct?

24 A I testified that I was involved
25 specifically as a subject matter expert in the

1 development of the SE switch SCIS development, which
2 included MO, and then I also was a lead on the feature
3 module. When I became director, I had responsibility
4 for all of the methodology for all of the SCIS models.

5 Q And does the BCPM rely upon the SCIS-MO?

6 A Yes, it does.

7 Q Are you familiar with the BCPM methodology
8 which describes how the BCPM models switch
9 information?

10 A I have reviewed it, yes. I looked at it.
11 You're talking about the written documentation?

12 Q Yes.

13 A Yes.

14 Q Section 7.0 of the BCPM model methodology?

15 A I don't know what the section number is,
16 but it was labeled "Switch Module Methodology," I
17 think.

18 Q Are you familiar with the FCC switch design
19 goals?

20 A Somewhat familiar.

21 Q Would you agree that one of the goals is to
22 separately identify host, remote, and stand-alone
23 switches and calculation of costs specific to each
24 type?

25 A In my discussions with some FCC staffers on

1 this particular area, we did discuss that. I think
2 you're right. I think they are leaning that way.

3 My caution, however, was, although that's
4 the ideal, all of the parties, including Sprint and
5 BellSouth, agree that there is no way to dynamically
6 model what the optimum mix of host and remote should
7 be in this forward-looking network, and that in my
8 opinion, for the reasons I gave in my summary, that
9 reliance on the embedded host/remote configuration is
10 not acceptable in a forward-looking environment,
11 because, as I said, where a stand-alone switch may
12 have been placed even only five years ago, today they
13 could put in a remote. The capacities have changed
14 dramatically. The technology has changed.

15 Although they are moving in that direction,
16 the caution is, how do you determine what the optimum
17 methodology is, if you can identify separately the
18 cost of a remote separately from the cost of the host.

19 Q Would you also agree that one of the design
20 goals is the acceptance of data such as switch
21 classification, wire center traffic characteristics,
22 and switch investments from multiple sources?

23 A I'm not sure I understand completely what
24 you're asking me.

25 Q I'm asking you whether one of the FCC

1 switch design model goals is the acceptance of data
2 such as switch classification, wire center traffic
3 characteristics, and switch investments from multiple
4 sources?

5 A No, I'm not aware of that. I'm not sure
6 what you mean by multiple sources. In my discussions
7 with them, which was quite some time ago, there was no
8 discussion of multiple sources. That was to be done
9 -- I believe that tended to be -- in my discussions
10 with them, there was the modeling issue of how the
11 model should be, and then the inputs were going to be
12 a separate discussion.

13 Q Are you aware that another design goal of
14 the PCC for these models is the sharing of costs
15 between the host switch and its attendant remote
16 switches to reflect properly the efficiencies of such
17 arrangements?

18 A Well, again, yes. When we were discussing
19 this issue, we talked about if you can identify the
20 cost of a host, and if you can identify the cost of a
21 remote separately, when you have it, what do you do
22 with it?

23 In reality, should -- for example, if the
24 customer is served from a remote, if the cost of that
25 remote is less than the cost of the host, should only

1 the customers served off the remote receive the
2 benefits of that lower cost remote, or in reality, as
3 my recommendation was, should that be looked at as an
4 entire system, and that all subscribers on the host
5 and the remotes benefit somewhat equally and actually
6 have the same cost. It's levelized over all the
7 customers served by that system. Otherwise, you are
8 penalizing people for being served arbitrarily from
9 whether or not they live close to a remote or close to
10 a host, and that didn't make much sense to me. So my
11 recommendation was to serve all equally.

12 Q Would you agree, Ms. Petzinger, that for
13 universal service purposes and the provision of basic
14 local exchange service, that for switching purposes,
15 that that requires a line port on the switch, usage of
16 the central processing module, line and trunk CCS
17 usage, and SS7 usage?

18 A Yes, that's correct. However, I don't see
19 it necessary to separately identify those. We've
20 lived a long time with identifying the cost of a port,
21 and then usage basically being the cost of the rest of
22 the switch, and more or less a minute is a minute. I
23 don't think it's necessary to identify the difference
24 in cost of the part of the minute that is incurred on
25 the line versus the part of the minute that's incurred

1 in the trunk. If you take the switch and figure out
2 what the cost of a minute is through that switch,
3 you'll consider that entirely.

4 COMMISSIONER JACOBS: How is the serving
5 configuration organized when you have a remote? Would
6 a -- let me ask it this way. Would a remote serve an
7 entire wire center?

8 THE WITNESS: Oh, absolutely. Remotes have
9 gone through a number of generations of capacities.
10 There were times in some technologies where a remote
11 only served in the hundreds of lines. Then they moved
12 up to the 2,000 line mark, then the 4,000 to 5,000
13 line mark. And now there's a remote that serves --
14 let me think. It has been characterized as being
15 capable, this one remote being capable of replacing an
16 old 1A analog switch, which were typically fairly
17 large switches. So I don't know the exact number of
18 lines.

19 COMMISSIONER JACOBS: In the case where
20 you would have a remote that serves a wire center, if
21 you follow the suggestion that you made of levelizing
22 costs across the whole system, wouldn't that skew
23 somewhat the identification of the high cost, of the
24 high cost areas?

25 THE WITNESS: No, I don't think it would,

1 because that host, although it's defined as a wire
2 center, and it can operate somewhat limitedly on its
3 own if it's cut from the host -- and when I say
4 limited, it's extremely limited. No company would run
5 any length of time that way. It can't do billing. It
6 can't do any vertical features. It's very restricted,
7 and you can't do remote maintenance or anything else
8 on it.

9 So what you want to do is -- a remote is
10 always tied to a host, and to separate them out and
11 treat one versus the other differently I think is
12 inappropriate. The benefits to the serving area of
13 that is the system of that host and its attending
14 remotes, subtending remotes. You have to look at a
15 system, because they won't work without that host. So
16 it really is a system.

17 COMMISSIONER JACOBS: Thank you.

18 Q (By Mr. Fons) Ms. Petzinger, would you
19 agree that in the BCPM there are six functional
20 categories that are costed out?

21 A Subject to check, I think that's right,
22 five or six.

23 Q And would you agree that one of them is the
24 processor-related cost, another is the line
25 termination MDF and protector, the third is the line

1 port cost, the fourth is the line CCS usage, the
2 fifth is the trunk CCS usage, and the sixth is SS7?

3 A Yes, that's correct, although some of those
4 -- those are BCPM categories. They correspond with
5 some SCIS outputs. But actually there are more SCIS
6 outputs than the categories in BCPM, so therefore,
7 some aggregation was made to collapse the SCIS outputs
8 into the BCPM categories.

9 I would also like to mention that the
10 processor-related cost is not just the processor.
11 That is the entire fixed cost of a switch to get it up
12 and running before you add lines or traffic to it.

13 Q Based on your experience, what are the
14 major functions or subsystems in a central office
15 switch?

16 A Are you asking me from an engineering
17 perspective or from a cost perspective?

18 Q From your experience.

19 A From an engineering perspective, there are
20 multiple functions within a switch. And if you can
21 identify that each one of those functions has a
22 discrete cost, that was -- you can therefore identify
23 the cost of those functions. That was what SCIS was
24 all about, and it was done primarily to enable costing
25 of vertical features and services, so you could

1 differentiate vertical services and features from
2 basic pots, and it was built originally in the '70s
3 for cross-subsidization issues.

4 From a costing perspective, today we are
5 seeing more and more costing issues that affect that
6 process. If you do not have a separate cost for each
7 of the components that make up a switch, if traffic
8 patterns and other things don't impact the cost a
9 company is going to pay for a switch, then I would
10 argue that you lose cost causation when you then take
11 that number and try to make it into a -- with these
12 list of subcategories. If you have one price for the
13 switch and you cannot identify what the cost of the
14 little subcomponents are, it then becomes a totally
15 arbitrary allocation to assign those costs to
16 independent, individual subcategories of functions.

17 Q Well, let me help you through this. Would
18 you agree that --

19 A I thought I was doing pretty well.

20 Q Well, you were on a roll. Let me put it
21 that way.

22 Let me ask it this way. Would you agree
23 that one of functions of a central office switch is to
24 terminate lines?

25 A Yes, it is.

1 Q And another is to terminate trunks?

2 A Yes. Well, to carry the traffic.

3 Q Another is to process calls?

4 A Yes.

5 Q And another is to provide connections
6 between lines?

7 A Yes, absolutely. That was what I was
8 explaining when I said from an engineering
9 perspective, those functions exist.

10 Q And another one is to provide interoffice
11 signaling?

12 A Yes.

13 Q And another one is to provide vertical
14 services?

15 A Yes.

16 Q And don't the six categories that are
17 costed out in the BCPM reflect each one of those
18 operations of the central office switch?

19 A Yes, they do. But all I was saying was
20 that if you do not have any cost causation that
21 underlies that, there is no reason to split it out
22 that way. If there is no separate cost causation of
23 line CCS, for example, from another function of the
24 switch, there's no reason to arbitrarily allocate them
25 that way.

1 Q Doesn't the HAI divide up the switch costs
2 into four separate categories?

3 A The switch itself?

4 Q Yes.

5 A My understanding is that it's divided into
6 two, port and usage, or minute of use.

7 Q Doesn't it divide it up into the MDF, the
8 main distribution frame, the line port, trunks, and
9 usage?

10 A The first part of your question I
11 understood, which is the MDF. The MDF is not switch
12 equipment. It goes into that account, but I do not
13 consider it part of the switch. It's often purchased
14 from a different vendor than the switch is purchased
15 from.

16 Q But isn't that necessary --

17 A That is not -- that is done separately, and
18 the cost for that is a separate process within HAI, as
19 I understand it. It is not done in switching. It is
20 then added to the port later on. I don't think it's
21 maintained as a separate function.

22 Q Don't you need an MDF and a line port to
23 terminate lines?

24 A Yes, you do, but sometimes in cost studies
25 the MDF or the main distributing frame is included in

1 the loop plant.

2 Q And determining --

3 A Like I said, that's a separate -- it's a
4 separate piece of equipment. It depends on the cost
5 study and the company involved as to where they
6 allocate that cost, whether it's switch port or loop
7 plant.

8 Q But you did agree that trunks and usage are
9 also costed out separately in the HAI Model?

10 A I believe that for most -- for aggregation
11 -- let me back up. For the results, it is primarily
12 port and usage. I believe I've seen a report that
13 will split out trunks for the purpose of identifying
14 the purchase of dedicated trunks or stand-alone
15 trunks. But for USF, it's going to be the port, and
16 the rest of the switches is assigned to minutes of
17 use.

18 Q Well, let me ask you, how did you cost
19 outlines and vertical services during your career at
20 Bellcore?

21 A Well, as far as -- I didn't actually do the
22 costing out. I did the modeling. That was done
23 because at that point in time we had very detailed
24 engineering rules, and we also had costs of the
25 individual components that make up the switch. Each

1 component was assumed to be purchased individually, so
2 I could take, you know, one of item A, two of item B.
3 In that way, we were able to explicitly identify what
4 the cost of the equipment purchased for a port would
5 be.

6 However, again, if you don't have costs for
7 individual component pieces of a switch, if you are
8 looking at a flat rate cost per line for purchasing a
9 switch, for example, then the cost causation link is
10 gone. You don't have the individual component cost to
11 be able to decide how much of that flat rate cost per
12 line belongs in the port and how much belongs in usage
13 and how much belongs in trunks, or SS7, or anything
14 else. It becomes an arbitrarily allocation.

15 Q Would you -- and this is kind of going back
16 to where we were before. I just want to establish
17 that we've got it correct. You agree that the HAI
18 Model separates costs for the switch line ports, main
19 distribution frames, switch usage, and switch trunks;
20 isn't that correct?

21 A I agree with what you said, except for the
22 main distributing frame. That is a separate process.
23 It is not part of a large switch price that then gets
24 unbundled and allocated out. It is developed
25 separately.

1 Q But that is part of the HAI Model?

2 A It is added back into the port investment
3 subsequently.

4 Q But it is costed out separately?

5 A Yes. It's not part of the switch. It's a
6 separate frame. You can go into a central office and
7 see it's a separate piece of equipment. It's, in
8 effect, acting as a connection, a connection point
9 between the loop and the switch.

10 Q What is the process that the HAI Model uses
11 to compute the universal service usage cost per line,
12 beginning with the total usage cost per line as
13 identified by the non-line port fraction input?

14 A Well, I'm not really here to talk about
15 HAI. I have an understanding of what it does, but I
16 think the HAI witnesses have been here and --

17 Q Well, unfortunately, the HAI witnesses
18 punted that particular question to you, indicating --

19 A How to develop the usage cost?

20 Q Yes.

21 A Could you show me where that was?

22 Q Yes.

23 A Mr. Wood has been doing this a long time.
24 I'm sure he would have known the answer to that
25 question.

1 Q He said, "In previous runs, we have used
2 alternative values based on Mrs. Petzinger's analysis,
3 which we could do here with the proper information.
4 Different switch technologies, because of the way they
5 are configured, have a different mixture of
6 traffic-sensitive and non-traffic-sensitive
7 components. Northern Telcom, for example, or Nortel
8 configures the switch in a way that is very different
9 from the way Lucent configures its switches, so you
10 need to have a number that reflects the mixture of
11 purchased switches." So he's relying upon your
12 analysis.

13 A Well, that's not -- that's not quite
14 right. Actually, the split between port and usage in
15 the HAI Model was put forward before I became an AT&T
16 employee.

17 Now, in that process, we had looked at some
18 data put out in public record in New York that
19 supported the number, and I had looked at that for
20 him. But I did not do the original development of it.

21 However, I do agree with his statement of
22 my knowledge of switches, that the technology, as well
23 as, which I don't think he did mention, how much
24 analog loops, copper loops come into the switch versus
25 how much next generation digital loop carrier is

1 assumed, will dramatically impact the amount assigned
2 to port, because digital loop carrier doesn't even
3 come in on the line port side of the switch. It comes
4 in on the trunk side.

5 Q You would agree, though, that the
6 partitioning of the switch into line ports and other
7 components should be split specific to the switch
8 vendor?

9 A If you have that kind of data, and if you
10 have the detailed cost information for each component
11 in the switch, it can be done. I don't necessarily
12 think that that's a better way, because the
13 assumptions you have to make, there are a large number
14 of assumptions, and I don't think that's a credible
15 way of doing it. I mean, I don't think it's a
16 reasonable way of doing it. Let me put it that way.
17 I'll withdraw the "credible." If you have the data,
18 it could be done.

19 Q Isn't one means of doing this partitioning
20 to use an engineering-based model such as SCIS or SCM?

21 A From an engineering basis it can be done,
22 but again, two things there. One is what assumptions
23 are you making when you're running that engineering
24 model. For example, as I said in my testimony, if you
25 don't include next generation digital loop carrier,

1 you're going to get the wrong number to start with,
2 which is what happened in BCPM.

3 In addition, if your cost structure doesn't
4 identify separately the cost of a digital loop carrier
5 from an analog line, then that engineering model is no
6 longer useful. It simply has no relevance. If you're
7 paying the same cost for all of the equipment needed
8 to make a line operational and do all the switching
9 functions, there is no relevance in that then to
10 identify discrete portions. It's an arbitrary
11 allocation.

12 Q And you agree that we should not use
13 arbitrary allocations?

14 A I'm not saying that. I'm saying that in
15 some cases, that has to be done, and as long as it is
16 reasonable, I think it's okay. And in fact, in some
17 cases I think it's superior because it is
18 identifiable. People can discuss it. You can -- it's
19 open, and you can agree on what that percent should
20 be. If there are differences of opinion, people can
21 put forward their arguments. If you rely on
22 engineering models, the process is way too complicated
23 for anybody to review and understand what's going on.

24 Q Do you believe then that it's appropriate
25 to use arbitrary allocation factors of switch

1 investment to the switch network functions, for
2 example, line ports and usage?

3 A As I said, I think in some cases it is the
4 more reasonable way to go if it is reasonable and if
5 the parties can agree to what that number should be.

6 Q Are you familiar with an input in the HAI
7 Model called the processor featured loading
8 multiplier?

9 A Yes, I've seen it.

10 Q Isn't the purpose of that input to increase
11 the basic busy hour calling rate on the switch to
12 account for the additional processor load caused by
13 the use of vertical services and features?

14 A Well, again, I'm not the HAI Model expert.
15 I'm here to talk about BCPM. My testimony was limited
16 to that.

17 Q When you were employed at Bellcore, did you
18 design cost equations to determine incremental
19 investments for vertical services?

20 A Yes, I did.

21 Q And did these equations include processor
22 usage as part of the feature incremental investment?

23 A At times.

24 Q And so you would agree that a portion of
25 the switch processor investment is used to support

1 vertical services and features?

2 A It depends on how you look at it. I'm not
3 going to say yes definitely, because the processor is
4 definitely used to process vertical features.
5 However, processors are -- that same processor is
6 required if you never put a feature on that switch.

7 So right now when a telephone company goes
8 out to buy a switch, they get that switch with a
9 processor. It processes everything that comes its
10 way, whether it be pots or vertical services. So even
11 if you never add a vertical service, when you look at
12 a rural wire center that has no features, it still has
13 the same processor that the switch down the road has
14 that has a fairly high penetration of features.

15 Q Are you aware that the BCPM has an input
16 for feature loading multiplier?

17 A Did you ask if BCPM has one?

18 Q Yes.

19 A No, I don't think it does.

20 Q Can I refer you to 7.4.4.1 of the BCPM
21 methodology?

22 A I don't have that with me.

23 Q Would you accept, subject to check, that
24 the BCPM does in fact have such a feature?

25 A Subject to check. I thought it was doing

1 it through the allocation of a processor utilization
2 factor that adjusted the amount of the processor that
3 would be assigned to USP.

4 Q And doesn't --

5 A It was a fairly trivial amount, but it does
6 downwardly adjust.

7 Q It's 17% of the processor?

8 A I was under the impression that it varies
9 by the mix of switches in the BCPM run.

10 Q Right. And can't --

11 A I would not call that a feature loading
12 multiplier, though. That was --

13 Q But can't this particular percentage go
14 much higher if there are a number of business lines on
15 that switch?

16 A Yes, I think was what was --

17 Q Do you know -- on the HAI Model, the
18 processing feature loading multiplier that we talked
19 about, do you know whether that applies the feature
20 loading multiplier to the entire switch or just the
21 processor part of the switch?

22 A I don't know.

23 Oh, actually I do know, now that I think a
24 little bit about it. I believe that is used only to
25 -- in HAI, I believe that is used only to determine

1 whether or not the capacity of the switch could be
2 exceeded, the processing capacity.

3 Q Well, then wouldn't --

4 A That was my understanding.

5 Q Well, then wouldn't you agree that the
6 switch must be partitioned accurately by engineering
7 rules to avoid applying this loading to parts of the
8 switch other than the processor and its related
9 equipment?

10 A No. I think you're mixing something up. I
11 don't think HAI is applying the loading to change the
12 cost in any way.

13 As I said, my understanding is that that
14 input is used only to effectively increase the level
15 of traffic from the pots level to some higher level to
16 see if the processor would exhaust.

17 My understanding is that there are few, if
18 any, switches where that occurs. And where it does,
19 my understanding is they put in a second switch in
20 that wire center. So it doesn't have the impact that
21 you're asking me about.

22 Q Do you have any experience, Ms. Petzinger,
23 as a network planner?

24 A No, not at all.

25 Q In your rebuttal testimony at page 7, you

1 state, "A network planner looking at the current
2 demands for lines, trunks, and traffic would
3 definitely place a different mix of equipment --

4 A I'm sorry. Could you tell me where on
5 page 7 again?

6 Q On line 2.

7 A Yes.

8 Q Do you see that statement, "A network
9 planner looking at the current demands for lines,
10 trunks, and traffic would definitely place a different
11 mix of equipment, even assuming the same wire center
12 locations"?

13 A Yes, I do.

14 Q Do you have any evidence of this?

15 A Just my discussions with people that are in
16 the business. And it is clear that if you have a
17 remote which costs less than a stand-alone, and if
18 that remote will serve that wire center efficiently,
19 that a remote would be placed rather than a
20 stand-alone.

21 And as I mentioned before, since the
22 capacities have changed, that's exactly what would
23 happen today compared to what may have been decided
24 five, 10, 15, 20 years ago, which is what the LERG
25 looks at.

1 Q Are you aware that the FCC has required
2 that HAI 5.0a use the LERG to place ILEC switches,
3 including the host, remote, and end office
4 relationships?

5 A I understand that they have asked for that
6 data to be capable of being run. As I mentioned
7 before, I personally disagree with that conclusion.

8 Q Hasn't MCI in fact in an ex parte to the
9 FCC mailed September 14, 1998, agreed to do that?

10 A As far as I know, the HAI sponsors have
11 agreed to do what the FCC asked them to do.

12 Q Are you familiar with how the HAI develops
13 switch investment costs?

14 A Not tremendously, no. I have an idea in
15 general, but again, I'm not the HAI witness.

16 Q Are you familiar with the switching curves
17 that the HAI Model uses for --

18 A I have seen it in the documentation.

19 Q And do you know upon what basis those
20 curves were drawn?

21 A I think you're going to have to ask
22 Mr. Wood that.

23 One interesting thing I have noted, though,
24 however, from that --

25 Q I don't think there's a question pending.

1 Is it your understanding, Ms. Petzinger,
2 that in order for the interoffice signaling network to
3 operate, there is equipment required in the central
4 office switch generally known as the switching -- I'm
5 sorry, service switching point SSP?

6 A There is equipment in the end office in
7 order to make SS7 operational, yes, that's correct.

8 Q And wouldn't the switch cost -- switch
9 investment have to include this cost?

10 A Yes, it does. I mean, you can assign it to
11 the switch, or you can assign it to SS7, depending on
12 how you're doing your cost study.

13 Q Let's turn to page 24 of your rebuttal
14 testimony, please.

15 A At line 15, you state that four years ago,
16 Pacific Bell negotiated a major contract for
17 approximately \$110 per line. Do you see that?

18 A Yes, I do.

19 Q Is the source of that statement a 1993
20 Pacific Bell press release that it would spend just
21 over \$1 billion to replace all of its remaining analog
22 switches with digital ones?

23 A Just let me check for a moment.

24 A That was not my source, no.

25 Q Well, let me ask you this. How do you get

1 \$110 per line out of that press release?

2 A I didn't. That was not my source.

3 Q What is your source?

4 A Well, as it's noted in the back on Note 15,
5 I used a GTE response to a proxy cost model question
6 in CC Docket 96-45, Federal-State Joint Board on
7 Universal Service Cost Proxy Models.

8 Q Do you have that with you?

9 A No, I don't.

10 Q And you're using a GTE filing with regard
11 to a Pacific Bell cost?

12 A I've identified it appropriately, I think.
13 And I was just trying to identify what publicly
14 available information I had at the time, because when
15 I wrote this, I had very limited access to any of the
16 contract prices, which are a much better benchmark, I
17 agree, than the publicly available information.

18 Q You didn't get this information from a
19 California Utilities proceeding?

20 A No. I think I've given you the cite where
21 I identified the data. And I do have this in my
22 office. I can provide it if you would like it, but I
23 don't have it with me.

24 Q Are you aware that AT&T in a California
25 proceeding used this same \$110 figure?

1 A In what respect did they use it? I was
2 involved in the California proceeding, and I don't
3 know where the line has to be drawn between
4 proprietary and non-proprietary data. I don't know
5 where you're getting your number from.

6 Q I'm getting it from the order of the
7 California Public Utilities Commission dated October
8 25, 1996.

9 A Okay. No, I did not get it from that
10 order. I think I've been using this -- well, never
11 mind.

12 Q Are you aware that the California Public
13 Utilities Commission rejected the \$110 switching cost
14 per line on the basis that there was no supporting
15 evidence that the \$110 switching cost per line is
16 accurate?

17 A As I said, I was involved in that
18 proceeding. My understanding at this point in time is
19 that there was a subsequent order or recommendation --
20 I would have to check my files to see what it was
21 anymore -- quite some time ago that was using, I
22 think, \$115 or \$118 a line.

23 Q I thought you indicate here it's \$110 per
24 line.

25 A That was the cite from this source. What

1 the California Public Utility Commission was
2 suggesting that they use to me was not public
3 information about what the actual price of switching
4 was. That was, at best, a negotiated number, as I
5 understand it, between the parties.

6 Q You were in -- you say you participated in
7 that proceeding?

8 A Not in the -- you seem to have an order
9 from 1996. I don't think I was involved in that one.

10 Q Do you know whether --

11 A California is an OANAD proceeding that has
12 been going on -- from my understanding, I think it's
13 like three years now. So I did participate in a
14 portion of it. I think I first participated somewhere
15 early last year, in 1997.

16 Q Do you know whether Mr. Selwin was
17 appearing as a witness in that proceeding on behalf of
18 AT&T and MCI?

19 A Again, I only participated in one portion
20 of the proceeding. In the portion I was in, I think
21 Mr. Selwin was there, but I was not in the room when
22 he testified.

23 Q So you would not know whether or not
24 Mr. Selwin was the source of the \$110 in the
25 California proceeding?

1 A No. I'm not familiar with the \$110 number
2 in California. That apparently preceded -- you said
3 that was 1996. That may have preceded my involvement.
4 I was still at Bellcore in 1996.

5 Q Would you turn to page 25 of your rebuttal
6 testimony?

7 On line 5, you contend that Sprint's
8 reported switch prices do not support BCPM's prices.
9 Do you see that? Your question is, "Do the switch
10 prices reported by Sprint support BCPM?" And your
11 answer on 5 is no; is that correct?

12 A That's right, meaning the prices that were
13 submitted to the FCC for use in a earlier BCPM model
14 are much higher -- excuse me, are lower than what was
15 used in the BCPM model by Sprint in this proceeding.

16 Q And you go on to support your statement
17 that they don't support the BCPM prices. You state
18 that Sprint submitted \$120 as the switch cost per
19 line.

20 A No. I think that's a fairly blatant
21 mischaracterization of what I said.

22 Q Well, I'm sorry. I thought you --

23 A And I provide information. What Sprint
24 provided was \$150,000 fixed startup cost plus \$110 per
25 line as a variable cost.

1 Q And you say on line 11, "Sprint said the
2 current BCPM values," and then you've got a bracket,
3 "the new lower values," bracket closed, "more closely
4 approximate Sprint's current cost of switching." Do
5 you see that?

6 A Yes, I do have that.

7 Q Yes. Do you see that?

8 A Yes, I do.

9 Q And was the bracketed language in the
10 filing with the FCC?

11 A No. That's why I bracketed it. That was
12 what my interpretation of that statement was.

13 Q But that bracketing is yours?

14 A Yes, it is. That's why it was bracketed.

15 Q And you haven't quoted the entire sentence
16 out of the filing that was made by Sprint with the
17 FCC, have you?

18 A No. And I think if you look at the note on
19 23, I explain why.

20 Q Well, let's read -- let me read to you the
21 entire sentence, including the sentence immediately
22 before it. Do you have that with you?

23 A Yes, I do.

24 Okay. Could you tell me the page again?

25 Q It will be page 3 of the attachment to the

1 ex parte filing.

2 A That's the text attachment? Because
3 there's multiple --

4 Q Yes, it's the text attachment. It's
5 Attachment A, page 3.

6 A Yes, I have it.

7 Q And the entire sentence that you take an
8 extract from says, "Although the current BCPM values
9 more closely approximate Sprint's current cost of
10 switching, Sprint believes that it would be
11 appropriate for the Commission to use the more
12 conservative input cost until it has concluded its own
13 investigation on this issue."

14 A Yes, I see it.

15 Q And the sentence immediately before that
16 says, "Finally, Sprint recognizes that there is a
17 fundamental disagreement on the level of switching
18 costs, and this issue can only be resolved by
19 Commission access to invalidation of cost data that is
20 proprietary to switch vendors." Is that correct?

21 A Yes. I would also like to -- I agree, but
22 I would also like to call your attention to the
23 previous page, where it says that responding to these
24 concerns, Sprint has independently reassessed the
25 default input values and has identified a number of

1 changes that fall, in its view, within the range of
2 reasonableness and would provide a reasonable basis
3 for a national USF fund.

4 Q Right. But for purposes of this
5 proceeding, you've said what Sprint says the costs
6 are. And didn't Sprint say in its response to the
7 Commission, "Although the current BCPM values more
8 closely approximate Sprint's current cost of
9 switching," and wasn't that amount \$225 per line?

10 A I interpreted current to mean what you were
11 putting on the table right then and there, the current
12 numbers you were putting out.

13 Q Well --

14 A I will agree with you, when I was
15 rereading this this morning, that that could be open
16 to some interpretation as to the language. It was a
17 bit unclear. So again, I will agree with you that I
18 may have misinterpreted that. I may not have. I
19 still think the language is unclear.

20 However, I would go back to the sentence I
21 read on page 2 that's saying that Sprint believes
22 these are reasonable, and that they're a reasonable
23 basis for a USF fund. And I believe they reiterated
24 in the conclusion on page 7, where it said, "It is
25 equally critical that the Commission adopt a model and

1 model inputs that not only reflect a network design
2 capable of producing a high quality of service, but
3 also incorporate a realistic assessment of the cost of
4 building such a network. The BCPM model with the
5 input changes suggested by Sprint meet these
6 criteria."

7 Q But Sprint told the FCC that its current
8 BCPM value of \$225 per line more closely approximates
9 Sprint's current cost of switching?

10 A Again, I find the language that you are
11 referring that to on page 3 to be very confusing. I
12 don't necessarily interpret it that way. I read
13 current costs meaning the ones you had currently put
14 on the table and were proposing for the FCC to use. I
15 mean, you had put out these numbers in the attachment
16 of \$150,000 fixed startup and \$110 per line and had --
17 I mean, I had to take the whole package in its
18 entirety.

19 I believe the language you're referring to,
20 it was confusing to me. I may have misinterpreted it,
21 but I think the overall gist of it was that -- well,
22 my reading of this document in its entirety, taken as
23 a whole, was that Sprint was putting forth these
24 numbers as reasonable.

25 Q On line 17 of that same page -- well,

1 starting on 16 --

2 A Page 37

3 Q On page 25 of your rebuttal testimony, or
4 starting on 15.

5 A Yes.

6 Q You state that Sprint's switch prices in
7 this proceeding appear disingenuous at best. Can you
8 define disingenuous for me?

9 A Well, my definition, not exactly textbook,
10 but I find it extremely unreasonable for Sprint to
11 expect this Commission to believe that the \$120 that
12 they filed with the FCC claiming it was a reasonable
13 number compared to the numbers --

14 MR. FONS: Madam Chairman, I asked her to
15 please define the term "disingenuous," and I don't
16 think she's defining the term "disingenucus." She's
17 giving us a speech.

18 MR. HATCH: Madam Chairman, he asked the
19 question, and she is giving her answer.

20 CHAIRMAN JOHNSON: Go ahead and finish. I
21 thought she was trying to describe what she thought
22 disingenuous meant --

23 THE WITNESS: All I was --

24 CHAIRMAN JOHNSON: -- in the context of how
25 the question was asked. Go ahead. Go ahead.

1 THE WITNESS: Again, I can't give you a
2 textbook definition, but I found it extremely
3 disconcerting when I saw the \$120 per line on average
4 for a 15,000-line switch, which is representative of
5 Sprint's average size in Florida.

6 When you -- the way I got to the \$120, I
7 take the \$150,000 fixed and the \$100 per line. If you
8 apply that formula to a 15,000-line switch, it equates
9 to \$120 per line.

10 If I take that number and compare it to the
11 numbers for Sprint in my Exhibit CEP-1, they aren't
12 close. And I just found it to be unreasonable that
13 Sprint is trying to put something in this proceeding
14 that is so much higher than what was produced at the
15 FCC.

16 Q (By Mr. Fons) You're not using
17 disingenuous in its technical, definitional dictionary
18 term, are you?

19 A Well, if you would like to give me the
20 technical dictionary term, I'll let you know whether
21 or not I do.

22 Q Lacking candor and frankness.

23 A I would say that the numbers proposed in
24 this proceeding do not have -- do not frankly
25 correspond to the numbers that you've produced

1 elsewhere. I don't know what to say. I don't -- I
2 mean, are you asking me could it have been a mistake
3 in your numbers?

4 Q No.

5 A I guess so. But, I mean, these numbers
6 were out. You've --

7 Q The number --

8 A You went out with the FCC publicly putting
9 these numbers on the record. I don't know how to
10 explain why else you would have put these numbers --

11 Q You would agree that the number that Sprint
12 said is its current cost is \$225 per line?

13 A No, I'm looking at the 150 plus -- thousand
14 plus 110, which is the numbers that you put on the
15 record at the FCC as being reasonable.

16 Q Not Sprint's costs.

17 A Oh, I'm sorry.

18 Q Were those Sprint's costs?

19 A The \$150,000 plus 110?

20 Q Yes.

21 A Yes.

22 Q Okay.

23 A That was the Sprint letter that we were
24 just talking about.

25 Q At the bottom of page 25, you make

1 reference to some testimony for Southwestern Bell from
2 a Mr. Hugh Raley in 1996. Do you see that?

3 A Yes, I do.

4 Q And you state that he says that the
5 engineered, furnished and installed, paren, EF&I,
6 price was \$85 per line for switching. Do you see
7 that?

8 A Yes.

9 Q Have you looked at Mr. Raley's entire
10 testimony in that proceeding?

11 A Yes, I did quite some time ago.

12 Q And didn't he say the engineered, furnished
13 and installed, EF&I, price was \$85 per line, but in
14 addition, if you add telephone company cost plus tax,
15 you arrive at a total of \$109 per line; if you then
16 add frame power and test sets, you have a total cost
17 of \$183 per line?

18 A I can -- I don't remember the exact
19 numbers, but, yes, I do. But that is not the correct
20 comparison to the numbers we're looking at here. All
21 of the numbers in my testimony are talking about the
22 investment paid or the prices paid to the vendor for
23 switching. Both HAI and BCPM have separate factors
24 for adding in those other costs, so that's not
25 relevant to this comparison here.

1 Q But in the HAI Model, the cost per line in
2 the switch curves, does that include all of these
3 various costs?

4 A No. As in BCPM, those numbers are added
5 through the application of additional costs and
6 factors. I believe it's done in the expense module to
7 increase the overall level of switching to accommodate
8 all those other categories of costs associated with
9 switching, but not actual switch prices.

10 Q On page 26 at line 6, you say, "Mr. Raley
11 included in his testimony an attachment which revealed
12 the following," and then you have a chart which says
13 EF&I investment per line, and then you've got 1 to
14 15,000 lines, et cetera. Do you see that?

15 A Yes, I do.

16 Q That's not the entire chart that Mr. Raley
17 put in the testimony in Texas, is it?

18 A No. The rest of the chart dealt with those
19 other numbers that were for local telephone company
20 engineering and installation that, as I mentioned, are
21 added subsequent in both models. Everybody adds those
22 numbers after you identify what this number should be.

23 Q And these --

24 A You've got to get this number right first.

25 Q But these additional costs that he

1 identified are legitimate costs that should be used in
2 determining the cost of switching?

3 A The category of costs. I did not review
4 the absolute numbers as to whether or not I consider
5 the numbers themselves of relevance, because the
6 categories of costs, local telephone engineering and
7 installation and those kinds of costs are added in
8 both models. Those are legitimate costs.

9 CHAIRMAN JOHNSON: Mr. Fons, let me ask you
10 a quick question. How much more do you have?

11 MR. FONTS: I think I have just one more
12 question.

13 CHAIRMAN JOHNSON: Okay. Let me just --
14 for the witnesses that are here, we are going to break
15 for lunch, and it will be about 45 minutes. So for
16 those of you who have a 1:45, you're not going to make
17 it.

18 Go ahead.

19 Q (By Mr. Fons) Ms. Petzinger, in your
20 summary, you stated that the BCPM relies upon data
21 extracted from SCIS and SCM. Do you remember that?

22 A Yes. That was my understanding based on
23 reading the methodology for BCPM, that --

24 Q Can you --

25 A -- SCM was involved. I have not seen any

1 specific data about that.

2 Q Can you identify by name or reference a
3 single data item or formula within the BCPM switch
4 module that was extracted from SCIS or SCM?

5 A Oh, absolutely. Do you want the specific
6 items, or do you want me to just generally categorize
7 them?

8 Q I would like the specifics.

9 A I managed to have misplaced the detailed
10 document, but I think I can get through a fairly
11 comprehensive list.

12 To start with, on the switch -- these are
13 all switch inputs. You would have the -- all of the
14 price -- the BCPM default price coefficients, with the
15 exception of the small switch price coefficients. And
16 all of the companies in this proceeding did use to one
17 degree or another the BCPM default prices.

18 Q Aren't those all inputs?

19 A Excuse me?

20 Q Aren't those all inputs to the BCPM
21 process?

22 A Those are inputs, yes, that's right.

23 Q That's not what -- I thought you had
24 indicated that the model relies upon data. So you're
25 talking as an input, it relies upon the data?

1 A Yes.

2 Q Okay.

3 A I agree, that particular aspect is an
4 input.

5 Now, where it becomes part of the modeling
6 is, there is a separate group of inputs that talk
7 about how you divvy up the switch investment to --
8 what percent gets assigned to port, what percent gets
9 assigned to line CCS, what percent gets assigned to
10 trunk CCS.

11 The application and the -- or the
12 disaggregation of a total switch investment, those
13 factors are all a result of the SCIS, and presumably
14 the SCM process.

15 Q But my question was, can you identify
16 within the BCPM switch module that was extracted from
17 SCIS or SCM, but you're giving me inputs that go to
18 the BCPM model. I'm asking whether there is anything
19 in the BCPM switch module that has SCIS or SCM
20 formulae in it.

21 A Oh, no. I agree. There was no lifting of
22 SCIS or SCM formulas that I know of to be put into
23 BCPM. However, what I'm saying is, my testimony said
24 it relied on the data from those models, because BCPM,
25 in order to run, must disaggregate the switch

1 investment down to these buckets.

2 Q We have no disagreement on that,
3 Ms. Petzinger. I was --

4 A Okay.

5 Q We were interpreting you saying that there
6 were SCIS and SCM formulae in the BCPM switch module,
7 and I think you've clarified that there isn't.

8 A No. I didn't -- I was not implying that
9 you stole anything from SCIS or SCM as far as
10 formulas, not that I'm aware of.

11 MR. FONTS: I have no further questions.

12 CHAIRMAN JOHNSON: Mr. Carver?

13 MR. CARVER: No questions.

14 CROSS EXAMINATION

15 BY MR. MITCHELL:

16 Q Good morning, Ms. Petzinger. Tom Mitchell
17 representing GTE.

18 A Good morning.

19 Q Let me just go briefly back to your
20 qualifications. My understanding is that you spent 13
21 years helping to develop the SCIS model; is that
22 right?

23 A Part of it was as a subject matter expert.
24 Part of it was -- I was promoted as director of the
25 group.

1 Q Am I right, though, that you were there
2 when the SCIS model was developed?

3 A SCIS has been around since the mid 1970s,
4 and there are various enhancements, changes,
5 accommodations to technology, to economic principles.
6 I was involved in many of -- the application of those
7 items that forms what the SCIS model is today. But I
8 was not there when it was originally developed.

9 Q Okay. So in a sense, you've spent some of
10 your time trying to perfect the model through those
11 changes and modifications?

12 A No, I would not say -- I would not
13 characterize it as perfecting it. I would just say
14 that technology changes -- ISDN came about. SCIS was
15 originally an average costing tool, meaning total
16 investment divided by demand, and we incorporated more
17 aggressive economic costing techniques that were
18 becoming popular and acceptable at Commissions.

19 Q You helped market the model to customers;
20 is that right?

21 A The last couple of years, yes, I did.

22 Q You consider it to be a reliable model,
23 don't you?

24 A If you're asking me if the math is correct,
25 I would say yes. As far as saying is it a reliable

1 model, you can never use a model without understanding
2 what its final application is going to be for. So if
3 you've got the right inputs, if you have -- and if
4 you're using the model for what it was intended, I
5 would have to agree, the last I looked, which was a
6 couple of years ago, it was a reliable model.

7 Q Okay.

8 A It did what it purported to do.

9 Q All right. So if you use the model
10 properly, and using your words, use the right inputs
11 as the model is intended, you don't have any doubt
12 that the outputs coming out of the SCIS model are
13 reliable, do you?

14 A Not in any of the areas that are being
15 reviewed in this proceeding.

16 Q Well, let's not get that focused. I'm
17 talking about in general, if the model is used
18 properly, do you have any doubt that its outputs are
19 reliable?

20 A No. I don't really have any major problem
21 with the way the model works. I didn't imply that
22 anywhere. I just don't think it is a reasonable tool
23 for developing universal service funding because it's
24 closed and proprietary.

25 Q Now, you recommend that BCPM be rejected

1 because SCIS is proprietary; correct?

2 A I think that's a part of it. I also am
3 doing it because the data that went into the
4 proprietary models, we're talking about thousands and
5 thousands and thousands of items that would have to be
6 reviewed. It would make the input items for BCPM or
7 HAI look infinitesimally small.

8 Q All right. Let --

9 A I just think that's a -- you know, that was
10 another reason why I think it's unreasonable.

11 Q Let me have you assume again that the model
12 inputs are used and input properly, and the SCIS model
13 is used as it was intended to be used, and it
14 generated an input. Yet as I understand your
15 testimony, you say SCIS is proprietary, and BCPM is
16 based on SCIS. Do you recommend that the Commission
17 reject BCPM based on the proper use of the SCIS model
18 because it is proprietary?

19 A Well, yes, that would -- it was not used
20 properly in this proceeding, and even if it were, I
21 would recommend against using, because I don't think
22 proprietary models for switching should be a part of
23 this.

24 Q If the Hatfield Model relied on a
25 proprietary model, I take it your answer would be no

1 different, that is, you would recommend that the
2 Commission reject the Hatfield Model for that same
3 reason?

4 A Not necessarily. It depends on what you're
5 doing.

6 For switching, as I stated before, although
7 there's a big number, a lot of dollars attached to
8 switching, it's not a really big-ticket item in
9 overall universal service funding.

10 Along with that, I believe that especially
11 in switching, it should be transparent, it should be
12 visible, it should be open on how it's developed and
13 the results.

14 In the loop process, I'm assuming you're
15 asking me about the preprocessing that goes on in both
16 BCPM and HAI. It is so critically important, from
17 what I have heard over the past couple of days just
18 sitting in the room here, to get the loop modeling and
19 the customer location down right that I would have to
20 agree that, although that's not a model as in this
21 process, but that preprocessing does have to be done
22 right; otherwise -- you know, the loop costs that form
23 the bulk of this cost must be gotten right, and if it
24 takes that kind of processing to do it, that's what
25 needs to be done.

1 But I'm not an expert in that area, and my
2 understanding is it has been made open for review.

3 So I won't -- my answer to your question
4 is, no, I won't say categorically that all closed
5 processing should be eliminated from this proceeding.

6 Q Okay. Let me pick up on that just for a
7 few minutes. Would you agree with me that the use of
8 a closed model in either the switching component of
9 this exercise and the loop component, in your opinion,
10 casts some doubt on the reliability of the costs that
11 are generated in those two areas by the models being
12 used?

13 A In this particular -- in this particular
14 instance, for BCPM, yes, I think there's some doubt
15 about the reliability because of the closed models.

16 Q Okay. But you wouldn't disagree with me
17 that if a proprietary model was used in the loop
18 portion that there would be some doubt or question; at
19 least it would be reasonable to have some doubt or
20 question as to the costs being generated in that part
21 of the network?

22 A I think whenever you've got a closed
23 process, there's extra work to scrutinize it and make
24 sure that it's correct. And we saw an awful lot of
25 witnesses here earlier about that portion of both

1 BCPM and HAI.

2 Q Okay.

3 A So I would agree, that requires -- it's
4 more difficult, and it's more time consuming, but it
5 does need to be scrutinized.

6 Q All right. And I didn't write down your
7 answer, but what portion of the network cost relates
8 to the loop so far as you know?

9 A I don't remember. I remember it being a
10 really big number.

11 Q I think Mr. Wood said between 85 and 90%.
12 Is that about right?

13 A I'm sure that's probably correct for basic
14 service, yes.

15 Q So if we have a proprietary model being
16 used in the loop --

17 MR. HATCH: I'm object. He's going way
18 beyond the scope of Ms. Petzinger's testimony, and
19 he's asking questions that should have been asked
20 Mr. Wood. She's here as a switching expert. I've
21 indulged him in a little bit of latitude, but we're
22 still drifting way past her testimony.

23 CHAIRMAN JOHNSON: Response?

24 MR. MITCHELL: Well, we're talking about
25 closed models. She is the one who raised the concept

1 of the loop and the switch and so forth, and I'm just
2 trying to draw a relationship between the loop and the
3 switch module and the effect of using closed models.
4 And I'm drawing a connection between her opinion that
5 you reject BCPM switching because it's a closed
6 proprietary model to the loop. And it's just a
7 question or two more.

8 MR. HATCH: And she has already answered
9 those questions.

10 CHAIRMAN JOHNSON: To the extent that you
11 can't answer the question that's being directed, then
12 start off by saying you don't have knowledge or you
13 can't answer it, but if you can, go ahead and answer
14 the questions.

15 THE WITNESS: Thank you. Could you repeat
16 your question? I don't remember it.

17 MR. MITCHELL: I'll move on.

18 Q (By Mr. Mitchell) Ms. Petzinger, you're
19 aware of a concept known as the line-trunk ratio?

20 A Yes.

21 Q Is that something that comes into play
22 when we're trying to determine switch costs?

23 A Absolutely.

24 Q Would you please describe what it is?

25 A In BCPM, the way they determine the number

1 of trunks --

2 Q I don't want a description of how BCPM does
3 it. I want to just have you tell me, what is the
4 line-trunk ratio?

5 A The number of trunks compared to the number
6 of lines.

7 Q And how does it affect costs of the switch?

8 A Well, as I said, if it is being used, it
9 determines how many trunks are being equipped on the
10 switch, and the more trunks, the more cost.

11 Q Is there a generally accepted line-to-trunk
12 ratio that's used in costing switches?

13 A There used to be a fairly industry-wide
14 standard of 10%, meaning for every ten lines, you
15 would need approximately one trunk to carry traffic
16 out of the switch. There are some people who think
17 that that number has changed somewhat in recent years.

18 Q Do you think it has changed?

19 A I've seen -- I tend to look more at
20 individual switch data, and from my experience, the
21 number is going up in some switches and going down in
22 others. So I haven't done an analysis to see whether
23 or not the average has changed.

24 Q Okay. You refer in your testimony to data
25 provided by an NBI study, don't you?

1 A Yes.

2 Q Okay. What is the NBI study?

3 A It's the Northern Business Information
4 report. It's a -- they are a market research firm
5 that publishes information about the central office
6 equipment market an annual basis.

7 Q And do you know whether NBI recommends a
8 line-to-trunk ratio?

9 A I don't know.

10 Q If I told you they recommend a ratio of six
11 lines per trunk, would that sound about right to you?

12 A That's a lot of trunks. No, wait a
13 minute. Six -- it's just different than what I've
14 seen, the ten to one, which is what I've known as the
15 average.

16 Q Would you determine the cost of switching
17 for a forward-looking network based on a line-to-trunk
18 ratio of six to one?

19 A That sounds to me like a lot of trunks.
20 Instead of having, you know, one trunk for every ten
21 lines, you've got one trunk for every six lines.
22 That's a lot of trunks. It's very conservative.

23 Q Do you know what line-to-trunk ratio the
24 Hatfield Model uses?

25 A My understanding is that in its calculation

1 to determine the number of trunks, the six to one
2 ratio is used. And when you said that it comes from
3 the NBI report, that would make sense that they would
4 use that, because they're using switch prices from the
5 NBI report, and they're trying to back out the trunk
6 costs to identify them separately.

7 Q And if the model used a higher ratio, for
8 instance, ten to one or 13 to one, that would reduce
9 the cost of switching?

10 A Yes, it would. But that would be -- that's
11 more in line with what I've seen.

12 Q Would you expect that if you ran the
13 Hatfield Model for GTE that it would generate an
14 output showing that the line-to-trunk ratio is six to
15 one?

16 A I don't know. You're asking me HAI
17 questions.

18 Q Well, Ms. Petzinger, you're somewhat
19 familiar with the HAI Model, aren't you?

20 A Somewhat, but I do not remember how -- as I
21 said, I do remember they used the six to one to back
22 out the number of trunks, but then I think they add
23 back in the number of trunks based on actual traffic
24 demand, numbers of calls and minutes of use, but I'm
25 not sure about that.

1 Q Let's just be clear. You've testified in
2 other proceedings to the effect that you were the
3 sponsor of the switching module in the Hatfield Model,
4 haven't you?

5 A No, I've never been a sponsor of the
6 Hatfield Model.

7 Q Of even the switching part of it?

8 A No.

9 Q If when the Hatfield Model was run for GTE
10 Florida it generated a line-to-trunk ratio of 13 to
11 one, even though the Hatfield Model says that is based
12 on a six to one ratio, do you think the model is
13 working properly?

14 A That's not an unreasonable number. I think
15 BCPM is using -- it's in the inputs, and it's a user
16 input, but I think I remember seeing a default input
17 of 14 to one. I'm not sure. It was in that range.
18 I'm not sure about the precise number. I apologize.
19 I've lost my little cryptic sheet that consolidated
20 all the input data.

21 Q Okay. My colleague mentioned the switch
22 cost curve in the Hatfield Model, and I want to ask
23 you some questions about it, because you do discuss
24 switch prices in your testimony in particular at
25 Footnote 25. So let me just start by asking you, you

1 are familiar with the Hatfield switch cost curve?

2 A I am somewhat familiar, but I am not an HAI
3 Model witness. I'm here to talk about BCPM.

4 Q I understand. I'm just going to ask you
5 some questions --

6 A My testimony, you know, did not mention
7 anything about HAI.

8 Q Sure it did. Let's look at Footnote 25.
9 It talks about vendor switch prices coming out of the
10 Hatfield Model, what's in and out of those prices,
11 does it not? You say on line 4 of that note, "This
12 compares to the prices used in the Hatfield Model
13 switch curve that are also switch prices paid to the
14 vendor.

15 A All I'm saying here is what I stated
16 earlier, is that when -- I was trying to ensure that
17 Mr. Raley's numbers, as I was previously questioned
18 on, does reflect the straight comparison of basic
19 switch price paid to the vendor, and that is what I
20 understand the HAI switch curve to be as well. All I
21 was trying to do was show the apples to apples
22 comparison of switch pricing to vendor.

23 Q And you know --

24 A And I was going through a very long
25 explanation of the fact that all of the additional

1 numbers get added in.

2 Q Well, you know that you can make an apples
3 to apples comparison, because you know how the switch
4 cost curve works; right?

5 A I've seen the switch cost curve.

6 Q Okay. Do you have the Hatfield Model in
7 front of you?

8 A The Hatfield Model?

9 Q Yes.

10 A No.

11 Q Okay. You're familiar with the curve,
12 though, and its data points that were used to generate
13 the curve?

14 A Not terribly. They were done before I came
15 on board to AT&T. I've seen them. I've looked at
16 them.

17 MR. MITCHELL: Okay. For the Commission,
18 it's on page 58 of the model description.

19 Q (By Mr. Mitchell) You're aware that two of
20 the points that were used to draw this curve come from
21 NBI sources?

22 A I know that data from NBI was used. I
23 wasn't aware that there were two data points.

24 Q All right. Is the data that comes out of
25 the NBI forward-looking cost data?

1 A My understanding is that it would be best
2 characterized as current, and then they project out on
3 a yearly basis what their estimation of future costs
4 would be in the NBI report.

5 Q All right. You criticize GTE's use of the
6 GTD-5 switch; is that right?

7 A Yes, that's correct.

8 Q And that's because you don't think the
9 GTD-5 switch is forward-looking?

10 A No, I don't think so, that's correct.

11 Q And that's because, I think as you describe
12 in your testimony for a couple of pages, you did some
13 research, and you didn't find any sales past, for
14 instance, 1989 of GTD switches; right?

15 A It came from actually a variety of things.
16 I provided that information to justify my opinion, but
17 there were other things as well, such as the Texas
18 Commission that rejected the GTD-5 switch. And I know
19 of at least one other Commission, but I've forgotten
20 it off the top of my head.

21 Q Right. You were here yesterday when
22 Mr. Tucek testified, were you not?

23 A Yes, I was.

24 Q And you heard him describe a press release
25 that he obtained from AGCS's Web site of a \$12 million

1 contract for telecommunications upgrades, did you not?
2 You heard that testimony?

3 A Yes, I did. Upgrades not new switches.

4 Q All right. Did you bother to go to AGCS's
5 Web site when you were doing your research about --

6 A Yes, I did. And I've done so recently.

7 Q Okay. Did you see this press release when
8 you were doing your research?

9 A I don't know if I saw that particular one,
10 but I remember seeing -- I don't know if I read it or
11 saw the exact one that you've got, but I did see some
12 announcement on the Web site about it.

13 Q But you didn't mention it in your
14 testimony?

15 A I don't think it's relevant. As I said,
16 upgrades are not new switches. And it wasn't even in
17 this country, much less in Florida.

18 Q Well, is there something unique about the
19 network in Canada that means that contracts for the
20 sale of any switches in Canada aren't relevant to
21 their use in the United States?

22 A Yes. Different countries use different
23 manufacturers. That does not make it a
24 forward-looking switch here.

25 And again, as I said, upgrades are not new

1 switches. They're buying -- upgrades means they're
2 upgrading their existing embedded base.

3 Now, there is no denying that AGCS, at
4 least for the time being, is maintaining the GTD-5
5 switch. But 1A switches, analog switches are still
6 being maintained as well. So that does not make them
7 forward-looking.

8 Q So you were looking for sales of new
9 switches; right?

10 A That's right.

11 Q And you heard Mr. Tucek describe another
12 press release from the AGCS Web site announcing a \$60
13 million sale of new switches, did you not?

14 A Yes, I did. That was a year or two ago,
15 yes.

16 Q It was after 1989, which is the date you
17 specified in your testimony as the last announcement
18 of a major shipment of switches, is it not?

19 A Right. Switches as opposed to upgrades;
20 right.

21 Q Would you agree that \$60 million is a major
22 purchase of AGCS DGT-5 switches?

23 A It's not huge. And if I remember right,
24 that also included things besides switching. I think
25 it included some intelligent network equipment, which

1 is where the bulk of -- my guess would be the bulk of
2 where it's going.

3 But again, that was in Canada, not here.
4 And again, when I have been in discussions, GTE is
5 not purchasing new GTD-5 switches. When they go to
6 purchase a new switch, they are buying Nortel or
7 Lucent. So at least for GTE in Florida, that to me
8 is not a forward-looking -- the GTD-5 is not a
9 forward-looking switch.

10 Q Let's get back to NBI. You're familiar
11 with sort of the format of the NBI publications which
12 I'm holding up now, one of them?

13 A Yes.

14 Q And if the NBI showed that between 1994 and
15 1995 there were 45 -- no, let me go back. The switch
16 prices that NBI develops that were used in the
17 Hatfield Model, are those developed from NBI's
18 analysis of recent switch sales?

19 A I'm not -- are you asking me if the
20 Hatfield group --

21 Q No, no. I'm asking you if you understand
22 how the switch prices that come out of NBI, as they
23 calculate sort of an average switch price, are based
24 on sales of switches?

25 A That was my understanding, yes.

1 Q Okay. And are you aware that NBI has in
2 its list of switches that they track the GTD-5 switch?

3 A Yes. They track all the manufacturers, I
4 believe, that are sold in the United States. I think
5 they even track some 1As.

6 Q And if NBI showed on one of its pages that
7 between 1994 and 1995 there were 45 GTD-5 switches
8 sold, would that cause you to believe that there are
9 companies out there buying those switches today?

10 MR. HATCH: Could we get a copy of that for
11 record and completion purposes to make sure that what
12 he's looking at gives all the information?

13 MR. MITCHELL: Well, it's copyrighted, so
14 that's the reason I sort of have to pass it around. I
15 have to be sort of careful, because it says right on
16 there, don't reproduce it, prohibited by law. I can
17 show it to the witness if that would satisfy
18 Mr. Hatch.

19 MR. HATCH: That's okay. I just want to
20 make sure we have some sort of a context.

21 MR. MITCHELL: Sure. Let me show this to
22 you.

23 Q (By Mr. Mitchell) Ms. Petzinger, do you
24 have page 22 of that NBI document I've handed to you?

25 A Yes, I do.

1 Q Do you understand what that page is trying
2 to convey?

3 A It's identified as systems in service --

4 Q Right.

5 A -- by supplier.

6 Q And between 1994 and 1995, the GTD-5
7 systems in service by supplier increased 45 units, did
8 it not?

9 A Well, I'm not going to do the math, but
10 I'll take your word for the number, the increase, yes.

11 Q Okay. And --

12 A That could be remote switches. I would
13 like to clarify that I do understand remote switches
14 are being purchased, but that's because a remote must
15 match the same vendor as its host. You can't mix and
16 match host and remote switches. So it would be
17 reasonable to assume that there are some small remotes
18 being purchased because it has to tie into an existing
19 embedded GTD-5 host. My understanding is that there
20 are no host switches being purchased.

21 Q All right. This is my last line of
22 questions, Ms. Petzinger. You have your testimony in
23 front of you.

24 CHAIRMAN JOHNSON: And how long do you
25 think it will take?

1 MR. MITCHELL: Couple minutes.

2 CHAIRMAN JOHNSON: Okay.

3 Q (By Mr. Mitchell) Ms. Petzinger, page 33
4 of your testimony.

5 A Yes, I have it.

6 Q Now, as I understand it, you see a problem
7 in GTE's switching costs because they've used BCPM
8 defaults for a certain number of host or remote
9 switches, which you say are 208, and some other types
10 of costs for the remaining 70?

11 A Yes, that's correct.

12 Q I'm sorry, 91, 91.

13 A Whatever the number was, yes. There was a
14 -- the vast majority used the BCPM defaults, if I
15 remember correctly.

16 Q Okay. Now, can you tell from what you've
17 written here -- well, the way I read it is, based on
18 what you've written here, is that GTE has 208 plus 91
19 wire centers. Would that be a fair way to read your
20 testimony?

21 A I'm sorry. Can you show me the 208 and the
22 91?

23 Q Well, I'm adding up 52 stand-alone, six
24 host, and 11 remote on line 14.

25 A Okay.

1 Q And then I'm adding the 21 on line 18, and
2 then adding up 208. Those are all the switches you
3 found for BCPM in -- excuse me, for GTE in Florida;
4 right?

5 A No. On lines 18 and 19, I'm talking about
6 stand-alone switches only. There are a huge number of
7 5E and DMS -- let me reread this section. If you'll
8 give me a minute --

9 Q Sure. Here's what I'm getting at,
10 Ms. Petzinger.

11 A Excuse me?

12 Q Let me just tell you where I'm going, and
13 maybe we can clear this up, because I think you may
14 have made a mistake.

15 Mr. Tucek filed some exhibits and may have
16 said in his testimony that GTE has some 90 wire
17 centers in Florida. Okay?

18 A Ninety?

19 Q Ninety.

20 A Okay.

21 Q And he surmises that you've sort of gotten
22 the number of GTE wire centers wrong. Reading this
23 again --

24 A I don't have the --

25 Q Reading this again, because this suggests

1 to me that GTE has got 290 wire centers or
2 thereabouts, each switch being a wire center.

3 A I don't -- I thought these numbers were
4 accurate. I did think that when I looked in the GTE
5 switch module that there were more than 90 CLLI codes
6 or the designation for wire centers, there were more
7 than 90 rows of switches. That --

8 Q Is it possible that you --

9 A That was my impression. I don't remember
10 the exact numbers, and I did think these numbers were
11 correct. So it may be some discrepancy between what
12 GTE includes as wire centers versus what BCPM is
13 including as wire centers.

14 We found a discrepancy along that line with
15 the Sprint data. Because Sprint provided SCIS runs,
16 we knew they had 139 switches that were broken out
17 into host, remote, and stand-alone. But when we
18 looked in BCPM, BCPM still had the same number of
19 switches, but the host -- but there were far fewer
20 remotes in BCPM and many, many more stand-alone and
21 host, which, of course, would have increased prices.

22 Q Okay.

23 A But I don't know if the same problem is
24 happening here between what's going on in BCPM
25 compared to what Mr. Tucek was looking at or whether I

1 made an error. But I thought my number was right --

2 Q Okay.

3 A -- based on what was in BCPM.

4 Q Let's assume you made an error and GTE
5 doesn't have 208 host and remote switches for which it
6 used BCPM default values. Will you accept that? Just
7 assume you made an error.

8 A Well, as a hypothetical. I'll accept it as
9 a hypothetical. I won't assume I made an error.

10 Q Okay. Assuming it as a hypothetical, then
11 there isn't a discrepancy in the way GTE has used BCPM
12 defaults or GTE-specific data, is there?

13 A I'm not following your question.

14 Q Well, I'm --

15 A My understanding is that GTE used two
16 different input methodologies. They used BCPM default
17 prices for some switches, and then they entered data
18 in. In BCPM, they can enter data through either the
19 ALSM process, they call it, which is SCIS, or they
20 could have entered it via SCM data, which is the U.S.
21 West cost model.

22 There were entries for investments under
23 the SCM input process within the model. I would --
24 Unfortunately, it's in the electronic version of the
25 model. I suspect it can be printed out. You didn't

1 provide any printouts, but we could print it out if
2 you want that.

3 MR. MITCHELL: Okay. Thanks. That's all I
4 have.

5 CHAIRMAN JOHNSON: We're going to break for
6 lunch, take a 45-minute lunch break.

7 (Proceedings recessed at 12:10 p.m.)

8 (Transcript continues in sequence in
9 Volume 26.)

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