

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

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Petition by Metropolitan Fiber Systems of Florida, Inc. for arbitration with BellSouth Telecommunications, Inc. concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996.) DOCKET NO. 960757-TP)

In Re: Petition by AT&T Communications of the Southern States, Inc. for arbitration of certain terms and conditions of a proposed agreement with BellSouth Telecommunications, Inc. concerning interconnection and resale under the Telecommunications Act of 1996.) DOCKET NO. 960833-TP)

In Re: Petition by MCI Telecommunications Corporation and MCI Metro Access Transmission Services, Inc. for arbitration of certain terms and conditions of a proposed agreement with BellSouth Telecommunications, Inc. concerning interconnection and resale under the Telecommunications Act of 1996.) DOCKET NO. 960846-TP)

SECOND DAY - AFTERNOON SESSION

VOLUME VII

PAGE 930 through 1104

BUREAU OF REPORTING

RECEIVED 2-9-98

DOCUMENT NUMBER-DATE

01999 FEB-98

FPSC-REGULATORY/REPORTING

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

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

DATE: Tuesday, January 27, 1998

TIME: Commenced at 1:00 p.m.

PLACE: Betty Easley Conference Center
Room 151
4075 Esplanade Way
Tallahassee, Florida

REPORTED BY: NANCY S. METZKE, RPR, CCR

APPEARANCES:
(As heretofore noted.)

I N D E X

WITNESSES

	NAME	PAGE NO.
5	DAVID N. PORTER	
6	Direct Examination by Mr. Self . . .	934
7	Prefiled Direct Testimony Inserted . . .	938
8	Prefiled Rebuttal Testimony Inserted. . .	957
9	Cross Examination by Mr. Twomey . . .	973
9	JOHN C. KLICK & RICK BISSELL	
10	Direct Examination by Mr. Hatch . . .	988
11	Klick Prefiled Direct Inserted . . .	993
12	Bissell Prefiled Direct Inserted . . .	1013
13	Bissell Prefiled Rebuttal Inserted . . .	1042
14	Cross Examination by Ms. White . . .	1081
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

EXHIBITS - VOLUME VII

1			
2	NUMBER		ID. ADMTD.
3	30	Description of Mr. Porter's rebuttal testimony to be stricken	. . . . 936 986
4			
5	31	DNP-4	. . . . 936 986
6	32	Mr. Porter's exhibits from his direct and rebuttal testimony	. . . . 968 986
7			
8	33	Mr. Klick's exhibits	. . . . 1072
9	34	Mr. Bissell's exhibits	. . . . 1072
10	35	Chart prepared by Mr. Bissell	. . . . 1075
11			
12	36	JCK-4	. . . . 1081
13	37	JCK Con.	. . . . 1081
14	38	Volume 12 from Docket Number p-55, SUB1022	. . . . 1097
15	39	FCC rules, Section 51.323	. . . . 1103
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

1 P R O C E E D I N G S

2 (Transcript continues in sequence from Volume VI)

3 COMMISSIONER DEASON: Mr. Self, you may call your
4 witness.

5 MR. SELF: Thank you, Commissioner Deason.
6 WorldCom calls Mr. Dave Porter. Commissioner Deason, this
7 witness has not been sworn yet.

8 COMMISSIONER DEASON: Mr. Porter, if you could
9 please stand and raise your right hand.

10 (Whereupon, David N. Porter was duly sworn by
11 Commissioner Deason)

12

13

14

* * * *

15 Whereupon,

16

DAVID N. PORTER

17 was called as a witness on behalf of WorldCom and, after
18 being first duly sworn, testified as follows:

19

DIRECT EXAMINATION

20

BY MR. SELF:

21

Q Mr. Porter, can you please give your name and
22 business address for the record, please?

23

A Yes, sir. My name is David N. Porter. I'm vice
24 president, government affairs, WorldCom, Inc. My office is
25 at 1120 Connecticut Avenue N.W., Suite 400, Washington, DC.

1 Q And did you cause to be prepared and have filed
2 in this case, direct testimony consisting of 19 pages?

3 A Yes, sir.

4 Q And do you have any changes or corrections to
5 that testimony?

6 A Yes, sir, during my deposition it was brought to
7 my attention that at page 12, line 12 I need to change the
8 number five to the number four.

9 Q That's on page 12, line 12 of your direct,
10 correct?

11 A Yes, sir, that's correct.

12 Q Do you have any other changes or corrections to
13 your direct testimony?

14 A No, sir.

15 Q Would that change -- if I asked you these same
16 questions today, would your answers be the same?

17 A Yes, sir.

18 Q Did you also cause to be prepared and prefiled in
19 this case rebuttal testimony consisting of 10 pages?

20 A Yes, sir.

21 MR. SELF: Commissioners, we have passed out a
22 sheet that describes the sections of Mr. Porter's rebuttal
23 testimony that should be stricken to be consistent with
24 Commissioner Clark's prior ruling regarding OSS costs, and
25 I guess to be consistent with what we have done before, we

1 should give this an exhibit number.

2 COMMISSIONER DEASON: Very well. It will be
3 identified as exhibit number 30.

4 MR. SELF: Thank you.

5 MR. PELLEGRINI: Commissioner Deason, staff at
6 this time would ask that the packet identified as DNP-4 be
7 identified -- be marked for identification purposes. It
8 consists of Mr. Porter's January 19, 1998 deposition
9 transcript and deposition and late-filed deposition
10 exhibits numbers 1 and 2.

11 COMMISSIONER DEASON: It will be identified as
12 exhibit number 31.

13 BY MR. SELF:

14 Q Mr. Porter, with respect to your rebuttal
15 testimony, other than what we have now identified as
16 exhibit 30, do you have any other changes or corrections to
17 it?

18 A Yes, sir, I have one word that was repeated in my
19 rebuttal testimony at page 3, line 9, the word "allowed"
20 should be deleted. It appears again later in that
21 sentence.

22 Q Okay. With that change and the changes on
23 exhibit 30, if I asked you the same questions today, would
24 your answers be the same?

25 A Yes, sir.

1 MR. SELF: Commissioner Deason, we would request
2 that Mr. Porter's prefiled direct and rebuttal testimony be
3 inserted in the record as though read.

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

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is David N. Porter. My business address is WorldCom, Inc. ("WorldCom"),
3 1120 Connecticut Avenue, N.W., Suite 400, Washington, D.C. 20036.

4 **Q. BY WHOM ARE YOU EMPLOYED AND WHAT ARE YOUR**
5 **RESPONSIBILITIES?**

6 A. I am Vice President - Regulatory Economics/Policy for WorldCom, which is the ultimate
7 parent corporation of Metropolitan Fiber Systems of Florida, Inc. I work with senior
8 managers of WorldCom and its subsidiaries to develop its positions on public policy
9 discussions before state, federal and international regulatory and legislative bodies. I
10 oversee WorldCom's filings before the Federal Communications Commission ("FCC")
11 and in state proceedings on economic and technical issues. I also collaborate on our
12 ongoing interconnection negotiations driven by the Telecommunications Act of 1996.

13 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**
14 **PROFESSIONAL EXPERIENCE.**

15 A. I graduated from the University of Illinois in 1968 with a Bachelor of Science degree in
16 General Engineering and from Roosevelt University, Chicago in 1974 with a Masters in
17 Business Administration. I am Registered as a Professional Engineer in Illinois, New
18 Jersey and New York.

19 I began my telecommunications career in 1967 as an engineer for Illinois Bell.
20 After assignments in traffic, outside plant, local and toll central office and toll facility
21 engineering, I assumed duties as a service cost engineer responsible for designing and
22 completing cost studies to support Illinois Bell rate filings and for establishing the price

1 of equipment, land and buildings to be sold to or purchased from customers and other
2 utilities. In 1976, I transferred to AT&T and was responsible for supervising numerous
3 studies being completed by academicians and scientists intended to demonstrate the
4 technical and economic harms of interconnecting competing communications networks and
5 equipment. Later, I worked on the AT&T team that negotiated and implemented the
6 breakup of the Bell System. For two years following AT&T's divestiture of BellSouth and
7 the other Bell Operating Companies in 1984, I managed the state and federal regulatory
8 activities for AT&T Information Systems including its attempts to gain state approvals to
9 offer shared tenant services. After that assignment, I was responsible for creating certain
10 AT&T responses in the first triennial review of the Modification of Final Judgment. In
11 the late 1980s, I was responsible for developing policy positions related to state regulatory
12 issues and for managing AT&T's intrastate financial results. For several years thereafter,
13 I advocated AT&T's interests at the FCC on matters concerning enhanced services and
14 wireless services including spectrum management issues. My last position with AT&T
15 was Director - Technology and Infrastructure. I was responsible for advocating AT&T's
16 interests with Members of Congress, the FCC and their staffs on technical matters
17 surrounding local exchange competition.

18 During the past several years, I traveled in eastern and central Europe and South
19 America with employees of the U.S. State Department and the U.S. Department of
20 Commerce as their industry representative at bilateral and other meetings during which the
21 U.S. encouraged other governments to adopt laws and policies that would foster
22 telecommunications development and competition. I have conducted multi-day training

1 sessions for State Department embassy trade personnel worldwide. I have spoken before
2 many state regulatory and legislative bodies and have attended and made presentations to
3 numerous industry meetings and training sessions.

4 In May of 1996, I assumed the position of Vice President of MFS Communications
5 Company, Inc. (parent company of Metropolitan Fiber Systems of Florida, Inc.) and have
6 continued to perform substantially the same duties after WorldCom acquired MFS at the
7 end of last year.

8 I. INTRODUCTION

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

10 A. My testimony evaluates the permanent nonrecurring loop costs for ADSL and HDSL loops
11 proposed by BellSouth Telecommunications, Inc. ("BST") in its Florida loop cost study.
12 My testimony also evaluates the permanent physical collocation costs that BST reported
13 in its Florida physical collocation cost study.

14 Q. **WHY ARE THESE COST STUDIES BEFORE THE COMMISSION?**

15 A. In August 1996, in Docket 960757, the Commission conducted an arbitration between
16 MFS and BST to resolve disputes so that the parties could execute an interconnection
17 agreement pursuant to the Telecommunications Act. I personally testified before this
18 Commission on behalf of MFS in that arbitration. In its December 1996 Order, the
19 Commission set permanent analog voice grade loop rates. Because BST had not offered
20 any evidence regarding its recurring and non-recurring costs for 2-wire ADSL and 2- and
21 4-wire HDSL loops, the Commission set interim rates for those types of loops equivalent

1 to the rates it set for 2- and 4-wire analog voice grade loops. I summarize these interim
 2 rates below.

3 **Currently priced loops based on**
 4 **equivalent analog loops**

<u>Type</u>	<u>Monthly</u>	<u>Nonrecurring Rates</u>	
		<u>(First)</u>	<u>(Add'l)</u>
5-wire ADSL	\$17.00	\$140.00	\$42.00
6-wire ADSL	\$17.00	\$140.00	\$42.00
7-wire ADSL	\$30.00	\$141.00	\$43.00

10 **Q. PLEASE IDENTIFY THE COST STUDIES BEFORE THE COMMISSION.**

11 **A.** Currently, the Commission has before it BST's Florida Unbundled ADSL and HDSL
 12 Compatible Loops Cost Study ("Loop Study") and its Florida Physical Collocation Study
 13 ("Collocation Study"). These cost studies were filed on February 14, 1997 in Docket No.
 14 960757 to comply with Order No. PSC-96-1531-FOF-TP. I understand that BST is filing
 15 new cost studies on the day I am filing this testimony, which may or may not include
 16 ADSL, HDSL, and collocation costs that are completely different from those BST reported
 17 in its February 1997 Studies. Obviously, I cannot now testify about these new cost
 18 studies. Indeed, as this demonstrates for WorldCom and the other parties to this case,
 19 BST's costs estimates represent a moving target.

20 **II. ADSL AND HDSL COSTS**

21 **Q. DO YOU HAVE ANY GENERAL OBSERVATIONS ABOUT BST'S ADSL AND**
 22 **HDSL NONRECURRING CHARGES?**

1 A. Yes. In my opinion, BST's proposed nonrecurring costs are based on a provisioning
2 process that BST does not use for its own loops. BST's study costs a gold-plated
3 provisioning process that yields vastly overstated nonrecurring costs. The nonrecurring
4 costs BST reports in its February study are nearly four times as high as the interim rates
5 the Commission set last November. WorldCom believes the interim rates also are well
6 above costs.

7 Q. **HOW DO YOU KNOW THAT BST'S NONRECURRING CHARGES ARE GOLD-**
8 **PLATED?**

9 A. One way I know this by comparing the nonrecurring costs BST reports to the nonrecurring
10 costs its actually charges its retail customers in its tariff. I also know the costs are inflated
11 by examining BST nonrecurring rates for other carriers.

12 Q. **WHAT DID YOUR COMPARISON OF BST'S NONRECURRING CHARGES**
13 **WITH BST'S TARIFF REVEAL?**

14 A. In BST's Florida General Subscriber Service Tariff, Section A4, BST identifies a "line
15 connection charge" that it charges its retail customers that for "ordering, installing,
16 moving, charging, rearranging or furnishing of" telecommunication services. This charge
17 applies to all classes of Basic Exchange Service, ESSX service, and Centrex. BST charges
18 residence customers \$40 for the first line and \$12 for each additional line. BST charges
19 business customers \$56 for the first line and \$12 for each additional line. For the sake of
20 argument, if WorldCom's business customers desired high speed digital loops, WorldCom
21 would pay nearly 10 times the nonrecurring charges to connect the loop than BST's own
22 retail customers would if the Commission adopted the Loop Study costs. WorldCom has

1 not examined cost studies supporting these tariffed nonrecurring connection charges, so
2 I cannot critique them in detail. I would note, however, that these retail rates are well
3 below the \$140 nonrecurring charge that BST proposed in MFS' arbitration, and that the
4 Commission approved on a permanent basis. WorldCom is not in the same position as the
5 typical end user: as a carrier, we perform much of the order taking, engineering and
6 testing functions ourselves. Thus, as a matter of common sense, BST should charge
7 ALECs nonrecurring charges below retail. Federal law supports this view. The
8 Telecommunications Act requires that unbundled elements be based on BST's costs. BST
9 does not incur all of its usual costs when an ALEC purchases an unbundled loop.

10 **Q. WHAT DID YOUR COMPARISON OF BST'S NONRECURRING CHARGES TO**
11 **OTHER FLORIDA CARRIERS REVEAL?**

12 **A.** In Docket No. 970454, this Commission approved a negotiated interconnection agreement
13 between BST and KMC Telecom, Inc. The nonrecurring charge for Florida unbundled
14 2-wire ADSL and 2- and 4-wire HDSL loops is \$44.80. Note that this was a negotiated
15 agreement reached by a CLEC which is smaller than WorldCom. This rate really
16 represents the outer limit BST could rationally charge any Florida CLEC.

17 **Q. ARE BST'S TARIFFED NONRECURRING CONNECTION CHARGES FOR BASIC**
18 **EXCHANGE SERVICE EQUIVALENT TO THE ADSL AND HDSL LOOPS AT**
19 **ISSUE?**

20 **A.** Yes. You may have heard of the saying in the telecommunications industry that "a loop
21 is a loop." It is true. Dry copper loops are similar, whether they are voice grade analog
22 loops, or ADSL and HDSL compatible loops. An end user desiring high speed digital

1 loops will typically provide a device similar to a modem at the customer premise which
2 enables the end user to send and receive high speed data transmissions over BST's loops
3 to a similar piece of equipment located at a WorldCom location. Thus, the primary
4 difference between voice grade loops from high speed digital loops is equipment that BST
5 does not provide or need to support. As I will describe, the nonrecurring connection
6 charge for basic exchange service can serve as an appropriate benchmark for Commission
7 consideration because little installation is involved in making BST loops ADSL and HDSL
8 compatible, nor is much BST engineering, testing, or travel required to convert a BST
9 customer to high speed digital service provided by WorldCom over BST unbundled loops.
10 In most cases, BST's loops should be of sufficient quality that WorldCom can use them
11 for high speed digital transmission without further conditioning.

12 **Q. PLEASE DESCRIBE WHAT IS INVOLVED IN CONVERTING A BST CUSTOMER**
13 **TO WORLDCOM HIGH SPEED DIGITAL SERVICE.**

14 **A.** To begin with, let me be clear about what WorldCom desires to do. WorldCom
15 anticipates it often will provide service to end users using BST unbundled loops.
16 WorldCom will provide its own voice or data switches, so this will not be a pure resale
17 arrangement. For most ADSL or HDSL customers, there would be almost no cost
18 associated with the conversion at all. BST would simply reassign a loop serving one of
19 its former customers to WorldCom and that would be the end of the matter. Since
20 WorldCom is a facilities-based carrier, BST just crossconnects one of its loops at its MDF
21 to a tie cable that enters our collocated space. The loop then will be served by

1 WorldCom's equipment. While there is some cost associated with this operation, it
2 usually is far less than BST assigns to it.

3 For an efficient ILEC, there are four functions associated with the conversion of
4 a loop to an ALEC: the service order, engineering, connection and testing, and field cross
5 connects. I will describe them in turn. The efficient costs I am describing are summarize d
6 in Exhibit 32 (DNP-1).

7 Service Order

8 The service order is taken from the customer, in this case from WorldCom.
9 Service orders are supposed to be taken through use of BST's Operations Support Systems
10 ("OSS"). WorldCom personnel will gather customer information and transfer it
11 electronically to BST. No BST manual intervention should be associated with reading an
12 electronic order, but occasionally some may fail. After the electronic systems have been
13 installed and tested, I would estimate that fewer than 5% of orders would require any
14 manual intervention and that intervention would require well under one hour of clerical
15 time; thus, the average time required to manually correct errors would not exceed five
16 minutes on average. No additional time would be required for multiple loops on the same
17 order. I would estimate even less human time would be necessary for BST to process a
18 disconnection order. Such disconnection time would be discounted by the effective cost
19 of money divided by the expected service life of the connection. I have not performed this
20 calculation. For simplicity, I will say the disconnect time is also five minutes.

21

1 **Engineering**

2 Unlike analog loops that typically require no outside plant engineering associated
3 with establishing service, ADSL and HDSL loops may require some “conditioning” in
4 order to satisfy the appropriate technical specifications. This is not the time spent by a
5 craftsman to connect a loop at the customer’s premises or to complete field cross-
6 connections. Rather, it is the time required to upgrade BST facilities to the ADSL/HDSL
7 transmission standards. This work typically is required only on loops longer than 18,000
8 feet. About 80% of all loops are shorter than 18,000 feet. Another 5% typically also
9 require upgrades. But, as BST’s studies demonstrate, ADSL and HDSL loops are
10 typically much shorter than the average loop. In my opinion, it is a reasonable assumption
11 that 90% of these orders will not require upgrades while 10% will. In other words, I
12 would conservatively estimate that 90% of orders require no outside plant upgrade while
13 10% of the orders might require some engineering and maintenance time. In other
14 jurisdictions, we have established that an efficient ILEC upgrades multiple loops --
15 typically one binder group or 25 pairs -- at the same time.

16 Now, we need to estimate the time required to upgrade these loops. Being very
17 generous, I would estimate four hours of engineering time to identify the binder groups
18 to be modified and to write the field orders. I also would estimate less than four hours per
19 load coil case to disconnect and resplice pairs at three locations and another four hours at
20 the service area interface to change any field cross connections. This totals twenty hours
21 of labor to upgrade 25 pairs.

1 Taking a weighted average of 25 conversions with my assumption that 10% of
2 loops require this activity, I derive a weighted average of five minutes to perform the
3 typical digital loop conversion. No time is associated with disconnection.

4 Additional engineering is only necessary for an efficient ILEC for hard orders.
5 On average, I estimate that 90% of orders require no additional engineering, and that 10%
6 of orders require 30 minutes of additional engineering. As a result, I derive a weighted
7 average of 3 minutes per order, whether for the first order or additional orders. No time
8 is associated with disconnection.

9 Connection and Testing

10 There are central office and field connection and testing functions an efficient ILEC
11 must perform. I estimate an efficient ILEC spends an average of 5 minutes on Central
12 Office installation and maintenance for the first and additional orders. Special services
13 coordination and testing, and installation and maintenance, may be necessary on
14 approximately 10% of the orders. Again, I estimate 30 minutes per affected order, or a
15 weighted average of 3 minutes per first and additional order. No time is associated with
16 disconnection.

17 Field

18 For 10% of the orders, travel time may be necessary for a technician to make field
19 cross-connections. In metropolitan areas where WorldCom is likely to experience demand
20 for digital loops, distances are short. Consequently, I would estimate that an efficient
21 ILEC technician might spend 15 minutes traveling to and 15 minutes crossconnecting
22 service for about 10% of loop conversions. Thus, the weighted average is 3 minutes per

1 the first order and 1.5 minutes associated with additional orders. No time is associated
2 with disconnection.

3 **Q. AS YOU HAVE DESCRIBED IT, HOW MUCH SHOULD AN EFFICIENT ILEC**
4 **CHARGE AN ALEC FOR NONRECURRING COSTS?**

5 **A.** Approximately 26 minutes of labor are associated with the average digital loop conversion
6 for the first line, and 14.5 minutes for each additional line. BST's labor rate is
7 proprietary. For the sake of argument, however, if the loaded labor rate is somewhere
8 between \$30-\$60 per hour, or \$45 on average, then the nonrecurring charge for the first
9 order should be approximately \$19.50, and for additional orders approximately \$10.87.
10 As I mentioned earlier, BST requests nonrecurring charges orders of magnitude higher
11 than this.

12 **Q. SHOULD THERE BE ANY DIFFERENCE IN THE NONRECURRING CHARGE**
13 **FOR A 2-WIRE ADSL LOOP AND A 2-WIRE OR 4-WIRE HDSL LOOP?**

14 **A.** Theoretically no. A loop is a loop.

15 **Q. WHY ARE THE PERMANENT NONRECURRING CHARGES THAT THE**
16 **COMMISSION APPROVED IN MFS' ARBITRATION FOR ANALOG LOOPS SO**
17 **MUCH HIGHER THAN THE ONES THAT YOU PROPOSE?**

18 **A.** The permanent nonrecurring analog loop charges are higher because the rates the
19 Commission approved are the same as the ones that BST sponsored. Those rates were not
20 tested by MFS. When MFS' arbitration was conducted, the FCC's Total Element Long
21 Run Incremental Cost ("TELRIC") was in effect. It was not until the case was submitted
22 to the Commission, and no further briefing or argument was permitted, that the U.S.

1 Court of Appeals for the Eighth Circuit stayed and later vacated those pricing rules.
2 During MFS' arbitration, BST sponsored a Total Service Long Run Incremental Cost
3 ("TSLRIC") cost study. The cost study method BST used during the arbitration did not
4 conform to the TELRIC standard then in effect during the arbitration. As a result, MFS
5 did not insist that BST justify the charges in that study because the study was plainly
6 defective in its entirety. Now that the costing method that applies in Florida is clear,
7 WorldCom must take BST's cost study as it finds it. Upon close scrutiny of that study,
8 BST's costs are highly inflated.

9 Q. **WHY ARE THE COSTS REPORTED IN BST'S LOOP STUDY AS HIGH AS THEY**
10 **ARE?**

11 A. Generally, BST treats unbundled loops more like special access lines, than like the lines
12 over which it services the majority of its own customers. I have ^{Four}~~five~~ criticisms of BST's
13 loop study. First, BST assumes that it must perform a circuit layout for almost every loop.
14 In other words, the provisioning costs of almost every loop include the labor costs of having
15 an engineer personally plot the layout of the loop. For the most part, this procedure is
16 completely unnecessary because the loop is usually to be used for the same purpose, and the
17 same customer, as when BST was the serving carrier. BST certainly does not order a circuit
18 layout for every loop it sells at retail (otherwise, the charge for hooking up a phone in Florida
19 would be astronomically high). The Commission should remove the circuit layout charge
20 from nonrecurring charges for unbundled loops.

21 Second, BST assumes that it must dispatch a technician into the field for every loop
22 to be provisioned. In this manner, BST inserts expensive "windshield" costs (*i.e.*, costs for

1 the time that a technician spends behind the windshield driving to a customer premises) into
2 its proposed nonrecurring charges. In general, costs for field installation of unbundled loops
3 should be minimal, because BST should not have to utilize personnel and equipment to
4 accomplish installation functions which, by and large, can be done electronically. On most
5 occasions, BST does not even bother to disconnect loops after customers discontinue service.
6 BST simply blocks calling from the prior customer's line until a new customer subscribes
7 from that location. BST should assess field installation charges as part of the nonrecurring
8 charges for unbundled loops and only for that portion of orders when it actually dispatches
9 a technician into the field to provision a particular loop.

10 Third, BST treats every loop as if it is ordered alone, passing onto competitors none
11 of the economies of scale and scope that BST realizes on orders of multiple loops. BST
12 considers costs of coordination and labor to be cumulative for all functions, instead of
13 complementary in situations where provisioning tasks overlap. It is completely unrealistic
14 for BST to assume (as it does) that its personnel always work on only one provisioning task
15 for each loop at a time. At a minimum, the coordination charge should apply on a per-order
16 basis, for there is no cost difference between coordinating two, three, four or more loops at
17 the same time. Additionally, the Commission should scrutinize BST's labor costs and
18 consolidate those that would not be incurred in an order of multiple loops.

19 Fourth, BST intends to provide testing for almost every loop that it provisions, even
20 though it conducts no such testing on loops for its own customers. Indeed, for many loops
21 WorldCom will perform the testing itself without the assistance of BST. BST thus

1 discriminates against loop purchasers. The Commission should not allow BST to insert such
2 testing costs into nonrecurring charges for loops.

3 **Q. PLEASE CRITIQUE BST'S FEBRUARY 14, 1997 LOOP STUDY.**

4 A. Workpapers 850 and 1050 of that study ("Workpapers"), pages 39 and 43 of the filing,
5 are the documentation for nonrecurring TSLRIC nonrecurring costs of 2-wire and 4-wire
6 high speed digital loops, respectively. While the costs of each vary, I believe that there
7 should be little or no difference in the nonrecurring rates for both types of loops.

8 **Service Order**

9 **Customer Service Point of Contact**

10 To my mind, lines 16 and 20, column A of the Workpapers which describe the
11 customer service point of contact charge are excessive and duplicative. As I discussed
12 above, this is essentially the charge for manual intervention in BST's OSS system. This
13 is not the charge for the time a carrier customer service representative spends on the
14 telephone with a retail customer. In a truly automated system between ILEC and ALEC,
15 there should be virtually no manual intervention. BST alleged in its Section 271 before
16 this Commission that it has fully automated OSS. While WorldCom does not agree with
17 this view, the costs that BST reports for what are essentially electronic functions do not
18 even remotely resemble an automated operation. Nevertheless, 5 minutes is appropriate.
19 This is the one charge for which I believe a disconnect charge is warranted but, again,
20 only 5 minutes are appropriate, and discounted in the manner I described earlier. BST's
21 charge for disconnection is found on line 22, column B.

Outside Plant Engineering

1
2 Line 17 of the Workpapers describe the charge BST feels is necessary for outside
3 plant engineering. I believe that BST has not passed along economies of scale in this
4 number. Most carriers group their outside plant engineering jobs in binder groups of 25
5 pairs. Carriers typically do not do these jobs individually because they have the volume
6 of orders that batching is economical and efficient. I believe that this number does not
7 reflect batching because it is so high. For the amount of time in line 17, column A to be
8 necessary for a loop order, each order would have to be done individually and it would
9 have to be of substantial complexity. As I described earlier, a more reasonable assumption
10 is that 90% of orders are easy, 10% are hard. According to BST's study, 100% of orders
11 are hard.

Special Services

12
13 Line 22, column A demonstrates the special services coordination and testing time
14 that BST reports is necessary for loop conversions. Ordinarily, this is a function that
15 WorldCom would perform for itself. No BST time should be devoted to this task. Line
16 23, column A is special systems installation and maintenance time. I believe that BST has
17 costed this item as if it were performing this function at the retail customer premise.
18 When WorldCom is the customer this is not the case. Virtually none of this installation
19 and maintenance is necessary when WorldCom is the customer.

Engineering

20
21 Lines 26 and 27 demonstrate the facilities assignment and circuit provisioning
22 center functions necessary for loop conversions. These BST figures do not appear to

1 account for 90% easy conversions. The vast majority of the BST loops WorldCom will
 2 purchase have already been engineered. Additional engineering should only be necessary
 3 when there is a problem, or approximately 10% of the time.

4 **Connect and Test**

5 Line 30 reflects BST's Central Office installation and maintenance time. This
 6 figure appears appropriate. Lines 31 and 32 reflect an extraordinary amount of special
 7 services testing and installation time. In truth, technicians performing this function are
 8 simply testing the cross-connect. This is a matter of minutes, not hours.

9 **Travel**

10 Finally, line 35 reflects BST technician's travel time. This is the "windshield" cost
 11 to which I earlier referred. Virtually no technician time is necessary outside of BST's
 12 Central Office. Such a charge is more in line with serving retail customers, not ALECs.

13 **Q. WHAT RATES DO YOU PROPOSE FOR NONRECURRING CHARGES FOR 2-**
 14 **WIRE ADSL AND 2- AND 4-WIRE HDSL LOOPS?**

15 **A.** I propose \$19.50 for the first loop and \$10.87 for each additional loop.

16 **III. COLLOCATION CHARGES**

17 **Q. WHY IS THE COMMISSION CALLED UPON TO SET PERMANENT**
 18 **COLLOCATION RATES AT THIS TIME?**

19 **A.** In MFS' arbitration, BST proposed collocation rates from its "Collocation Handbook."
 20 The Commission ruled in December 1996 that it could not determine on the basis of that
 21 handbook what cost methodology BST used to arrive at the rates. Accordingly, the
 22 Commission ordered BST to file a TSLRIC study for collocation, which it did in February

1 1997. In January 17, 1997, BST and MFS amended their Partial Interconnection
2 Agreement by filing an interim collocation agreement in Docket 960757. Exhibit F of that
3 filing lists the interim rates for physical collocation. For ease of reference, I attach that
4 page as Exhibit ^{COMP} 32 (DNP-2) to my testimony. While the parties have interim collocation
5 rates, they do not have permanent rates.

6 Q. PLEASE CRITIQUE BST'S FEBRUARY 14, 1997 PHYSICAL COLLOCATION
7 STUDY.

8 A. BST's collocation study summarizes the costs in Section 3, pages 13 and 14 of the study.
9 In the interim agreement, Exhibit ^{COMP} 32 (DNP-2), the application fee is \$3,850.00. Yet in
10 the study, BST costs the application fee significantly higher. While no cost study supports
11 the interim rates, I do note that most of the difference in the February study's cost for the
12 application fee and the interim cost can be attributed to "Business Marketing" as reflected
13 on Workpaper 410. BST does not need to market to WorldCom to get us to collocate in
14 their Central Office. I doubt that they would even allow us to do so if they were not
15 required by federal law to permit collocation. WorldCom cannot serve Florida unless it
16 collocates in BST's Central Offices. This marketing charge is unnecessary and excessive.

17 The Space Construction charge in the study is almost twice as high as the interim
18 rate. Examining Workpaper 420, BST attributes almost all of this cost to the cost of
19 materials. The material is essentially 40 linear feet of chain link fence with a gate. There
20 is no further backup for this figure and it represents a "black box." BST cannot justify

1 why the cost of materials in January 1997, when the interim agreement was signed,
2 doubled one month later when the cost study was filed.

3 I take issue with the nonrecurring cross connect charges that BST includes in its
4 collocation study. One of the study assumptions (Section 6 of the study, page 88) is that
5 the cross connection will always be installed with either an unbundled element or an
6 interconnection order. Given this assumption, BST is getting a double recovery since it
7 is already compensated by nonrecurring charges for the unbundled loop network elements.
8 If this charge is intended to cover intraoffice cabling, that element is recovered separately
9 in our interconnection agreement.

10 BST also has significantly marked up its labor rate for security escorts in its study
11 as compared to the interim agreement. It is common in the industry to require collocators'
12 technicians to sign in when they enter an ILEC Central Office to do work. Sign in is
13 usually done at the front door. An ILEC would normally have a guard at the front door
14 of its Central Office, whether or not there were collocators. It is also common in the
15 industry that ILEC security guards do not continuously accompany collocator technicians
16 while at the ILEC Central Office, if at all. In some cases, security is simply an electronic
17 lock. BST is merely attempting to shift some of its sunk labor costs to its competitors.
18 It should not be permitted to do by charging ALECs for escort time that BST does not
19 incur, and certainly does not incur in addition to BST's normal security needs.

20 Q. WHAT DO YOU PROPOSE AS THE NONRECURRING RATES FOR
21 COLLATION?

22 A. I propose the rates found in Exhibit ^{COMP}32(DNP-2).

1 **IV. CONCLUSION**

2 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

3 A. BST is attempting to charge WorldCom nonrecurring rates for ADSL and HDSL
4 compatible loops which reflect a gold-plated process to provision loops to retail customers,
5 not to ALECs. An efficient ILEC which uses fully automated OSS, as BST constantly
6 claims that it does, would not incur the labor costs that the February cost study claims BST
7 does. Either BST has electronic ordering or it does not. In addition, BST has costed
8 installation, maintenance, testing and related functions as if every order needed special and
9 individual attention. BST cannot possibly be so disorganized or inefficient that it
10 processes orders for its retail customers in such a fashion, much less for a carrier-customer
11 which is collocated at BST's facilities and which performs many technical functions for
12 itself. In any event BST non-recurring charges for ADSL and HDSL loops should not
13 exceed the \$44.80 it voluntarily negotiated in the KMC interconnection agreement.
14 Finally, BST has not adequately identified why the charges in its collocation study exceed
15 those charges BST agreed to with MFS in an interim agreement a mere month before the
16 cost study was filed. Surely BST would not have agreed to such an interim arrangement
17 unless those charges covered its costs. WorldCom urges the Commission to give these
18 studies careful scrutiny so that BST do not attempt to cost loops and collocation beyond
19 the costs they actually and legitimately incur.

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

21 A. Yes.

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. My name is David N. Porter. My business address is WorldCom, Inc.
3 ("WorldCom"), 1120 Connecticut Avenue, N.W., Suite 400, Washington,
4 D.C. 20036.

5 Q. ARE YOU THE SAME DAVID PORTER WHO FILED DIRECT
6 TESTIMONY IN THIS CASE ON NOVEMBER 13, 1997.

7 A. Yes.

8 Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

9 A. The purpose of my rebuttal testimony is to critique the new BellSouth
10 Telecommunications, Inc. ("BST") cost studies for ADSL/HDSL-
11 compatible loops and collocation filed November 13, 1997 with its direct
12 testimony in this phase of the case.

13 Q. PLEASE SUMMARIZE YOUR OPINION ABOUT THOSE COST
14 STUDIES.

15 A. I have two general comments. First, I believe that a large portion of the
16 costs included in BST's studies are outside the scope of the Commission's
17 inquiry and should be summarily disallowed. Second, I believe that the
18 nonrecurring charges for BST loops and all of the nonrecurring charges for
19 collocation are excessive and should be rejected.

20 BST has costed high speed digital loops and collocation at Total
21 Service Long Run Incremental Cost ("TSLRIC"), as this Commission has
22 ordered BST to do. BST went beyond this, however, and added to its

1 TSLRIC costs shared and common cost as well as a “residual recovery
2 requirement.” This is beyond what the Commission ordered BST to do.
3 In addition, BST’s distinct rates for manual and electronic ordering of loops
4 and some collocation elements are also improper. In my opinion, the
5 Commission should consider neither BST’s shared and common costs, nor
6 its separate embedded costs, ~~nor its OSS charges.~~

7 With respect to the nonrecurring loop costs and the collocation
8 costs, I believe that they are excessive. As I stated in my direct testimony,
9 an efficient ILEC could only reasonably incur nonrecurring costs of
10 approximately \$19.50 for the first high speed digital loop and \$10.87 for
11 each additional loop. Yet BST asserts that its most recent studies that the
12 TSLRIC cost of electronically provisioning these loops are in the \$435-455
13 range. When BST adds in its alleged shared and common costs, embedded
14 costs, ~~and charges for OSS~~, the total nonrecurring cost well exceeds \$600.
15 This is absurd.

16 As for the collocation costs, I stated in my direct testimony that
17 BST’s February 1997 collocation rates were excessive, especially since
18 BST agreed to significantly lower interim collocation rates with MFS only
19 one month prior. BST has just refiled its studies. They suffer the same
20 infirmity. They are as excessive and they include shared and common costs
21 which, as I have said, have no place here. The Commission should reject

1 the collocation nonrecurring cost studies in their entirety and should adopt
2 the rates that BST negotiated with MFS.

3 **Q. WHY DO YOU DISAGREE WITH BST'S ADDITION OF SHARED**
4 **AND COMMON COSTS TO ITS BASIC TSLRIC COSTS OF**
5 **PROVIDING LOOPS AND COLLOCATION?**

6 **A.** BST purports to perform a TSLRIC study, not a TELRIC study. In normal
7 usage, a TELRIC study may include an allocation of shared and common
8 costs — a TSLRIC study does not. By proposing to include such costs in
9 its TSLRIC analysis, BST is attempting to overstate the ~~allowed~~ costs
10 which the Commission will allow.

11 **Q. WHY DO YOU DISAGREE WITH BST'S ADDITION OF A**
12 **"RESIDUAL RECOVERY REQUIREMENT"?**

13 **A.** Because the Commission's orders do not permit it. Let me be clear from
14 the outset: BST's "residual recovery requirement" is a blatant attempt to
15 recover its embedded costs. In fact, the Commission has ruled that BST
16 may not do so. The Commission's ruling in MFS' arbitration case, Order
17 No. PSC-96-1531-FOF-TP, states that under the forward-looking TSLRIC
18 method, BST's studies are to consider the current architecture of the
19 network and future replacement technology. The Commission's ruling in
20 Docket No. 950984, Order No. PSC-96-811-FOF-TP is similar. The
21 Commission said nothing about permitting BST to recover its historical
22 costs. Indeed, if BST is permitted to recover its embedded costs,

1 unbundled elements will be priced in violation of this Commission's orders
2 and will be artificially high.

3 ~~Q. WHY DO YOU DISAGREE WITH BST'S INCLUSION OF OSS~~
4 ~~CHARGES IN ITS COST STUDIES?~~

5 A. For two reasons. First, the Commission has ordered BST to bear its own
6 OSS costs. Second, it is disingenuous for BST to attempt to cost OSS when
7 the Commission recently found that BST's OSS is not even operational at
8 this point.

9 In the AT&T and MCI arbitrations, Order No. PSC-96-1579-FOF-
10 TP, at 87, the Commission ruled that "each party shall bear its own cost of
11 developing and implementing electronic interface systems because those
12 systems will benefit all carriers." This ruling is consistent with that of the
13 Georgia Commission, which recent ruled that BST may not recover OSS
14 charges separately in that state. The ruling is also consistent with that of
15 the New York Commission, which recently ruled that Bell Atlantic may not
16 recover OSS development charges from competitors. In short, BST is
17 improperly attempting to recover OSS development costs from its
18 competitors.

19 In addition, the Commission recently ruled in BST's Section 271
20 case, Order No. PSC-97-1459-FOF-TP, that BST has not met its duty
21 under the Telecommunications Act to provide nondiscriminatory access to
22 its OSS functions. I simply do not see how BST can submit OSS costs to

1 this Commission to which it is not entitled and for functions that it is not
2 yet able to provide.

3 **Q. WHAT DO YOU FIND OBJECTIONABLE ABOUT BST'S OSS**
4 **CHARGES IF THEY ARE INCLUDED?**

5 **A.** I find it objectionable that BST is not passing on its efficiencies of
6 mechanization. In fact, BST marks up its nonrecurring loop rates three
7 ways. First, in the November 1997 nonrecurring cost study, pages 526,
8 532, and 538, BST assumes 100% dispatches for new loop orders. As I
9 stated in my direct testimony, I would expect an efficient ILEC to dispatch
10 technicians to provision only 10% of loop orders. Ninety percent of loops
11 can be provisioned with no technician time outside of the Central Office.
12 Second, BST charges \$11.00 per electronic order, and in addition charges
13 approximately \$40.00 more for electronic nonrecurring loop charges than
14 for corresponding manual nonrecurring loop charges. Third, nowhere in
15 this calculation do we find that BST discounts its nonrecurring loop charges
16 to account for productivity gains achieved through electronic ordering.
17 BST assumes that 100% of loops are ordered manually. BST passes on no
18 savings due to the efficiency of electronic ordering or provisioning loops
19 which do not require dispatching a technician.

20 **Q. WHAT NONRECURRING RATES DO YOU PROPOSE FOR HIGH**
21 **SPEED DIGITAL LOOPS?**

1 A. I propose those rates that I sponsored in my direct testimony. I believe that
2 the appropriate nonrecurring rates for an efficient ILEC are \$19.50 for the
3 first loop and \$10.87 for each additional loop. As I discussed in my direct
4 testimony, there should be no difference in cost to provision any of the
5 three kinds of high speed digital loops.

6 **Q. OF WHAT USE ARE ADSL/HDSL-COMPATIBLE LOOPS?**

7 A. These loops can be used to provide high speed data transmission.
8 ADSL/HDSL technology increases the efficiency of copper loops by
9 increasing their usable bandwidth. As a result, through use of a device
10 similar to a modem, customers can attain download speeds of 30-100 times
11 faster than 28.8 kbps modems, as well as simultaneous voice and data
12 capabilities over a single phone line.

13 These are exciting possibilities, especially for customers who have
14 been unable to get ISDN lines either because they are not available or too
15 expensive, or for customers for whom a T-1 line does not make sense. All
16 of this is possible over existing copper loops with virtually no additional
17 outside plant provisioning costs. WorldCom expects that there will be
18 great demand for these technologies because they are an inexpensive means
19 to provide higher speed access to the Internet.

20 **Q. IS THIS HIGH SPEED DIGITAL TRANSMISSION CAPABILITY**
21 **AVAILABLE NOW?**

1 A. Absolutely. WorldCom pioneered ADSL/HDSL technology, with an initial
2 trial in San Jose. BST is just now getting around to offering a trial in
3 Birmingham. Some of BST's promotional materials from its Worldwide
4 Web Home Page heralding its "FastAccess" ADSL trial are attached as
5 Exhibit ^{COMP}32 (DNP-3).

6 **Q. WHAT DOES BST CHARGE FOR ITS ADSL SERVICE?**

7 A. As noted in Exhibit ^{COMP}32 (DNP-3), in its Birmingham trial, BST offers
8 ADSL service to residential customers for \$20.00 per month and to
9 business customers for \$70.00 per month in addition to its basic monthly
10 rates. There are no nonrecurring charges. BST claims to provision a
11 digital circuit, provision any necessary inside wiring, and provide the
12 ADSL modem free of charge.

13 **Q. HOW DO THESE RATES COMPARE WITH THE COST-BASED**
14 **RATES BST PROPOSES TO CHARGE ALECS FOR LOOPS TO**
15 **PROVIDE THE SAME SERVICES.**

16 A. For the recurring rates, they compare reasonably well with BST's reported
17 TSLRIC cost of providing such loops to ALECs. As I discussed in my
18 direct testimony, there is virtually no circuit design, maintenance or testing
19 that BST must perform for an ALEC, because the ALEC performs these
20 functions for itself. Therefore, the \$20 per month rate appears to be a
21 realistic proxy for BST's wholesale cost plus expenses it may incur on

1 behalf of its residential or business retail customers. After all, a loop is a
2 loop, whether it serves an office or one's home.

3 For the nonrecurring rates, however, BST's retail ADSL rates serve
4 as a useful reality check. BST's November 1997 cost study reports a
5 \$435.95 or \$466.31 nonrecurring cost for 2-wire ADSL loops, depending
6 upon whether the order is processed electronically or manually. Add in
7 BST's shared and common costs and embedded costs, and the figure goes
8 up to \$621.78 or \$663.17. I doubt that BST would charge its customers
9 \$20 per month in its initial ADSL trial and then charge new customers a
10 \$600 set-up fee to initiate service. As I have opined, the recurring charge
11 is more on the order of \$19.50. I doubt that BST is absorbing \$600 per
12 customer in its ADSL trial. This would be an extraordinary promotional
13 offer even for BST. Rather, I believe they are only absorbing \$19.50 per
14 customer. This would be a more realistic figure. Of course, the BST
15 advertisement does not make clear whether BST is using the same pair for
16 ADSL as it uses to provide the customer's basic service. If it is using the
17 same pair, BST would appear to be recovering twice for the local loop. If
18 it is provisioning a second loop, it clearly identifies the maximum ongoing
19 retail cost of the loop -- since the ADSL gear, inside wiring and set-up
20 costs are all "free." In either event, it would seem to confirm WorldCom's
21 assertion that there is little or no cost difference for the loop and almost no
22 nonrecurring cost.

1 Despite BST's marketing for its ADSL service trial, its cost study
2 demonstrates that high speed digital services are effectively out of the price
3 reach of most consumers. Moreover, BST's cost studies demonstrate that,
4 due to the excessive costs associated with high speed digital loops, there
5 will be no competition for these services either. Florida consumers and the
6 public interest will lose as a result, because new and innovative
7 telecommunications services could be right around the corner, but for
8 BST's excessive costs of providing these services.

9 **Q. WHAT IS YOUR OPINION ABOUT BST'S NOVEMBER**
10 **COLLOCATION STUDY?**

11 **A.** In general, this study is similar to the one BST filed in MFS' arbitration
12 case in February except that it now includes the addition of shared and
13 common costs. As I stated in my direct testimony, these rates were
14 excessive as compared to interim rates BST negotiated only a month
15 earlier. As I have stated earlier in this rebuttal testimony, shared and
16 common costs have no place in TSLRIC study.

17 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

18 **A.** If the Commission accepts BST's cost studies at face value, Florida local
19 exchange competition will be severely impaired. BST's attempts to recover
20 embedded costs, shared and common costs, and OSS charges (multiple
21 times) are improper. The nonrecurring costs BST proposes to charge its
22 competition for high speed digital loops are excessive and would force

1 competitors to price those services out of reach of most customers. BST's
2 trial pricing seems more accurately to reflect its true cost of providing the
3 elements its competitors require. BST's collocation costs are also excessive
4 as compared to interim rates it negotiated one month prior to filing its
5 initial TSLRIC collocation studies. The Commission should scrutinize
6 BST's cost studies carefully before setting prices for services which
7 represent the future of Florida telecommunications.

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

9 **A. Yes.**

1 BY MR. SELF:

2 Q Now also, Mr. Porter, did you have attached to
3 your direct testimony two exhibits that have been
4 identified as DNP-1 and DNP-2?

5 A Yes, sir.

6 MR. SELF: And for the record, Commissioners and
7 parties, DNP-2 is a copy of a page from the interconnection
8 agreement amendment between MFS and BellSouth that is a
9 part of Order Number 97-0235 which is one of the orders
10 that the Commission has taken official recognition of
11 already. The copy of the exhibit that most people have
12 cannot be read very well, but I just wanted to let the
13 parties know that that document is already a part of the
14 record by virtue of the official recognition of the order
15 that was previously taken.

16 BY MR. SELF:

17 Q Do you have any changes or corrections to those
18 exhibits?

19 A No, sir.

20 Q And attached to your rebuttal testimony, did you
21 have one exhibit that has been designated as DNP-3?

22 A Yes, sir.

23 Q And do you have any changes or corrections to
24 that?

25 A No, sir, that's material taken directly from

1 BellSouth's Web page.

2 MR. SELF: Commissioner Deason, we would request
3 that Mr. Porter's three exhibits from his direct and
4 rebuttal testimony be identified as the next composite
5 exhibit.

6 COMMISSIONER DEASON: Yes, composite exhibit 32.

7 MR. SELF: Thank you.

8 BY MR. SELF:

9 Q Mr. Porter, do you have a brief summary of your
10 testimony?

11 A Yes, I do, thank you.

12 Q Can you please provide that now?

13 A Yes.

14 Commissioners, staff, it's good to be back. We
15 were here about a year ago or actually almost a year and a
16 half ago talking about many of these issues. I'd like to
17 try to bring just a touch of some reality to this
18 proceeding. I'd like to call your attention to the
19 Tallahassee Democrat, front page Wednesday, January 21st.
20 The column one article in this paper is entitled A Speedier
21 Internet in Your Future, and the principle objective that I
22 have in the hearing today is to help you understand, one,
23 that my company would very much like to offer this service
24 in this state and that we have been pursuing that goal for
25 the last two years; and two, that the prices that you are

1 considering in this proceeding are simply not credible and
2 are so high that they'll prevent us from offering that
3 service. I'd like to take a few minutes and explain to you
4 why I think that is so and will do that in the course of my
5 cross examination, I'm sure, and to give you several
6 references to other sources of information that corroborate
7 what I'm trying to tell you.

8 MFS, prior to its acquisition by WorldCom a year
9 ago, pioneered this technology, ADSL and HDSL, primarily
10 ADSL, with services that we began offering in the State of
11 California in December of 1996. We have made live
12 presentations of this technology over working local loops
13 before Congress, at the FCC. We have a standing exhibit at
14 the Library of Congress.

15 I'd very much like to talk to you about local
16 loop recurring prices, but that's not my main concern
17 today. You have ordered that the loop study be a TELRIC --
18 or excuse me, TSLRIC study, a forward-looking study, and
19 WorldCom is prepared to accept the rates, the recurring
20 rates for the ADSL and HDSL loops that BellSouth proposes
21 here if, in fact, you include only the portion of those
22 costs that are TSLRIC and you exclude the residual recovery
23 cost and the shared and common cost that they have added on
24 top of their TSLRIC cost.

25 In a TSLRIC study we assume that loops are

1 properly placed and, therefore, there is no bridge tap, no
2 bad splices, that you have high quality cable. We accept
3 the loop standard that we think BellSouth has proposed,
4 although it's not the loop standard we would propose. We
5 object to the fact that BellSouth has excluded almost half
6 a million loops from their study as their witness described
7 yesterday, loops that would make their loop costs
8 significantly lower than what they are proposing here, but
9 we can live with that even though it's not right.

10 We think, however, that in their nonrecurring
11 cost they simply have gone way out of line. Their
12 witnesses confirm what I've said in my testimony about the
13 hours that they have included, about the way they upgrade
14 their plant. I'll spend just a moment on that. The
15 numbers that they are asking, from 530 to -- well, excuse
16 me, that is for a second loop. For the first loop they are
17 asking about 660 dollars for a nonrecurring charge. I
18 respectfully suggest to you that the correct number is no
19 more than \$19.50, and I provided the staff and will be
20 happy to provide to you the decisions from other very
21 aggressive state commissions, specifically Texas and
22 Illinois, who have said those rates should be --

23 MR. TWOMEY: Wait. Commissioner Deason, I'm
24 going to object at this point. This witness is supposed to
25 be summarizing his direct and rebuttal testimony. The

1 information that he is about to put onto the record is not
2 in his direct testimony or his rebuttal testimony or
3 anywhere referred to therein. It's an improper -- it's not
4 a summary of anything, it's new testimony.

5 COMMISSIONER DEASON: Mr. Self.

6 MR. SELF: Commissioner Deason, this is an
7 ongoing process. He is summarizing his testimony and
8 relying upon the evidence that you've heard and has been
9 presented and trying to put his testimony in context with
10 what's already been developed so far.

11 COMMISSIONER DEASON: I understand that. The
12 objection is sustained. I'm going to ask you to limit your
13 summary to what has been prefiled in your direct and
14 rebuttal testimony. If other information -- You have a
15 very resourceful attorney. Perhaps on redirect, if the
16 door is opened, that can be pursued, but not in your
17 summary.

18 WITNESS PORTER: Thank you. May I ask a
19 clarification? That includes nothing that was in my
20 deposition?

21 COMMISSIONER DEASON: Only what was prefiled.
22 Deposition cannot be summarized.

23 WITNESS PORTER: Thank you, I appreciate that.

24 A So we will skip the numbers that I offered, and
25 those will come up later I hope.

1 In support of my position, I offer in my direct
2 testimony and in my rebuttal testimony my recalculation of
3 the studies that BellSouth submitted, including the amounts
4 of time and the processes that I believe are required
5 there. I offer from the testimony that I filed language
6 from BellSouth's own advertisements. This was in the
7 exhibit attached to my rebuttal testimony where they
8 advertise that their ADSL service uses their existing
9 telephone line and piggybacks on the existing line, and
10 they offer rates presumably recovering their costs that are
11 as low as 20 dollars a month with free inside wiring, free
12 modems, something that is just not a credible offer that we
13 can compete against.

14 The BellSouth witness -- That's not in my
15 direct testimony, excuse me.

16 In conclusion, I would respectfully request that
17 you require them to go with a TSLRIC study as you have
18 ordered, that the costs of upgrading their embedded plant
19 are not an appropriate part of a TSLRIC study, that those
20 costs are recovered as part of the normal maintenance that
21 they do in their local plant and, in fact, we are being
22 asked to double pay for those costs if we pay for them in
23 the maintenance rate and in the nonrecurring charge. I
24 respectfully ask you to adopt the rates that are proposed
25 in my testimony.

1 Finally, I also ask you to reduce the
2 nonrecurring charges proposed by BellSouth for collocation
3 rates to the levels that have already been adopted in our
4 interim collocation agreement. Thank you.

5 MR. SELF: The witness is available for cross
6 examination.

7 COMMISSIONER DEASON: Mr. Twomey.

8 MR. TWOMEY: Mr. Deason, I'd request at this time
9 that Mr. BellSouth be permitted to cross examine last among
10 the parties other than the staff if that's okay.

11 COMMISSIONER DEASON: Mr. Hatch.

12 MR. HATCH: No questions.

13 COMMISSIONER DEASON: Mr. Bond.

14 MR. BOND: No questions.

15 COMMISSIONER DEASON: Mr. Twomey.

16 MR. TWOMEY: Thank you, Commissioner Deason.

17 CROSS EXAMINATION

18 BY MR. TWOMEY:

19 Q Good afternoon, Mr. Porter.

20 A Good afternoon.

21 Q My name is Mike Twomey. I represent BellSouth
22 Telecommunications, Inc.

23 A Yes, sir.

24 Q I'm looking at exhibit 30, which are the sections
25 of your testimony that have been withdrawn in light of the

1 OSS issue. Are you familiar with that?

2 A Yes, sir, I am.

3 Q You prepared that?

4 A Did I prepare the exhibit?

5 Q Yes.

6 A The material that is on it, yes.

7 Q Okay. Did you withdraw any testimony from your
8 direct testimony?

9 A No, sir, I did not.

10 Q Okay. Let's go to page 8 of your direct
11 testimony.

12 A Yes, sir.

13 Q Are you with me?

14 A Yes, sir.

15 Q Do you see the heading "Service Order"?

16 A Yes, I do.

17 Q Okay. Do you believe that the information
18 contained beginning on page 8 or on page 8 is encompassed
19 within that which should have been stricken from the
20 testimony?

21 A No, I do not.

22 Q Okay. Thank you.

23 Mr. Porter, you are only proposing rates for ADSL
24 and HDSL nonrecurring and physical collocation, correct?

25 A I am proposing rates for that, and I'm also

1 asking that the rates you proposed for the recurring loop
2 charges be the TSLRIC portion of that cost only, not
3 including the residual recovery charge and the shared and
4 common cost.

5 Q You did not prepare an independent study to
6 submit to the Commission regarding the nonrecurring rates
7 for ADSL and HDSL loops, did you, Mr. Porter?

8 A Yes, I did.

9 Q You prepared an independent cost study?

10 A My exhibit number 1 attached to my direct
11 testimony is my opinion of a nonrecurring cost study that
12 uses the same categories that you used in your study but
13 uses my data, not yours.

14 Q Okay. You've used BellSouth's study as a
15 starting point and made modifications as you thought were
16 appropriate, correct?

17 A Yes, sir, that's correct.

18 Q You've criticized the BellSouth study, correct?

19 A I believe that is a fair statement, yes, sir.

20 Q And you disagree with the assumptions regarding
21 the degree of manual intervention in the service order
22 function; is that right?

23 A Among other things, yes, sir.

24 Q You contend that the assumptions about ALEC use
25 of OSS are incorrect, correct? That's the substance of

1 what is on page 8 of your testimony?

2 A Yes, that's correct.

3 Q Okay.

4 A At that point, that's right.

5 Q You have no involvement -- you've never had
6 involvement in developing an operational support system;
7 isn't that right, Mr. Porter?

8 A Never is not correct. In the last 20 years,
9 that's correct.

10 Q I'm sorry, is it your testimony that you've
11 developed an operational support system?

12 A It's my testimony that in my time at Illinois
13 Bell I collaborated on the development of operating support
14 systems.

15 Q Do you remember giving a deposition in this
16 proceeding?

17 A That said I was not responsible for creating on
18 my own an operating support system, that's correct.

19 Q Referring to page 87 of your deposition,
20 "Question --" This is the deposition taken on Tuesday,
21 January 6th, 1998. I believe it's been previously marked
22 for identification; is that correct? Okay, beginning on
23 page 87, line 7:

24 "QUESTION: In looking at your background, I
25 did not see any reference to your participation in

1 developing operational support systems. Is that a fair
2 statement?

3 "ANSWER: Yes, sir, that's a fair
4 statement."

5 A Yes, that's correct, there is nothing in my
6 background that says that.

7 Q Mr. Porter, did you have -- you have no
8 involvement in implementing an operational support system,
9 correct?

10 A That's correct.

11 Q And you have no familiarity with the design and
12 implementation of the interfaces that are used to
13 operational support systems, correct?

14 A And the answer to the question was, no, that was
15 not correct.

16 Q Referring, again, to your deposition which has
17 been previously marked as an exhibit, page 87, line 15:

18 "QUESTION: And have you had any familiarity
19 with the design and implementation of the interfaces to
20 operational support systems?

21 "ANSWER: No, there is a working group in
22 our operations organization that is attempting to interface
23 with BellSouth and other operating companies partly through
24 various open forms in the industry to identify those
25 standards, but I have not personally participated in

1 those."

2 A That's correct, as to my activities at WorldCom.
3 My activities that I was testifying -- that I answered your
4 question affirmatively a few moments ago was to work many
5 years before that with Illinois Bell; and no, that was not
6 in my vitae.

7 Q Okay. I'm going to read you the question again,
8 beginning on line 15:

9 "Have you had any familiarity with the
10 design and implementation of the interfaces to operational
11 support systems?"

12 Is it your testimony today that when I asked you
13 that question you thought I was limiting it to Illinois
14 Bell?

15 A No, I thought you were asking me that question
16 with response to WorldCom, and I believe in the context of
17 the answer that's obvious.

18 Q Have you submitted an errata sheet to your
19 deposition?

20 A Yes, sir.

21 Q Did you make any corrections to that answer?

22 A Not that I recall.

23 Q Thank you.

24 Mr. Porter, you've had no involvement in ordering
25 loops, correct, unbundled loops?

1 A Not with WorldCom, no, sir.

2 Q Have you ever had involvement in ordering
3 unbundled loops with anybody else?

4 A No, I have not.

5 Q You've had no involvement in provisioning loops,
6 correct?

7 A Provisioning loops?

8 Q Yes.

9 A No, sir.

10 Q Whether at WorldCom or anywhere else, correct?

11 A That's correct. Well, no, it's not correct if
12 you go back to my Illinois Bell experience, but that's not
13 the context I thought you were asking the question in.

14 Q At Illinois Bell you were provisioning unbundled
15 loops --

16 A At Illinois --

17 Q -- local exchange providers; is that your
18 testimony?

19 A At Illinois Bell I did outside plant, I spliced
20 cable. Yes, I did that type of work, but that's many years
21 ago.

22 Q Mr. Porter, you understand that ADSL loops are
23 not the same as a standard residential loop, correct?

24 A No, I do not understand that.

25 Q Do you understand that an ADSL loop cannot exceed

1 18 thousand feet?

2 A I understand that a properly designed ADSL loop
3 can be designed either revised resistance design method or
4 the carrier serving area method, both of which limit the
5 length of copper, either to 12 thousand feet or to 18
6 thousand feet, that's correct.

7 Q Is it your understanding that residential loop
8 has the same limitations?

9 A It's my understanding that under current
10 forward-looking designs they do. It's my understanding
11 that under embedded designs they may not.

12 Q It's your understanding that an ADSL loop must be
13 a hundred percent copper, correct?

14 A It's my understanding that the electronics that
15 are currently available in the marketplace require copper.
16 It's my understanding that there may be introduced today at
17 a trade show in Washington plug-ins that are usable with
18 digital loop carrier that would allow the extension of this
19 technology on digital loop carrier and then on copper; but
20 to date, commercially available has to be on copper, yes,
21 sir.

22 Q Is it your understanding that residential loops
23 have the same limitation?

24 A Under forward-looking design standards, yes;
25 under embedded standards, no.

1 Q You understand that ADSL loops cannot be served
2 over integrated digital loop carrier, correct?

3 A Under -- on integrated digital loop carrier?

4 Q Yes.

5 A It's my understanding that appropriate central
6 office plug-ins are not yet available. It's my
7 understanding that such plug-ins may be available
8 commercially soon.

9 Q Is it your understanding that residential loops
10 cannot be served over integrated digital loop carrier?

11 A No, that is not my understanding.

12 Q You understand that ADSL loops cannot have load
13 coils, correct?

14 A It's my understanding that neither ADSL loops nor
15 HDSL loops nor forward-looking design residential loops
16 have load coils, that's correct.

17 Q Now notwithstanding the fact that residential
18 loops can be served over integrated digital loop carrier
19 and ADSL loops cannot, as we have previously established,
20 it's still your testimony that ADSL loops are the same as
21 standard residential loops?

22 A It's still my testimony that an appropriately
23 designed CSA loop or RRD loop, that digital -- excuse me,
24 ADSL facilities can be provided today only on copper and in
25 the very near future over digital loop carrier.

1 Q You've testified in your direct testimony at page
2 9, that 90% of BST's loops will not have to be upgraded to
3 provision them as ADSL loops, correct?

4 A I beg your pardon, you said page 9 of my direct
5 testimony?

6 Q Yes.

7 A Yes, I testified that your studies would appear
8 to demonstrate that ADSL loops and HDSL loops are
9 significantly shorter than the average loop and that in my
10 opinion, if that's true, as many as 90% would not require
11 additional outside plant upgrades, that's correct.

12 Q What percentage of BST's loops are a hundred
13 percent copper?

14 A I don't know.

15 Q What percentage of BST's loops are served over
16 integrated digital loop carrier?

17 A I believe that your witness testified that some
18 portion was up to 32% I believe your witness said was on
19 fiber. Whether or not that is integrated or universal
20 digital loop carrier, I don't know.

21 Q What percentage of BST's loops have no load
22 coils?

23 A Well, that would be a good question to ask your
24 outside plant engineer. My understanding for the industry
25 in general is that it's between 70 and 80% have no load

1 coils.

2 Q What percentage of BST's loops are less than 18
3 thousand feet?

4 A My approximation would be somewhere between 70
5 and 80%, but that's material that you have that I don't
6 have.

7 Q Mr. Porter, you have not worked in outside plant
8 since 1968, correct?

9 A 1968 or 1969, yes, sir.

10 Q And you began your telecommunications career in
11 1967, correct?

12 A That's correct.

13 Q Mr. Porter, you did not prepare an independent
14 study for determining physical collocation rings, correct?

15 A No, I did not.

16 Q The rates for those that you have proposed are
17 found in the BST/MFS arbitrated agreement, correct?

18 A That's correct, a voluntarily negotiated
19 agreement.

20 Q Is it your testimony that the BellSouth/MFS
21 arbitrated agreement contains cost-based rates for physical
22 collocation?

23 A It's my testimony that the rates you entered in
24 that proceeding were voluntary rates. I don't know as a
25 matter of fact whether they were cost based or not, but I

1 respectfully suggest that you wouldn't voluntarily have
2 entered or offered an agreement where you lost money.

3 Q Now Mr. Porter, among other things, one of the
4 complaints you have about the collocation rates proposed by
5 BellSouth is the inclusion of what has been termed business
6 marketing expenses, correct?

7 A Yes, sir. As I recall, that's right.

8 Q Have you had an opportunity to read Ms. Redmond's
9 rebuttal testimony?

10 A Not that I recall, no, sir. I may have read it
11 prior to the deposition, but I don't recall it at this
12 moment.

13 Q Do you understand that Ms. Redmond filed rebuttal
14 testimony addressing issues that you had raised in this
15 proceeding?

16 A Yes, I recall that.

17 Q And you did not bother to read her testimony
18 before coming here today?

19 A Not since the deposition, that's correct.

20 Q Well, I just want to be clear, are you saying
21 that you read it before the deposition, or are you saying
22 you didn't read it?

23 A I believe at the deposition I said that I had
24 read it, and I had prior to the deposition.

25 Q And you understand that her testimony is that the

1 expenses that are termed business marketing do not include
2 any expenses other than those associated with BST's
3 employees interacting with the CLECs who order collocation,
4 correct?

5 A I understand that is your representation of her
6 testimony, yes.

7 Q You don't have any basis for disputing that, do
8 you?

9 A No, it's not my testimony.

10 Q You don't have any independent evidence that
11 would refute Ms. Redmond's testimony on that subject, do
12 you, Mr. Porter?

13 A No, I do not.

14 Q One of your chief complaints about the space
15 construction charge in BellSouth's physical collocation
16 rates is that those rates are higher than the interim rates
17 in the BellSouth/MFS agreement, correct?

18 A That's correct.

19 Q Is it your opinion that if the rates in the
20 MFS/BellSouth arbitrated agreement are lower than those
21 proposed by BellSouth in its cost studies we should simply
22 defer to the interim agreement?

23 A It's my opinion that the rates that you offered
24 in the interim agreement were compensatory rates to you or
25 you would not have offered them, and yes, I think my

1 testimony has been a request that those rates be adopted.

2 MR. TWOMEY: No further questions.

3 WITNESS PORTER: Thank you.

4 COMMISSIONER DEASON: Staff.

5 MR. PELLEGRINI: Staff has no questions,
6 Commissioner.

7 COMMISSIONER DEASON: Commissioners.

8 (NO RESPONSE)

9 COMMISSIONER DEASON: Redirect.

10 MR. SELF: I have no redirect.

11 COMMISSIONER DEASON: Exhibits.

12 MR. SELF: We would move exhibits 30 and 32.

13 COMMISSIONER DEASON: Without objection exhibits
14 30 and 32 ARE admitted.

15 MR. PELLEGRINI: And staff moves exhibit number
16 31.

17 COMMISSIONER DEASON: Without objection exhibit
18 31 is admitted.

19 MR. SELF: May the witness be excused?

20 COMMISSIONER DEASON: Yes. Mr. Porter, you may
21 be excused.

22 WITNESS PORTER: Thank you very much.

23 COMMISSIONER DEASON: We are going to take a
24 recess. Before I said promptly, we are going to begin
25 promptly, we didn't make that time; so we are going to

1 begin at approximately ten minutes after four o'clock.

2 (BRIEF RECESS)

3 COMMISSIONER DEASON: Let's call the hearing back
4 to order. Before we call the next witness, we need to
5 review where we are. I have been informed that if we
6 conclude with the panel which is currently scheduled and
7 then Mr. Lynott and then Mr. Wells who has to testify
8 today, that if we reach that stage in the hearing, that
9 everyone is abundantly confident that we will finish
10 tomorrow at a reasonable hour. Is there any negative
11 viewpoint on that assertion?

12 MR. HATCH: None at all.

13 COMMISSIONER DEASON: Very well. That is going
14 to be our game plan then. We are going to finish to that
15 point. If we finish at five, we are going home, and if
16 it's eleven o'clock tonight, that's when we're -- but we
17 are going to try to reach that point.

18 MR. HATCH: I was just going to inform you,
19 Commissioner Deason, that I was going to request that
20 Mr. Wells follow the panel and then go back to Mr. Lynott,
21 but the same three would be done this evening; that would
22 get Mr. Wells out of here sooner.

23 COMMISSIONER DEASON: Whatever, so that we do
24 need to get -- we realize we need to accommodate
25 Mr. Wells. Very well.

1 Who is going to be conducting the direct on the
2 panel? Mr. Hatch.

3 MR. HATCH: AT&T calls Mr. John Klick and Rick
4 Bissell. Have you been sworn?

5 WITNESS KLICK: No.

6 COMMISSIONER DEASON: Okay. Would you please
7 stand and raise your right hand?

8 (Whereupon, Mr. Bissell and Mr. Klick were duly
9 sworn by Commissioner Deason)

10 COMMISSIONER DEASON: Thank you. Please be
11 seated.

12

13

* * * *

14 Whereupon,

15

JOHN C. KLICK & RICK BISSELL

16 were called as witnesses on behalf of AT&T and MCI and,
17 after being first duly sworn, testified as follows:

18

DIRECT EXAMINATION

19 BY MR. HATCH:

20 Q Mr. Klick, would you please state your name and
21 address for the record please?

22 A (Witness Klick) My name is John C. Klick,
23 K-l-i-c-k. My business address is --

24 COMMISSIONER CLARK: I don't think your
25 microphone is on.

1 A My name is John C. Klick, K-l-i-c-k. My business
2 address is 66 Canal Center Plaza, Suite 670, Alexandria,
3 Virginia, 22314.

4 Q And by whom are you employed?

5 A The firm of Klick, Kent, K-e-n-t, and Allen,
6 A-l-l-e-n.

7 Q And on whose behalf are you testifying in this
8 proceeding?

9 A On behalf of AT&T and MCI.

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

12 A Yes, I did.

13 Q Do you have any changes or corrections to be made
14 to that testimony?

15 A There is one modification that was made, that
16 came up in your deposition and that is to exhibit JCK-2B
17 which deals with virtual collocation.

18 Q And what would the change be?

19 A Essentially what we did, and this is discussed at
20 some length in late-filed exhibit number 1, was to add some
21 elements to the virtual collocation, and those were done
22 for two reasons, one was to provide a second planning cost
23 in the event that a subsequent request for virtual
24 collocation was made by somebody that was already in; and
25 the second was to provide nonrecurring charges for

1 connectivity. And I think Mr. Bissell is prepared to talk
2 about that at some length, but the summary costs were in my
3 testimony, so it's a modification of my exhibit.

4 Q With respect to your direct testimony, did you
5 have attached to that three exhibits, JCK-1, JCK-2 and
6 JCK-2A -- or 2A and then 2B, I'm sorry?

7 A That's correct.

8 Q Were they prepared by you or under your
9 supervision?

10 A Yes, they were.

11 Q Mr. Bissell, would you please state your name and
12 address for the record please?

13 A (Witness Bissell) My name is Rick Bissell. My
14 business address is 13-99 Edgevalley Road, London, Ontario.

15 Q And by whom are you employed?

16 A I'm an independent telecommunications consultant.

17 Q And on whose behalf are you testifying in this
18 proceeding?

19 A MCI and AT&T.

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

22 A Yes, I did.

23 Q With respect to your direct testimony, did you
24 have an exhibit RB-1?

25 A Yes, I did.

1 Q And with respect to your rebuttal testimony, did
2 you have one exhibit rebuttal, RB-1?

3 A Yes.

4 Q Do you have any changes or corrections to your
5 testimony or the exhibits?

6 A I have a change -- I have changes to the rebuttal
7 testimony.

8 Q Could you please give --

9 A On page --

10 Q I'm sorry, could you please give that?

11 A Okay. On page 6, line 8, the number 2000 should
12 read 200. Next on page 16, line 19, the first word,
13 "preparation" should read "construction." And similarly,
14 on the RB-1 exhibit, the words -- the word "Cage" should
15 read "space construction."

16 Q Subject to those corrections, were those exhibits
17 prepared by you and under your supervision?

18 A Yes, they were.

19 Q Mr. Klick, if I asked you the same questions as
20 are in your testimony, would your answers be the same
21 today?

22 A (Witness Klick) Yes, they would.

23 Q Mr. Bissell, if I asked you the same questions as
24 are in your direct and rebuttal testimony, would your
25 answers be the same today?

1 A (Witness Bissell) Yes.

2 MR. HATCH: Mr. Chairman, I would request that
3 the direct testimony of Mr. Klick be inserted into the
4 record as though read.

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

7 MR. HATCH: I would also request that the direct
8 and rebuttal testimony of Mr. Bissell be inserted as though
9 read.

10 COMMISSIONER DEASON: Without objection it shall
11 be so inserted.

12

13

14

15

16

17

18

19

20

21

22

23

24

25

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

DIRECT TESTIMONY OF

JOHN C. KLICK

ON BEHALF OF AT&T OF THE SOUTHERN STATES AND

MCI TELECOMMUNICATIONS COMPANY AND

MCI METRO ACCESS TRANSMISSION SERVICES, INC.

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

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John C. Klick. I am President of Klick, Kent & Allen, Inc. (KK&A), an economic and financial consulting firm specializing in cost analysis. My business address is Klick, Kent & Allen, Inc., 66 Canal Center Plaza, Suite 670, Alexandria, VA 22314.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. I received a Bachelor of Science degree in Mathematics from Bates College in 1970. In addition, I have taken graduate courses in accounting, finance, and operations research.

Q. PLEASE DESCRIBE YOUR WORK EXPERIENCE.

A. After graduation from Bates College, I joined the Cost and Statistics Department

1 of the Southern Railway System. Since that time, I have been continuously
2 involved in cost analyses for a variety of industries. Many of these cost studies
3 have been submitted in administrative proceedings, in court, and in arbitrations.
4 These studies -- which have included analyses of stand-alone costs, short-run and
5 long-run incremental costs and long-run and short-run marginal costs -- often
6 have employed complex, computer-driven cost models incorporating detailed
7 engineering input data and sophisticated discounted cash flow techniques. KK&A
8 has been retained by MCI and AT&T to assist in analyzing the cost evidence
9 being submitted in various proceedings arising out of the Telecommunications
10 Act of 1996.

11

12 **Q. WILL YOU BRIEFLY SUMMARIZE YOUR RECENT EXPERIENCE**
13 **THAT IS RELEVANT TO THIS PROCEEDING?**

14

15 A. I have had extensive experience with large, computerized data bases and cost
16 models. In addition, because many of these models have been presented in the
17 context of litigation, I have had to analyze models sponsored by opposing parties,
18 explain their deficiencies, and defend the model assumptions and techniques that I
19 have utilized. Following are examples of projects that my firm has undertaken in
20 these areas.

21

22 During the past year, KK&A has been retained by MCI and AT&T to assist them
23 in presenting and analyzing cost evidence in various state proceedings arising out

1 of the Telecommunications Act of 1996. We have presented Hatfield Model costs
2 for unbundled network elements (UNEs) in a number of jurisdictions, including
3 Colorado, the District of Columbia, Idaho, Iowa, Minnesota, Montana, Nebraska,
4 New Mexico, North Dakota, South Dakota, Washington, and Wyoming. We have
5 critiqued cost studies submitted by Bell Atlantic in Delaware, the District of
6 Columbia, Maryland, New Jersey, Pennsylvania, Virginia, and West Virginia.
7 We have submitted evaluations of cost studies presented by GTE in Iowa,
8 Minnesota, Nebraska, New Mexico, Oregon, Texas and Washington. We also
9 have submitted testimony in Texas on Southwestern Bell's cost studies, and
10 critiques of the Benchmark Cost Proxy Model (BCPM) in Colorado, Washington
11 and Utah. Most recently, we have conducted a series of cross-model comparisons
12 to help identify for several state Commissions the ways in which various models
13 (e.g., the Hatfield Model, BCPM, the GTE models, and U S WEST's Regional
14 Loop Cost Analysis Program or RLCAP) develop costs and the input variables to
15 which they are particularly sensitive. Results of these cross-model analyses have
16 been presented in Washington and Utah.

17
18 KK&A also has considerable relevant experience in other network industries,
19 including the postal, railroad, pipeline, and trucking industries. For example:

- 20
21 • We are the original developers of an annuity-based model for developing the
22 stand-alone costs of railroad operations. This has evolved into a complex,
23 discounted cash flow model that engineers an efficient railroad system on a

1 forward-looking basis and determines the annual capital and operating costs
2 required for such a system to earn its cost of capital over the life of its assets.
3 This model is used by the Surface Transportation Board (STB, formerly the
4 Interstate Commerce Commission "ICC") to evaluate major pricing complaints by
5 shippers, and I have presented testimony based on this model on behalf of rail
6 carriers in more than 15 proceedings over the past eight years.

7

8 • Approximately six years ago, I was retained by a major petroleum products
9 pipeline company to assist it in determining the marginal, incremental, and stand-
10 alone costs of various services that it provides on its system. I worked closely
11 with the pipeline company's engineering and regulatory personnel to design
12 computerized modeling approaches for developing these costs. I have presented
13 several volumes of testimony on behalf of this company before the Federal
14 Energy Regulatory Commission. Since their development, these models have
15 been utilized extensively by company personnel to perform analyses that are not
16 litigation-related, and my firm is frequently asked to oversee the engineering work
17 underlying these applications.

18

19 • The Association of American Railroads (AAR) retained me to develop a cost
20 model utilized to determine the incremental right-of-way maintenance and
21 investment costs that would be caused by the passage of heavily-loaded freight
22 trains and lightly-loaded, high-speed passenger trains. In developing this model, I
23 worked closely with the AAR's consulting engineers. I presented and defended

1 the model results in two proceedings before the ICC and STB, which recently has
2 adopted the model as the best approach to determining these incremental costs.

3
4 • The firm was retained by a major railroad to deconstruct and critique a right-of-
5 way grading model that was presented by an opposing party in litigation. This
6 was a PC-based model that relied upon the application of complex engineering
7 algorithms to digitized topographical map data. Under an extremely tight time-
8 frame, we were able to run this model, determine that its internal algorithms were
9 flawed in several respects, re-design a competing model to correct these flaws,
10 and submit testimony critiquing the original and setting forth the proposed
11 alternative.

12
13 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

14
15 A. I have been asked by MCI and AT&T to describe the costing methodology that
16 should be used to determine the appropriate costs of collocation in the State of
17 Florida. The costing methodology that I am advocating is the Collocation Cost
18 Model (Model) sponsored by MCI and AT&T that uses sound economic costing
19 principles, and complies with the requirements of the Telecommunications Act of
20 1996, the *First Report and Order* adopted August 1, 1996 addressing
21 interconnection and the *Second Report and Order* adopted June 9, 1997
22 addressing collocation.
23

1 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

2

3 A. My testimony is divided into three sections. In Section I, I describe the economic
4 costing principles that should guide the development of collocation costs. In
5 Section II, I describe the constituents and operations of the Model and show that
6 the attributes of the Model conform to these principles. In Section III, I present
7 the results of applying the Model to Bell South in the State of Florida.

8

9 **I. PRINCIPLES**

10

11 **Q. GIVEN THE CRITICAL ROLE OF COSTS IN REFLECTING RELATIVE**
12 **ECONOMIC EFFICIENCY, WHAT CHARACTERISTICS SHOULD**
13 **PRACTICAL MEASURES OF THE COSTS OF COLLOCATION**
14 **EMBODY?**

15

16 A. Sound economic measures of costs should (1) be forward-looking; (2) reflect the
17 long run; (3) be incremental; (4) incorporate least-cost technologies; and (5)
18 reflect cost-causation to the maximum extent feasible.

19

20 **Q. DOES THE FCC ORDER INCORPORATE THESE ECONOMIC**
21 **PRINCIPLES?**

22

23 A. Yes. The FCC's *First Report and Order* requires the application of each of these

1 principles, in developing estimates of TELRIC. Specifically, the FCC requires
2 that cost measurement should be “long-run” and reflect “incremental cost.” The
3 *First Report and Order* defines long run as: “. . . a period of time long enough so
4 that all of a firm’s costs become variable or avoidable.” FCC Order ¶677.
5 Incremental costs are defined as “the additional costs (usually expressed as a cost
6 per unit) that a firm will incur as a result of expanding the output of a good or
7 service by producing an additional quantity of the good or service.” FCC Order
8 ¶675. The *First Report and Order* also mandates that cost studies reflect the
9 most efficient technology that is currently being installed. FCC Order ¶685.
10 Finally, the *First Report and Order* recognizes the importance of attributing costs
11 to the activities that create those costs. FCC Order ¶691.

12

13 **Q. HAS THE FCC SPECIFICALLY REJECTED COSTING APPROACHES**
14 **THAT ARE NOT CONSISTENT WITH THESE PRINCIPLES?**

15

16 A. Yes. The FCC determined that several of the methodologies advocated by
17 incumbent LECs for cost determination and pricing were unsuitable. In
18 particular, the FCC properly rejected the notion that pricing of network elements
19 and interconnection should reflect embedded costs. FCC Order ¶704-707.

20

21 **Q. WHAT ARE THE APPROPRIATE ECONOMIC PRINCIPLES THAT**
22 **SHOULD GUIDE THE DEVELOPMENT OF THE COSTS OF PHYSICAL**

1 **COLLOCATION?**

2

3 A. Charges for collocation -- like those for recurring and non-recurring charges for
4 unbundled network elements -- should reflect the forward-looking, long-run
5 economic costs of collocation. In addition, to satisfy the non-discrimination
6 requirement of the 1996 Act, the *First Report and Order recommends* that cost
7 calculations be based on Total Element Long-Run Incremental Cost (or TELRIC).
8 These are the cost levels that establish prices in competitive markets.

9

10 Consistent with these principles, the Collocation Model calculates forward-
11 looking, economic costs. As a result, prices for collocation based on these costs
12 will provide appropriate signals to both producers and consumers, and ensure
13 efficient entry and utilization of the basic local exchange infrastructure.

14

15 **Q. ARE THERE OTHER ECONOMIC PRINCIPLES THAT SHOULD BE**
16 **KEPT IN MIND IN CALCULATING COLLOCATION COSTS?**

17

18 A. Yes, there are two. First, it is important to recognize that the ILECs have greater
19 access to cost information necessary to calculate costs than do other parties.
20 Given this asymmetric access to cost data, it is important that ILECs *prove* the
21 nature and magnitude of any forward-looking costs that they seek to impose on
22 potential entrants. The Collocation Model calculates costs using the best
23 publicly-available data that can be identified, and it permits calculations to be

1 made based on ILEC-provided data *if* the ILEC can demonstrate that these data
2 accurately represent efficient, forward-looking costs.

3
4 Second, economists and cost analysts generally agree that costs must be attributed
5 on a cost-causative basis. Costs are considered causally-related to a particular
6 activity or capability if the costs are incurred as a direct result of providing the
7 item, or can be avoided, in the long run, when the company ceases to provide that
8 activity or capability.

9
10 The Collocation Model uses cost-causative principles to associate forward-
11 looking costs with the specific requirements of CLECs seeking to collocate. In
12 particular, the Collocation Model includes the forward-looking costs of capital
13 (debt and equity) needed to support investments required to provide physical
14 collocation efficiently. The principle of cost causation requires that overhead
15 costs be included to the extent that they vary with the output of particular
16 activities or capabilities, whatever their accounting classification. To the extent
17 that there are overhead costs that truly are *common* to two or more activities, these
18 common overhead costs should be recovered from each activity on a
19 competitively-neutral basis in order to ensure that the non-discrimination
20 requirements of the 1996 Act are satisfied.

21
22 The Collocation Model incorporates a 10.4% markup to estimate these overhead
23 costs. Statistical evidence and a growing literature on activity-based accounting

1 systems suggest that many of the costs that have traditionally been considered
2 common overhead costs actually should be considered service-specific or
3 element-specific costs. The method of treating overhead costs in the Collocation
4 Model renders any precise distinction between costs attributable to collocation
5 elements and common overhead costs unnecessary. Insofar as the 10.4% markup
6 captures all of the relevant overhead costs, it includes any element-specific costs
7 *and* a reasonable share of any common overhead costs. Moreover, if regulators
8 set prices for physical collocation equal to the costs that the Collocation Model
9 reports for each collocation element, these prices will allow the ILECs to recover
10 all of their economic costs, including a reasonable profit, but no more. From this
11 perspective, too, the Model approach is reasonable.

12

13 **Q. WHAT OTHER COSTING PRINCIPLES SHOULD GUIDE THE**
14 **DEVELOPMENT OF THE COSTS OF COLLOCATION?**

15

16 A. Any cost model along with full documentation must be publicly available in a
17 format that allows interested parties to fully scrutinize the model and to re-run the
18 model using different input values.

19

20 **Q. WHY IS IT IMPORTANT THAT COST MODELS BE PUBLICLY**
21 **REVIEWABLE IN THIS FASHION?**

22

23 A. Lacking open cost models, regulators and intervenors historically have been

1 forced to rely solely on cost studies prepared and provided by the ILECs. Not
2 surprisingly, attempts to review, analyze, and verify the input data relied upon and
3 the cost data produced by such models have met with only limited success.

4
5 Two sources of frustration have been experienced repeatedly. First, the lack of
6 publicly-available information related to ILEC collocation (and other cost) studies
7 has made a meaningful review difficult or impossible. Many of the inputs and
8 assumptions used by the ILECs have been made available grudgingly, subject to
9 proprietary protection in each jurisdiction in which they are utilized.

10
11 The second source of frustration has been the lack of independent cost data for use
12 as a benchmark for evaluating the ILEC-provided data. Without such third-
13 party/independent data sources, it has been impossible for either regulators or
14 intervenors to critically evaluate the reasonableness of ILEC assumptions and the
15 validity of the resulting cost estimates.

16
17 In contrast to the difficulty experienced when attempting to evaluate ILEC
18 collocation studies, a review of the Collocation Model is direct and straight-
19 forward. Documentation of the Model is available, including descriptions of the
20 technical inputs and assumptions that are relied upon. Because the Model is
21 publicly-available and its inputs can be varied by the user, it is possible to directly
22 evaluate the Model for accuracy and to measure the sensitivity of the Model to
23 changes in various inputs. The Collocation Model uses clearly documented and

1 verifiable methodologies and non-proprietary data. Both the inputs and outputs
2 to the Model are open for inspection and analysis. The reviewer thus is in a
3 position to review the Model and to conclude that it produces both reasonable and
4 verifiable results for the costs of physical and virtual collocation.

5
6 In summary, a fundamental issue with any cost study is the integrity of the
7 assumptions, calculations and input values used to develop the cost outputs. The
8 only method to test the reliability of the final product is to make the input data,
9 methodology, and assumptions readily- accessible for independent scrutiny and
10 evaluation.

11
12 **II. CONSTITUENTS AND OPERATION OF THE COLLOCATION MODEL**

13
14 **Q. PLEASE PROVIDE A SUMMARY DESCRIPTION OF THE**
15 **COLLOCATION MODEL'S OPERATION.**

16
17 **A.** MCI and AT&T retained technical subject matter experts to develop the efficient,
18 forward-looking costs associated with physical and virtual collocation. Based
19 upon a central office model layout and a collocation area model layout (described
20 in detail in the testimony of Mr. Bissell), these experts identified the investments
21 that an efficient ILEC would need to make to provide collocation space to
22 potential CLEC collocators (including the engineering, furnish, and installation
23 costs). These investments were used as inputs into the Collocation Model to

1 estimate the recurring and non-recurring costs associated with physical and virtual
2 collocation as described in Exhibit JCK-1 to my testimony, the Collocation Cost
3 Model Description and Users' Guide.

4
5 **Q. CAN YOU BRIEFLY SUMMARIZE THE ANALYTICAL APPROACH**
6 **REFLECTED IN THE COLLOCATION MODEL?**

7
8 A. The focus of the Collocation Model is to determine the investment and operating
9 costs that would be incurred by an efficient ILEC to provide collocated space in
10 its central office, using forward-looking technology that is currently available.

11
12 In doing so, the Collocation Model developers recognized that it would be most
13 efficient in a physical collocation arrangement for ILECs to locate space for
14 multiple collocators together, so that they could more effectively utilize certain of
15 the facilities (such as the DC Power Plant, and common space). On the other
16 hand, requiring *all* collocators to be in contiguous space within a CO would be
17 inefficient, because such a large, single block of space is unlikely to be available
18 within a CO, or it may be located several floors away from the existing ILEC
19 cross-connect systems. Thus, the model layout constructed struck a rational
20 balance, designing and equipping a 550 square-foot area that would provide four
21 100 square-foot collocation areas.

22
23 The Collocation Model developers also recognized that it would be most efficient

1 in a virtual collocation arrangement for a CLEC to place its own
2 telecommunications equipment in an area of the CO currently used by the ILEC
3 for its own equipment. The equipment is typically mounted in metal
4 telecommunications relay racks that are 2' wide, 1' deep, and 7' high. The racks
5 are placed in "lineups" (rows) located 2' 6" to 3' apart to provide for aisle space in
6 front and back for maintenance purposes. The relay rack footprint (2' by 1') plus
7 50% of the front and rear aisles ($1' 6" + 1' 6" = 3'$) would require 8 square feet (2'
8 x 4') of floor space. The Virtual Collocation Model assumes that each relay rack
9 uses 9 square feet of floor space, which is sufficiently generous to incorporate end
10 guards and 15" deep frames. Telecommunications relay racks are fabricated with
11 pre-drilled ironwork uprights to permit the installation of equipment shelves on an
12 "as required" basis and many existing relay racks in an ILEC CO will typically
13 have unused space which can be used to mount CLEC equipment shelves. For
14 this reason this technical model recommends that the cost model for virtual
15 collocation develop the cost of floor space for a virtual collocation environment in
16 increments of $\frac{1}{4}$ relay racks (the equivalent of 2.25 square feet of floor space).

17
18 The Collocation Model does not include the costs of retrofitting the CO to meet
19 asbestos removal or ADA requirements, nor does it include other costs that could
20 be associated with repairing or remodeling existing building space, because these
21 costs are not consistent with the forward-looking, least-cost approach of the
22 model.

23

1 The Physical Collocation Model also addresses ILEC security concerns by
2 including the cost of security access cards for controlled access by CLEC
3 representatives into the CO in a physical collocation arrangement. The Central
4 Office Model Layout assumes the CO is equipped with an automated security card
5 reading system. Again, this is consistent with the forward-looking, least-cost
6 approach of the model.

7
8 CLEC personnel will not normally be required to visit virtual collocated
9 equipment. When a CLEC visit is required, the Virtual Collocation Model
10 assumes that a security escort will be provided for building admittance and exit,
11 and attendance at the equipment location. The Model assumes the security escort
12 labor rate is equal to that of a Frame Technician.

13
14 The investment required to construct the collocation space identified in the
15 collocation area model layout was separated by the technical experts into three
16 categories: (1) assets that would be shared by the four potential CLEC collocators
17 and the ILEC (category 1), (2) assets that would be shared by the four potential
18 collocators, but *not* by the ILEC (category 2), and (3) assets that would be used
19 exclusively by only *one* of the collocators. This last category was further
20 subdivided into investments that are reusable when an existing occupant leaves
21 and a new collocator occupies the space (category 3) and assets that cannot be
22 reused (category 4). All investments in categories 1 and 2 can be used by both the
23 first and subsequent occupants of the collocated space.

1 A major concern with the cost of physical collocation is the substantial barrier to
2 entry that is created if sizable, one-time, up-front expenditures are required of
3 CLECs to obtain physical collocated space -- space that can be used over a period
4 of years by multiple occupants -- at a time when they have relatively few
5 customers and are, therefore, most vulnerable competitively. On the other hand,
6 ILECs express concern that if collocators abandon the physical collocation space
7 before its economic life is exhausted, ILECs could somehow be saddled with an
8 expense that they would be unable to recover over the long run. The Collocation
9 Model developed by MCI and AT&T balances these competing concerns as well.

10
11 Investments that are incurred for the benefit of a single collocator *and* cannot be
12 used by subsequent occupants of the collocation space (*i.e.* category 4
13 investments) are treated by the Model as *non-recurring* costs. Investments that
14 are shared by more than one CLEC and/or can be used by subsequent occupants
15 of the same collocation space (*i.e.* categories 1 through 3) are treated as *recurring*
16 costs that would be paid for on a monthly basis by the collocators. In converting
17 these investments to monthly costs, however, the Collocation Model incorporates
18 a cost of capital that compensates the ILEC for *both* the time value of money and
19 the business risk it incurs. In addition, the Model includes a user-adjustable
20 "occupancy adjustment factor" to explicitly recognize that each physical
21 collocation space provided in the collocation area model layout may not be fully
22 occupied over its economic life. The "occupancy adjustment factor" is fully
23 described in exhibit JCK-1. Use of this factor has the effect of increasing monthly

1 costs to account for those time periods in which the physical collocation space
2 may not be occupied.

3
4 Calculation of both the monthly capital costs and the monthly operating expenses
5 that would be incurred by the ILEC in efficiently providing collocation space on a
6 recurring basis are developed using standard financial techniques. Items such as
7 taxes, general support investment, and common costs are reflected in the cost
8 outputs of the Collocation Model.

9
10 The Virtual Collocation Model assumes the CLEC is responsible for directing all
11 maintenance activities associated with the virtual equipment. This includes
12 system surveillance, direction of repair activity, and requests to the ILEC for
13 maintenance assistance. The ILEC is responsible for hardware functions such as
14 circuit pack replacement and changing fuses. Work will be performed by the
15 ILEC upon the request of the CLEC, and will be reimbursed using the labor rate
16 for the appropriate qualified technician, assumed in the Model to be equivalent to
17 that of a Network Terminal Equipment Center technician.

18
19 **III. COLLOCATION COST MODEL RESULTS**

20
21 **Q. CAN YOU SUMMARIZE THE OUTPUTS OF THIS MODEL FOR**
22 **FLORIDA?**

1 A. Yes, the Cost Model estimates costs for the following collocation elements (the
2 elements are described in detail in the testimony of Rick Bissell).

- 3 • Planning
- 4 • Entrance Fiber
- 5 • Power Delivery
- 6 • Power Consumption
- 7 • Voice Grade Connectivity
- 8 • DS-1 (DCS or DSX) Connectivity
- 9 • DS-3 (DCS or DSX) Connectivity
- 10 • Optical Connectivity
- 11 • Virtual to Virtual Connectivity (Applies to Virtual Collocation)
- 12 • Grounding (Applies to Physical Collocation)
- 13 • Realty (Cage Construction - Applies to Physical Collocation)
- 14 • Land and Building

15

16 The DS-1 and DS-3 connectivity costs are presented in two alternative ways, each
17 modeled with either a DCS cross-connect or a DSX cross-connect. This
18 flexibility permits the output from the Model to be tailored to the collocation
19 requirements experienced by a particular ILEC at a specific CO location.

20

21 In addition, the Collocation Model also addresses ILEC security concerns by
22 including the cost of security access cards for controlled access by CLEC
23 representatives into the CO in a physical collocation arrangement. In a virtual

1 collocation arrangement, the Model includes the cost of a security escort for
2 staffed and unstaffed COs and for different response times.

3
4 The costs for Bell South in Florida, reflected in the Model's Summary Cost sheets
5 attached as Exhibit JCK-2A (Physical Collocation Model Output) and Exhibit
6 JCK-2B (Virtual Collocation Model Output), are categorized as either non-
7 recurring or monthly recurring costs. Costs are represented in a cafeteria-style
8 menu format. The total cost for collocation space is dependent upon the
9 requirement for elements such as connectivity, usage of power, and number of
10 cages required by a CLEC at a particular location. For example, a CLEC may
11 request a combination of copper connectivity such as voice grade and DS-1
12 (DSX), or only voice grade service. It would be inaccurate to sum all of the
13 recurring costs to arrive at a grand total, because several alternative costs are
14 presented for elements such as Power Delivery and Circuitry.

15
16 **Q. PLEASE SUMMARIZE THE RESULTS OF THE COLLOCATION**
17 **MODEL FOR THE STATE OF FLORIDA.**

18
19 A. Exhibits JCK-2A and JCK-2B are printouts that reflect the results of running the
20 Collocation Cost Model for BellSouth in Florida. In addition, an electronic
21 version of the Collocation Cost Model on diskette is included as Exhibit JCK-3.
22
23

1 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

2

3 A. Yes.

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

1 DIRECT TESTIMONY OF

2 RICK BISSELL

3 ON BEHALF OF

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

5 MCI TELECOMMUNICATIONS COMPANY AND

6 MCI METRO ACCESS TRANSMISSION SERVICES, INC.

7 DOCKET NOS.: 960833-TP/960846-TP/971140-TP

8

9 **Q. PLEASE STATE YOUR NAME, ADDRESS, AND OCCUPATION.**

10

11 **A.** My name is Rick Bissell and my business address is 13-99 Edgevalley Road,
12 London, Ontario, Canada N5Y 5N1. I am a telecommunications consultant.

13

14 **Q. PLEASE SUMMARIZE YOUR BACKGROUND IN THE FIELD OF**
15 **TELECOMMUNICATIONS.**

16

17 **A.** I have been employed in the telecommunications field for over 30 years. My
18 career began in 1966 with Nortel (Northern Telecom) as a specifications writer for
19 Central Office (CO) Common Systems Infrastructure (i.e. overhead ironwork,
20 cable racking, equipment supporting details, lighting, grounding, cross-connects
21 and cabling). About the year 1974, I moved to Bell Canada to take a position as a
22 Central Office Building and Main Distribution Frame (MDF) Planner, responsible
23 for the creation of "best practice" space planning scenarios for the integration of

1 new equipment in existing COs; cable routes and equipment connectivity; sizing
2 of new buildings and/or access remotes housings; and developing long term plans
3 for the redevelopment of CO space coincident with Switch and/or Transmission
4 modernization.

5
6 I also have worked on international assignments in Jamaica (1972), Antigua
7 (1973), Riyadh, Saudi Arabia (1982-85) and Manila, Philippines (1995). My last
8 position prior to leaving Bell Canada was in the Regulatory Planning Group,
9 where I was responsible for developing Infrastructure and Space Planning
10 proposals for physical collocation (i.e., placing competitive equipment in Bell
11 Canada COs).

12
13 Since leaving Bell Canada in March, 1996, I have worked as an independent
14 consultant in the area of telecommunications equipment space planning and
15 installation of common systems infrastructure (overhead ironwork, cable routing,
16 cabling, cross-connects, etc.). I have worked for Bell Sygma as Collocation
17 Project Support Manager, where I developed the process flows and documentation
18 to be used for implementing physical collocation in a uniform manner across the
19 Stentor Operating Companies in Canada. Most recently, I have analyzed
20 collocation cost studies and process proposals filed by various incumbent local
21 exchange companies.

22

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY TODAY?**

2

3 **A.** I have been retained by MCI Communications Corporation (MCI) and AT&T
4 Communications of the Southern States, Inc. (AT&T) to lead a team of subject
5 matter experts to develop technical models of: (1) the physical collocation of
6 competitive local exchange carrier (CLEC) equipment in incumbent local
7 exchange carrier (ILEC) Central Offices (COs); and (2) the "virtual" collocation
8 of CLEC-provided, ILEC-owned equipment in ILEC COs, in order to identify all
9 ILEC investments needed to provide collocation. (Collocation also can occur at
10 other places in the ILEC's network, such as at the "telco closet" in a large office or
11 apartment building. This testimony does not address this form of collocation.)
12 For physical collocation, the team constructed a forward looking model central
13 office layout and a forward looking model collocation area layout based upon the
14 use of best practice CO space-planning strategies, efficient suppliers, and
15 competitive processes, and from these identified all relevant investments. A
16 similar process was used to identify investments for virtual collocation. These
17 investments were provided to the consulting firm of Klick, Kent & Allen to
18 develop collocation cost estimates in the Cost Model. A white paper describing in
19 detail the model CO and collocation layouts and all the necessary ILEC
20 investments for physical and virtual collocation is attached to this testimony as
21 Exhibit RB - 1.

22

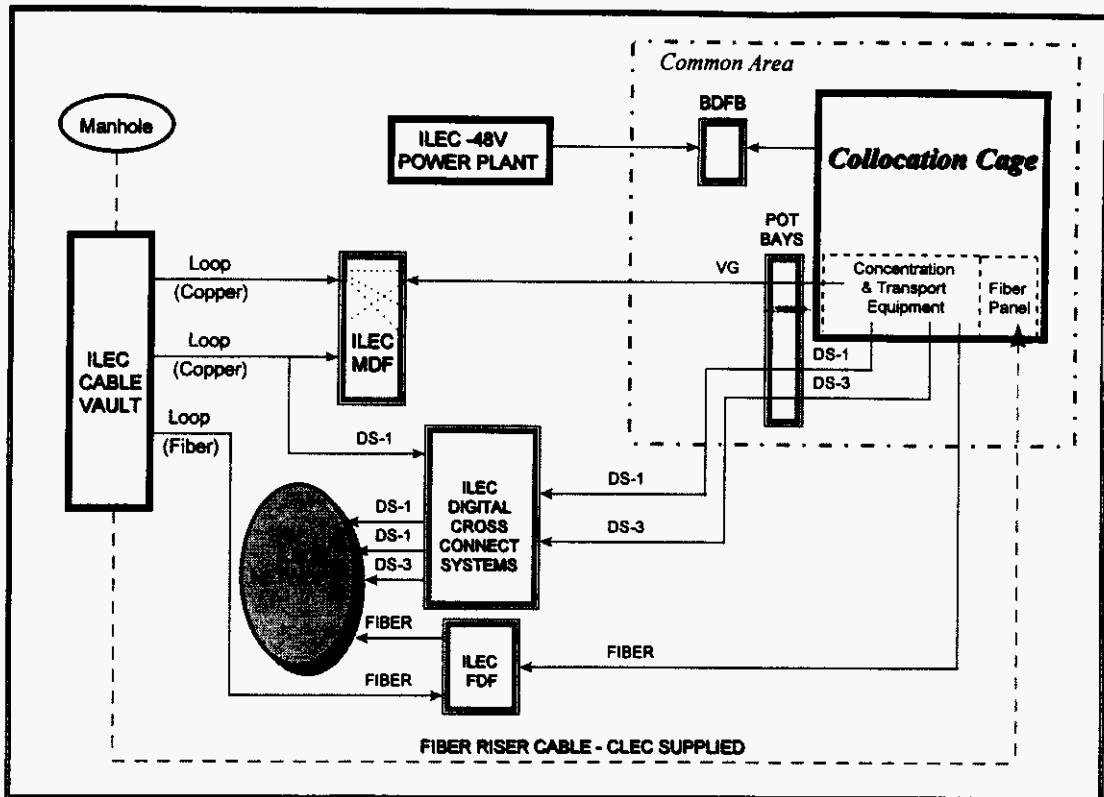
1 The purpose of this testimony is to provide the conceptual basis for the model CO
2 and collocation layouts and to describe the major components of those layouts.

3 Part One addresses physical collocation and Part Two addresses virtual
4 collocation.

5
6 **PART ONE: PHYSICAL COLLOCATION**

7
8 **Q. WHAT IS REQUIRED FOR PHYSICAL COLLOCATION?**

9
10 **A.** Physical collocation is nothing more than an arrangement that allows a CLEC to
11 locate its own telecommunications relay rack equipment in a segregated portion of
12 the CO. The CLEC then pays the ILEC for the use of that space within the CO
13 and is provided with the ability to enter the CO to install, repair, and maintain its
14 collocated equipment. Figure 1 displays the limited number of elements required
15 to establish CLEC collocation areas in an ILEC building. As shown, the only
16 requirements are for fiber connectivity between the first manhole outside the CO
17 and the CLEC's terminal equipment; -48V DC power connectivity between the
18 CLEC equipment and a battery distribution fuse bay (BDFB); and optical and
19 copper connectivity (Voice Grade, DS-1, DS-3) between the collocation area and
20 an appropriate ILEC cross-connect. Each of these is discussed in greater detail
21 below. The physical demarcation point between the ILEC and CLEC for all
22 copper connections is at a point of termination (POT) bay, normally placed in
23 close proximity to CLEC equipment.



1

2

3

4

Q. IS PHYSICAL COLLOCATION A HIGH TECHNOLOGY ACTIVITY?

5

A. No. Physical collocation is a low technology, nuts and bolts activity within a high technology industry. It primarily consists of setting up metal cages to hold CLEC telecommunications equipment, and providing the following connectivity: fiber from the CLEC coming from the manhole into the cable vault and to the collocation cage; copper and optical connections to the ILEC cross-connects to pick up unbundled loops or connect to the ILEC network; and connectivity to the -48V DC power source. This requires building the cage, installing cables on racks, and properly grounding the equipment.

12

1 **Q. WHAT FACTORS DID YOU CONSIDER IN DETERMINING THE BEST**
2 **PRACTICES FOR IMPLEMENTING COLLOCATION?**

3

4 **A.** Best practices assumes the use of cost efficient technology and only as much
5 building space, labor, and materials as needed to properly place all equipment,
6 including the appropriate amount of space for auxiliary equipment. It also
7 assumes that the ILEC's decisions relating to collocation of a CLEC at the ILEC's
8 CO will be made on the same bases as the ILEC's decisions for placing its own
9 equipment.

10

11 **Q. WHY IS IT IMPORTANT TO IDENTIFY THE INVESTMENTS**
12 **ASSOCIATED WITH COLLOCATION BASED ON THE USE OF BEST**
13 **PRACTICE SPACE-PLANNING STRATEGIES?**

14

15 **A.** CLEC collocation at an ILEC's CO is essential for the CLEC to provide local
16 service efficiently with unbundled ILEC loops or other elements. Without
17 collocation, there would be no way for the CLEC to concentrate the traffic coming
18 from the unbundled loops in order to transport that traffic efficiently to the
19 CLEC's switch. Thus, collocation is essential for new entrants who plan facilities-
20 based entry. At the same time, collocation at the ILEC's CO is largely under the
21 control of the ILEC. In a competitive environment, an ILEC will not have the
22 incentive to minimize the costs to CLECs of being collocated. For example, the
23 ILEC will not have the incentive to make space in its CO available to a CLEC on

1 the same basis as it uses for making space available for additional equipment of
2 its own. Basing the model CO and model collocation space -- and thus
3 investments -- on best practice space planning will ensure the inclusion only of
4 costs associated with an efficiently located collocation space.

5
6 **Q. PLEASE DESCRIBE THE FORWARD-LOOKING CO MODEL LAYOUT.**

7
8 **A.** The CO model layout assumes a new urban CO designed for up to 150,000 lines,
9 together with associated transport, power, multi-media, and miscellaneous
10 equipment space. Such an office would need approximately 36,000 square feet
11 (sq. ft.) of equipment space -- or three equipment floors of about 12,000 sq. ft.
12 (100 ft. x 120 ft.) each -- plus a below-ground cable vault. (See Figures 2 and 3.)
13 The CO model layout also assumes an additional 3,000 sq. ft. on each floor and
14 the entire basement (except for the cable vault area) to provide a generous
15 allowance for building support services such as main corridors, elevators,
16 washrooms, lunch rooms, conference facilities, administrative areas, electrical
17 rooms, and mechanical rooms. This results in an overall footprint of 15,000 sq. ft.

18
19 The best practice CO planning strategy -- shown in Figure 3 -- provides adequate
20 space for the long-term requirements associated with a forward-looking, urban
21 CO and is representative of central office layouts that would have been
22 constructed in recent years to accommodate growth in a downtown urban
23 environment. New COs designed for areas outside of urban centers would likely

1 consist of only one or two floors above the cable vault, requiring shorter cable
2 connectivity lengths. Hence, the forward-looking physical central office model
3 layout incorporates conservative assumptions in terms of recent CO
4 telecommunications building deployment and is likely to be significantly larger
5 than the average CO across the ILEC territory.

6

7

8

9

10

11

12

13

14

15

16

17

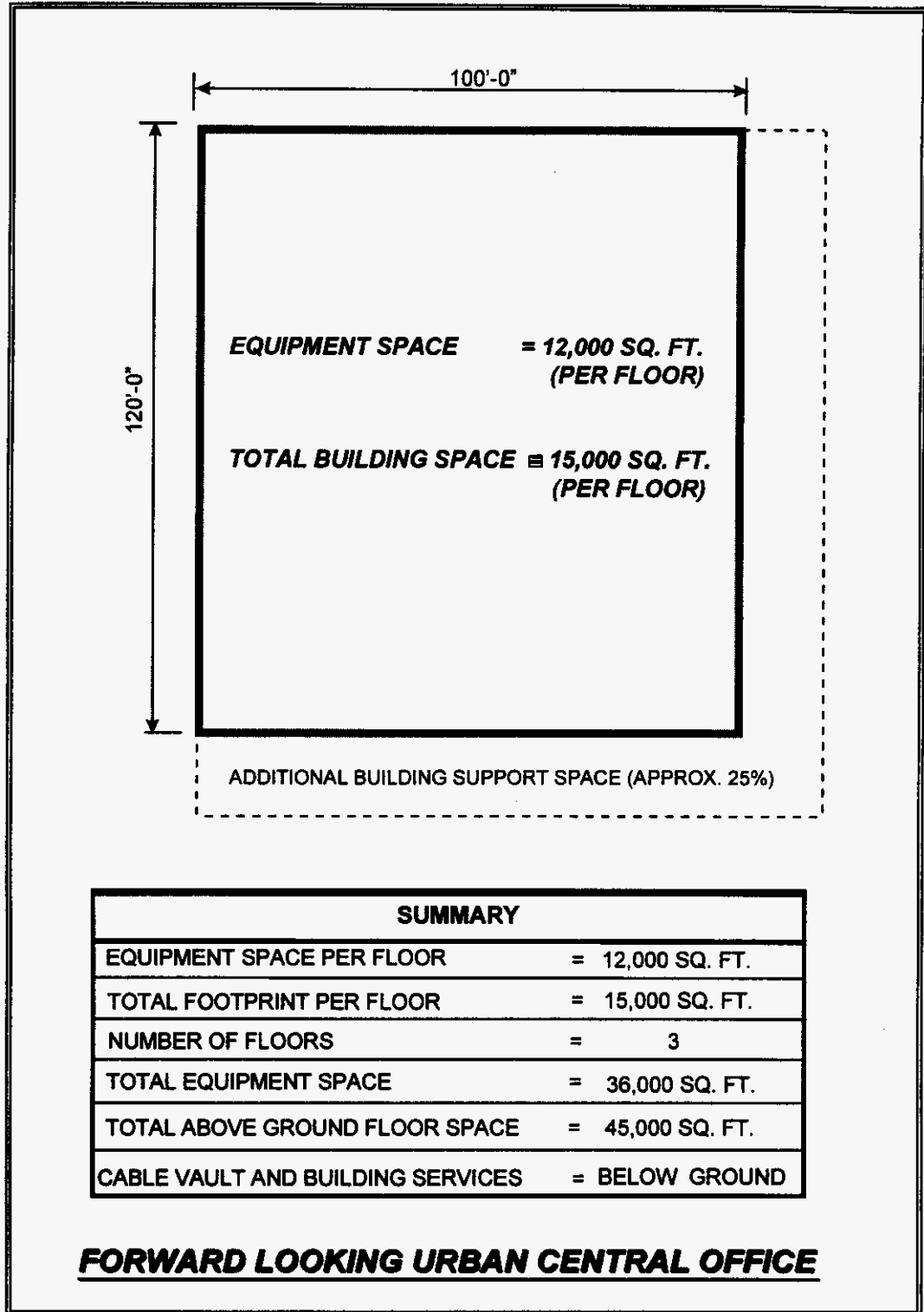
18

19

20

21

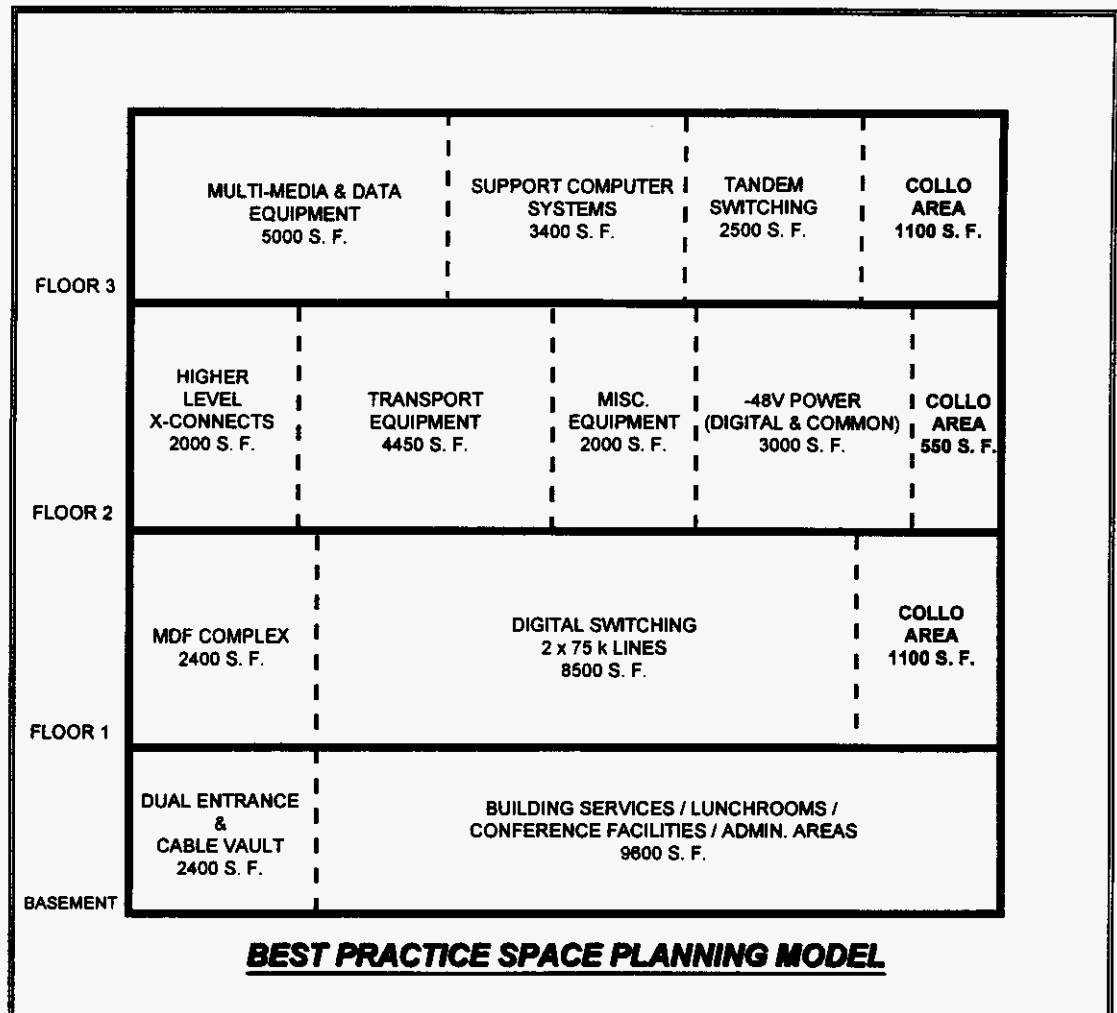
22



1

2

Figure 2



1

2

3

4 **Q. HOW COULD THIS THREE-STORY BUILDING BE USED TO MODEL**
 5 **THE INVESTMENTS NEEDED TO PLACE COLLOCATION AREAS IN**
 6 **EXISTING CENTRAL OFFICES IN URBAN AREAS THAT MAY BE AS**
 7 **MUCH AS EIGHT STORIES?**

8

9 **A. The model CO layout contains enough space to house all the equipment needed in**
 10 **the largest urban COs -- and, indeed, is the general layout used over the past five**

1 years in planning new COs. If the equipment in a particular CO currently is
2 spread out across eight stories, that is because the old analog equipment required
3 lots of space and as that equipment has been replaced by digital equipment,
4 pockets of space have become available throughout the eight stories that can be
5 used for collocation space. If such space is not available, that is due to one of two
6 things: the ILEC has not removed old equipment that it is no longer using or the
7 ILEC is now housing administrative personnel in otherwise available equipment
8 space. If the ILEC needed space for its own equipment, it would not locate its
9 equipment far from the cross-connects, but rather would remove any unused
10 equipment or administrative personnel in convenient spaces in the CO and place
11 its telecommunications equipment there. Thus, use of the model CO layout
12 simply is consistent with the way the ILEC would make space available for itself.

13

14 **Q. IF THE MODEL CO IS BASED ON A LARGE URBAN SITUATION, CAN**
15 **IT ALSO BE USED FOR SMALLER URBAN, SUBURBAN AND RURAL**
16 **COLLOCATION SITUATIONS?**

17

18 **A. Yes.** Smaller urban, suburban and rural situations will require less
19 telecommunications equipment, so the CO likely would be only one or two floors
20 plus basement, with approximately the same 15,000 square foot footprint. The
21 connectivity lengths required will be shorter, reducing costs; land costs should be
22 lower; and there may be no costs associated with elevators. Thus, even if there
23 are some structural scale economies in the large urban CO, overall collocation

1 costs are likely to be lower in smaller urban, suburban and rural locations than in
2 the large urban locations modeled. Thus, the model CO layout provides a
3 conservatively high estimate of collocation investment costs for other areas.

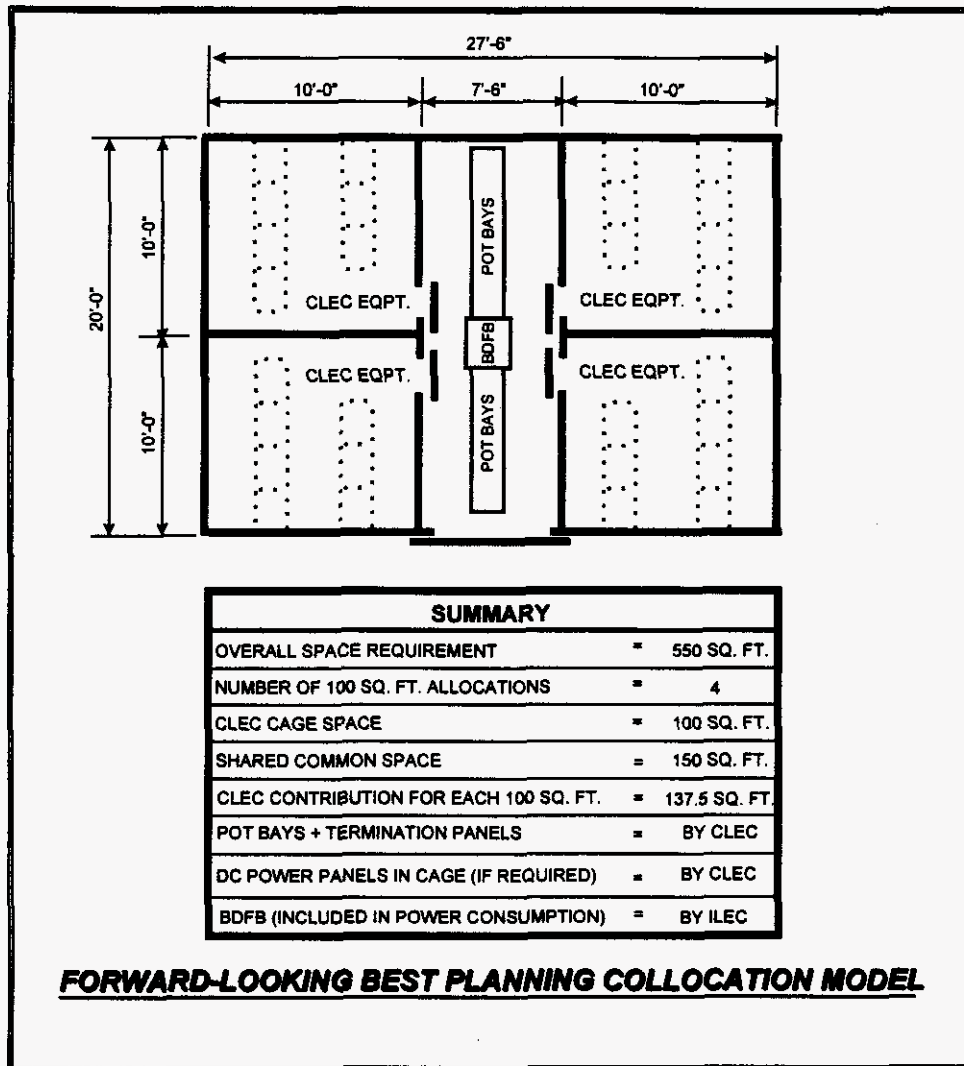
4
5 **Q. PLEASE DESCRIBE THE MODEL COLLOCATION AREA LAYOUT.**

6
7 **A.** The Model Layout assumes a best practice planning strategy that permits more
8 than one collocation area to be assigned in a CO based on available space in close
9 proximity to ILEC cross-connects. This is in contrast to an arbitrary assumption
10 (sometimes made by the ILECs) that the first collocation area in a CO must be
11 sized to accommodate all potential future CLECs, even when that decision results
12 in placement of the collocation area in a remote location far from the cross-
13 connects.

14
15 As shown in Figure 4, the collocation area model layout is 550 square feet to take
16 advantage of smaller areas that would be in relatively close proximity to ILEC
17 cross-connects (these pockets of space include those made available by prior
18 replacements of older technologies with more space efficient digital equipment,
19 vacant area, space occupied by administrative staff, or locations occupied by
20 redundant equipment that an efficient ILEC would have removed long ago). This
21 assumption reflects an expectation by the model layout developers that, in terms
22 of placement, the ILEC would employ the same best planning process that it
23 would use when planning efficient equipment space allocations for its own

1 equipment.

2



3

4

Figure 4

5

6

7

8

9

The 550 square feet included in the model collocation layout provides sufficient space to accommodate interface equipment such as point of termination (POT) bays and remote power distribution BDFB equipment, while avoiding the economic disadvantages of exceptionally large collocation areas. For those COs where more than 550 square feet of collocation space is required, a second

1 collocation area would be selected when necessary. Proceeding in this manner is
2 consistent with the FCC amended Order Part 51.323 (f)(1) (and Paragraph 585),
3 which supports the concept of CLECs obtaining reasonable amounts of space in
4 an ILEC's premises on a first-come, first-served basis.

5
6 Within the 550 square foot collocation area, the collocation area model layout
7 assumes the construction of four 100 square foot equipment areas and a common
8 area of 150 square feet (to accommodate ILEC and CLEC point of termination
9 interface equipment bays and a BDFB). The Model anticipates that the cost of the
10 entire common area would be shared by all CLECs (with no contribution from the
11 ILEC) and that CLECs would request collocation space in increments of 100
12 square feet, without any guarantee of expanding into an adjacent space. If a
13 CLEC requires additional space for expansion, it would have to take the next
14 closest available space in much the same way as an ILEC would. For this type of
15 situation, cage-to-cage cabling for cages occupied by the same CLEC should be
16 permitted.

17
18 **Q. PLEASE EXPLAIN HOW THE CONNECTIVITY LENGTHS USED TO**
19 **DETERMINE INVESTMENT NEEDS WERE DERIVED FROM THE**
20 **MODEL CO AND COLLOCATION LAYOUTS.**

21
22 **A.** To ensure efficient connectivity arrangements, similar to those incurred by the
23 ILEC in deploying its equipment, the Model Layout establishes collocation areas

1 using pockets of existing vacant or administrative space in the CO. To be
2 conservative, the Model calculates the average connectivity lengths based on a
3 minimum and maximum scenario. For the maximum cable length, the model uses
4 a worst case scenario with the collocation area located on the top floor (Floor 3)
5 of the CO layout, the cross-connects located on Floor 1, and the collocation area
6 at the extreme opposite corner of the building from where the cross connects are
7 located. Based on this premise, there would be a two-floor distance between the
8 collocation area and the ILEC cross-connects. For the minimum cable length, the
9 model uses a best case scenario and assumes that the collocation area is located on
10 the same floor and in close proximity to the ILEC cross-connects. However, since
11 physical collocation requires the construction of cages, it is unlikely that a new
12 collocation area could be built directly adjacent to ILEC cross-connects.
13 Therefore, the best case scenario includes a 40 foot minimum length between the
14 collocation area and the ILEC cross-connects. Both scenarios include a 15 foot
15 cable drop (i.e., 7'6" on each end). Hence, the forward looking best practice CO
16 model layout generates **minimum and maximum** copper connectivity lengths of
17 55 and 275 feet. (These extremes were determined as follows: equipment area
18 width = 100 feet; equipment area length = 120 feet; distance between floors = 20
19 feet; cable drop to equipment at both ends = 15 feet. So the maximum two-floor
20 distance would be $100' + 120' + 20' + 20' + 15' = 275'$, and the minimum same-
21 floor distance would be $20' + 20' + 15' = 55'$.) The investment generated
22 therefore is based on an average connectivity length of 165 feet for Voice Grade,
23 DS-1, or DS-3 cabling between the CLEC collocation area and the appropriate

1 ILEC cross-connect. Cabling investments for optical connectivity are based on
2 190 feet, since no POT bay is used, and the Model uses 25 feet of cabling in the
3 cage and common area.

4
5 **Q. HAVING CONSTRUCTED THE MODEL CO AND COLLOCATION**
6 **SPACE LAYOUTS, WHAT INVESTMENT COMPONENTS DID YOU**
7 **ESTIMATE?**

8
9 **A.** We estimated investments associated with the following:

- 10
11 o overhead common systems infrastructure (cable racks, cable, etc.);
12 o power delivery, including backup capability; power consumption;
13 equipment grounding;
14 o entrance fiber (bringing the CLEC's fiber from the manhole to the
15 collocation space); The CLEC should be allowed to perform this function,
16 itself, in which case the ILEC's portion of this investment would be
17 limited to costs associated with providing the rack the cable resides on.
18 o copper connectivity between the collocation space and the cross-connects
19 at the voice grade level, and at the DS-1 and DS-3 levels (each estimated
20 separately using DSX and DCS technology);
21 o optical connectivity between the collocation space and the fiber cross-
22 connect using 12 fiber breakout cable;

- 1 o construction elements associated with building the cage and maintaining
- 2 the environment in the cage (partitioning, floor covering, electrical
- 3 distribution panel, HVAC, lighting);
- 4 o land and building.
- 5 o manpower resources to plan both the entire 550 square foot collocation
- 6 area and each collocation request within that area; and
- 7 o security.

8

9 **Q. HOW DID YOU ESTIMATE THESE INVESTMENT COMPONENTS?**

10

11 **A. The general methodology used was as follows:**

12

- 13 o Identify, end to end, all the specific elements needed to provide the
- 14 components. (See, for example, the following chart depicting the end-to-
- 15 end requirements for power delivery. Similar charts are provided in the
- 16 White Paper for each investment component.)

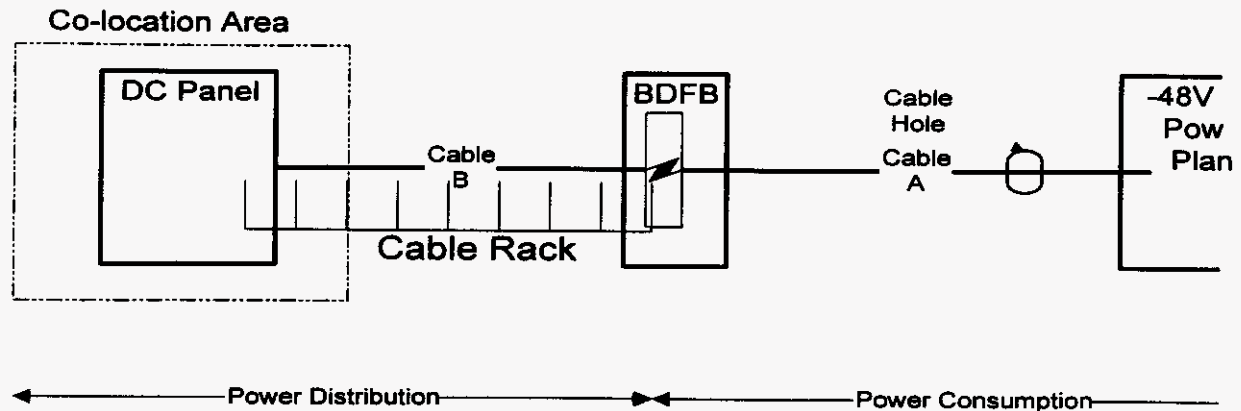
17

- 18 o Obtain quotes (in hours or dollars, as appropriate) for the engineering,
- 19 furnishing, and installation of these elements.

20

- 21 o Based on the judgment of the subject matter experts, select the quotes to
- 22 use as input values and calculate the investment costs.

COLLOCATION MODEL - -48V DC POWER DELIVERY



1
2

-48V DC Power Panel	Located in Cage	CLEC	--	CLEC installs -48V DC panels in cage and terminates ILEC provided feed
Cable 'B'	4 x #6 Cable between Cage & Colo/BDFB	ILEC	35'-0"	One time charge for 40 Amps (20 Amp A & B feeds + return) as requested by CLEC - Includes 20'-0" drop in cage
Cable 'B'	4 x #12 Cable between Cage & Colo/BDFB	ILEC	35'-0"	One time charge for 100 Amps (50 Amps A & B feeds + return) as requested by CLEC - Includes 20'-0" drop in cage
Cable 'B'	4 x 2/0 Cable between Cage & Colo/BDFB	ILEC	35'-0"	One time charge for 200 Amps (100 Amps A & B feeds + return) as requested by CLEC - Includes

				28'-0" drop in cage
Cable Plant	15' CLEC specific	ILEC	5'-0"	Included in cage investment
BDFB	Located close to Collocation Cages	ILEC	--	Included in -48V DC Power Consumption Charge
Cable Rack Occupancy	Shared support for Cable 'A' below	ILEC	--	Included in -48V DC Power Consumption Charge
Cable 'A'	Cable betw -48V Power Plant & DFB	ILEC	--	Included in -48V DC Power Consumption Charge
-48V DC Power Plant	Shared use between CLEC's & ILEC	ILEC	--	Included in -48V DC Power Consumption Charge
Auto-start Diesel Fuel Tanks, etc.	Required for Battery Back-up	ILEC	--	Included in -48V DC Power Consumption Charge
AC Energy	Required for AC Energy used	ILEC	--	Included in -48V DC Power Consumption Charge

1

2 **Q. DID YOU USE MAJOR SUPPLIERS, SUCH AS LUCENT AND NORTEL,**
 3 **FOR YOUR QUOTES ON PRICES AND HOURS?**

4

5 **A.** No. The common systems infrastructure components and the magnitude of the
 6 construction project associated with physical collocation are relatively minor and
 7 can be handled by many smaller contractors at competitive rates. Indeed, even if
 8 larger suppliers, such as Lucent and Nortel, were price competitive, they are
 9 unlikely to be able to meet the short time intervals required for these very small

1 jobs. For that reason, ILECs typically have various smaller contractors who
2 specialize in ironwork, cabling, etc., authorized to complete short interval
3 installations. The same is true with regard to the construction elements associated
4 with preparing the cage. The use of a telecommunications giant or a major
5 construction company for collocation components is akin to using a Big Eight
6 accounting firm to handle a simple income tax return or using a major law firm in
7 small claims court.

8
9 **Q. DID YOU ASSUME THAT THE ILEC PROVIDES ALL THE**
10 **EQUIPMENT?**

11
12 **A.** No, it is assumed that the CLEC provides its own equipment wherever possible.
13 This provides another protection against inflated costs to CLECs by providing
14 them the opportunity to purchase their own equipment whenever they believe they
15 can do so more cheaply.

16
17 **Q. YOU INDICATE THAT YOU INCLUDED AN INVESTMENT**
18 **ASSOCIATED WITH BUILDING SPACE AND, SEPARATELY, THE**
19 **INVESTMENTS ASSOCIATED WITH HVAC, FLOOR COVERING,**
20 **SECURITY AND OTHER ITEMS THAT OFTEN ARE PROVIDED AS**
21 **PART OF THE CHARGE FOR SPACE IN A BUILDING. WHY DID YOU**
22 **DO THIS?**

1 A. We did this to ensure that all investment costs were included, although we believe
2 as a result we provide a conservatively high estimate of investment requirements.
3 The source that we use for the per square foot cost of building space, R.S. Means,
4 is a data sourcebook widely used in the industry. The data provided are compiled
5 from submissions from ILECs who actually have constructed central offices, but
6 there is no explanation of what costs are included in those submissions. It is
7 likely that these estimates include costs associated with sufficient air conditioning,
8 floor covering, etc. to fully support the collocation space, and thus by including
9 these items separately our investments may conservatively overstate investment
10 requirements.

11

12 **Q. DO THE INVESTMENTS GENERATED BY YOUR MODEL CO AND**
13 **COLLOCATION LAYOUTS INCLUDE THE COSTS ASSOCIATED**
14 **WITH BUILDING MODIFICATIONS THAT FREQUENTLY ARE**
15 **INCLUDED IN ILEC COLLOCATION COST STUDIES?**

16

17 A. The model layouts generate all investments necessary for the provision of
18 collocation, but not for building modifications an ILEC would have to undertake
19 just to bring space in the CO up to the level needed to house equipment. For
20 example, our model incorporates the appropriate share of costs associated with
21 meeting all regulatory requirements by including in the building cost per square
22 foot used in the investment calculation the costs associated with full regulatory
23 compliance. But it does not add to those costs any special costs associated with

1 bringing a particular building or portion of a building to compliance. Building
2 modifications to remove unused equipment also are not included as they represent
3 additional costs to make a specific building space up to standard. Also, building
4 modifications allegedly required to provide a "secure environment," such as the
5 addition of costly new external entrances, are not included because they are not
6 part of a cost efficient, forward looking solution to security problems.

7
8 **Q. WHAT SECURITY REQUIREMENTS DID YOU INCLUDE FOR YOUR**
9 **MODEL CO AND COLLOCATION LAYOUTS?**

10
11 **A.** COs today are constructed with electronic security card systems to monitor access
12 and egress. Each doorway will have an electronic card reader that will only admit
13 the holders of pre-screened cards. These costs are included in the basic per square
14 foot cost of a CO building just as the cost of locks on outside doors are included
15 in the rent for office or apartment space. Thus, our model assumes the cost of the
16 security card system is included in the per square foot cost in R.S. Means. The
17 costs of purchasing individual cards and associated system maintenance, on the
18 other hand, are assumed to be costs that each CLEC should bear.

19
20 **PART TWO: VIRTUAL COLLOCATION**

21
22 **Q. WHAT IS VIRTUAL COLLOCATION?**

1 **A.** Virtual collocation is an arrangement that allows a CLEC to place its own
2 equipment in an area of a CO currently used by the ILEC to house its equipment
3 (and not segregated from ILEC equipment). Typically, the CLEC purchases the
4 equipment to be dedicated for its use on the ILEC's premises and sells the
5 equipment to the ILEC for a nominal \$1.00 sum while maintaining a repurchase
6 option. The equipment is then installed in vacant space beside the ILEC's
7 equipment. Typically, the ILEC handles day-to-day maintenance activities and is
8 reimbursed by the CLEC. The CLEC is permitted to enter the CO upon request,
9 but requires a security escort.

10

11 **Q. WHY IS VIRTUAL COLLOCATION IMPORTANT?**

12

13 **A.** Like physical collocation, virtual collocation provides a means by which new
14 entrants can concentrate traffic from unbundled loops (or other elements) in order
15 to transport that traffic to the CLEC's switch. A CLEC may wish to use virtual
16 collocation if it lacks sufficient market share to justify a physical collocation
17 arrangement, or because physical collocation cage construction costs render that
18 method of collocation too costly. In addition, Section 251c(6) of the
19 Telecommunications Act of 1996 requires that virtual collocation be provided
20 when physical collocation is not practical for technical reasons or because of
21 space limitations.

22

1 **Q. DID YOU IDENTIFY INVESTMENT COMPONENTS AND INSTALLERS**
2 **FOR VIRTUAL COLLOCATION USING THE SAME BEST PRACTICES**
3 **DESCRIBED ABOVE?**

4
5 **A.** Yes, the same approach was used. The investment differences simply reflect the
6 different nature of virtual as opposed to physical collocation. Most significantly,
7 since virtual collocation provides for CLEC equipment to be located within
8 existing ILEC equipment areas and maintained by ILEC personnel, there are no
9 cage construction components. Further, since most of the equipment associated
10 with virtual collocation is provided by the CLEC, the scope and magnitude of
11 initial investments for which the ILEC is responsible is greatly reduced.

12
13 **Q. DOES THE VIRTUAL COLLOCATION MODEL INCLUDE**
14 **INVESTMENTS FOR INITIAL CABLING?**

15
16 **A.** No. Cabling is an integral part of most telecommunications installations,
17 necessary to ensure continuity prior to (collocator) acceptance. Indeed,
18 collocators typically require completion of systems readiness and operational tests
19 prior to acceptance of a virtual collocation installation. Thus, suppliers normally
20 include the cabling as part of the overall cost of installing telecommunications
21 equipment components. The ILEC will not incur initial cabling costs since the
22 CLEC is responsible to the installer for the invoice associated with the equipment
23 installation. (This includes cabling for connectivity, as well as power and

1 grounding.)

2

3 **Q. HOW WERE CONNECTIVITY LENGTHS USED TO DETERMINE**
4 **INVESTMENT NEEDS FOR THE VIRTUAL COLLOCATION MODEL?**

5

6 **A.** Although there is no ILEC investment for initial cabling, investment is included
7 for occupancy of cable racks on which the cables ride (as well as occupancy of
8 ILEC inter-floor cable holes and terminations on ILEC cross-connects). To
9 estimate the investment associated with cable rack occupancy, the Virtual
10 Collocation Model uses the same connectivity lengths used to estimate
11 investments for physical collocation. Since the CLEC-provided, ILEC-owned
12 equipment is placed in the same equipment areas that the ILEC uses for its own
13 equipment, it is likely that connectivity investments for virtual collocation will be
14 less than those required for physical collocation. Thus, using the same
15 connectivity lengths for virtual collocation as those used for physical collocation
16 provides a conservative estimate.

17

18 **Q. DID YOU INCLUDE INVESTMENTS ASSOCIATED WITH BUILDING**
19 **SPACE FOR VIRTUAL COLLOCATION?**

20

21 **A.** Yes. The overall method of estimating the building space investment for virtual
22 collocation is the same as that used for physical collocation. In contrast to
23 physical collocation, however, virtual collocation merely requires payment to the

1 ILEC for floor space; there are no additional building-related costs (such as for
2 cage construction).

3
4 **Q. HOW DID YOU APPROACH ESTIMATING THE BUILDING SPACE**
5 **INVESTMENT FOR VIRTUAL COLLOCATION?**

6
7 **A.** We used a best practice space planning approach to ensure that ILEC equipment
8 space, and hence CO floor space, is used efficiently. ILEC equipment space is
9 comprised of rows (called "lineups") of relay racks that, when installed, resemble
10 empty metal bookcases without shelves. Relay racks are fabricated to permit the
11 installation of equipment shelves on an "as required" basis. Thus, many existing
12 racks in ILEC COs have unused space which can be used to mount CLEC
13 equipment shelves. The telecommunications equipment in use today comes in
14 various sizes (heights) and thus requires varying amounts of vertical "shelf space"
15 on a relay rack. While this conceivably permits relay racks to be administered by
16 the "rack inch," for administrative simplicity, the Virtual Collocation Model
17 develops the investments for building space based on units of $\frac{1}{4}$ relay rack. Using
18 units of $\frac{1}{4}$ relay rack ensures that ILEC equipment space is used efficiently and
19 allows CLECs to pay only for the space used. In many instances relay racks with
20 empty space will be available. In some cases, however, a new relay rack may
21 need to be installed for a CLEC to place its equipment. The Virtual Collocation
22 Model is designed to accommodate either situation by including the additional
23 investment for a relay rack, if a new installation is required.

1 **Q. HOW DID YOU CALCULATE THE AMOUNT OF BUILDING SPACE**
2 **INVESTMENT ASSOCIATED WITH ¼ RELAY RACK?**

3
4 **A.** The telecommunications relay racks used to house equipment in a CO are
5 typically 2' wide, 1' deep, and 7' high. The racks are placed in "lineups" (rows)
6 located 2' 6" to 3' apart to provide for aisle space in front and back for
7 maintenance purposes. Including the relay rack footprint (2' by 1') plus 50% of
8 the front and rear aisles (1' 6" + 1' 6" = 3') would require 8 square feet (2' x 4').
9 The Virtual Collocation Model assumes that each relay rack uses 9 square feet of
10 floor space, which is sufficiently generous to incorporate end guards (which are
11 only used when a relay rack is at the end of a lineup) and 15" deep frames. Thus,
12 the Virtual Collocation Model develops the investment for floor space based on
13 units of ¼ relay racks, the equivalent of 2.25 square feet of space.

14
15 **Q. HOW IS MAINTENANCE HANDLED IN THE VIRTUAL**
16 **COLLOCATION MODEL?**

17
18 **A.** The CLEC is responsible for directing all maintenance activities associated with
19 the virtual equipment. This includes system surveillance, direction of repair
20 activity, and requests to the ILEC for maintenance assistance. The ILEC is
21 responsible for hardware functions such as circuit pack replacement and changing
22 fuses. Work will be performed by the ILEC upon the request of the CLEC, and
23 will be reimbursed using the labor rate for the appropriate qualified technician.

1 **Q. ARE SECURITY REQUIREMENTS NECESSARY FOR VIRTUAL**
2 **COLLOCATION?**

3

4 **A.** Yes. While CLEC personnel will not normally visit virtually collocated
5 equipment for day-to-day operations, there may be instances when it is necessary
6 for CLEC engineering or maintenance personnel to visit the ILEC CO. Since
7 virtual equipment is located in ILEC equipment areas and not segregated from
8 ILEC equipment, it is reasonable to expect that an ILEC security escort be in
9 attendance during the entire time during a CLEC visit.

10

11 It is also reasonable to establish maximum response times for the elapsed interval
12 between when a CLEC requests an appropriately qualified ILEC technician at a
13 particular CO, and when a technician arrives and makes contact with the CLEC.

14 The response times and charging increments for both maintenance and security
15 escort requests vary depending on the type of CO. That is, whether a CO is
16 staffed (technicians scheduled to work at the CO), attended (the hours during
17 which technicians are required to be at the CO), and whether the request is during
18 normal business hours (usually Monday to Friday, 8 am to 5 pm) or not. The
19 charts below indicate appropriate response times and charging increments. Note
20 that the ILEC must identify for CLECs which COs staffed, attended and the actual
21 attended hours of any staffed CO.

22

Staffed and Attended	1 hour
Staffed and Unattended	4 hours
Not staffed and NBD	2 hours
Not staffed and non-NBD	4 hours
Definitions:	
Staffed -technicians are scheduled to work in the location.	
Attended -hours during which technicians are required to be at the CO.	
NBD (Normal Business Day) -usually Monday to Friday, 0800h to 1700h.	

1

2

Staffed and Attended	¼ hour	¼ hour
Staffed and Unattended	4 hours	¼ hour
Not staffed and NBD	¼ hour	¼ hour
Not staffed and non-NBD	4 hours	¼ hour

3

4

5 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**6 **A.** Yes, at this time.

1 REBUTTAL TESTIMONY OF
2 RICK BISSELL
3 ON BEHALF OF
4 AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC., AND
5 MCI TELECOMMUNICATIONS CORPORATION, AND
6 MCI METRO ACCESS TRANSMISSION SERVICES, INC.
7 DOCKET NOs.: 960833-TP, 960846-TP, 971140-TP, 960757-TP, 960916-TP
8

9 **Q. PLEASE STATE YOUR NAME, ADDRESS, AND OCCUPATION.**

10 **A.** My name is Rick Bissell and my business address is 13-99 Edgevalley Road,
11 London, Ontario, Canada N5Y 5N1. I am a telecommunications consultant.
12

13 **Q. ARE YOU THE SAME RICK BISSELL WHO FILED DIRECT TESTIMONY ON**
14 **NOVEMBER 13, 1997?**

15 **A.** Yes I am.
16

17 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY TODAY?**

18 **A.** I have been retained by MCI Communications Corporation (MCI) and AT&T
19 Communications of the Southern States, Inc. (AT&T) to review and comment on
20 the investment inputs contained in the BellSouth Telecommunications (BST)
21 TELRIC Calculator used to develop the costs for Physical and Virtual Collocation
22 in the state of Florida.
23

24 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

25 **A.** The BST TELRIC Calculator is replete with examples of excessive investments and

1 incorporates regressive and inefficient planning scenarios with little regard for
2 parity between incumbent local exchange companies (ILECs) and competitive
3 local exchange companies (CLECs). The overstated investments result in higher
4 than necessary charges for CLEC collocation. My testimony will focus on BST's
5 space planning and engineering strategies, common systems infrastructure
6 components, and cage construction strategies and manpower requirements. I
7 have not, however, adjusted BST's proposed cost studies, as reflected in its
8 TELRIC Calculator. A summary of my conclusions follows. (A number of these
9 issues relate to both physical and virtual collocation, while others are associated
10 with physical collocation only.)

11
12 ⇒ *First, the BST study incorporates an undefined Space Preparation Charge*
13 *based on an Individual Cost Basis (ICB) approach, which can easily be*
14 *manipulated to increase CLEC costs. This ICB approach is not only*
15 *discriminatory toward CLECs, but also permits double recovery by BST for*
16 *the delivery of -48V power.*

17
18 ⇒ *Second, cage and construction related costs are excessive.*

19
20 ⇒ *Third, average cable lengths are drastically overstated and represent*
21 *existing worse case scenarios and regressive planning strategies.*

22
23 ⇒ *Fourth, the study includes unnecessary mid-span repeater equipment for*
24 *physical collocation.*

25

- 1 ⇒ *Fifth, the length of cable racking is significantly overstated.*
- 2
- 3 ⇒ *Sixth, the utilization factor for cable racking (expected number of cables to*
4 *be placed on a rack) is significantly understated.*
- 5
- 6 ⇒ *Seventh, cable rack investments are overstated because they do not take*
7 *into account shared use by BST and CLECs.*
- 8
- 9 ⇒ *Eighth, investments for joint use Point of Termination (POT) bays are*
10 *unusually high and can only be purchased through BST.*
- 11
- 12 ⇒ *Ninth, BST manpower requirements included in the application charge for*
13 *physical collocation do not take into account that some planning activities*
14 *only apply to the first collocation request in a particular central office (CO).*
- 15
- 16 ⇒ *Lastly, using security escorts does not reflect a forward-looking approach to*
17 *physical collocation.*
- 18

19 **Q. CAN YOU EXPLAIN YOUR CONCERNS REGARDING THE SPACE**
20 **PREPARATION CHARGE?**

21 **A.** Yes. The BST study includes an ICB for space preparation. This type of undefined
22 charge can easily be manipulated to discourage new entrants, which already face
23 substantial up-front investments. Not only does this approach create a barrier to
24 entry, it also discriminates against the first collocator, because no competitor will
25 want to be the first to collocate in a BST CO for fear of having to pay huge space

1 preparation fees. And since this charge is only identified on a case by case basis, it
2 is very difficult for a CLEC to forecast its collocation costs or prepare a business
3 case to enter BST local markets. This situation is aggravated by the fact that BST
4 retains exclusive control over the placement, size, and design of collocation areas.
5 In effect, BST has "carte blanche" to dictate the building construction charges a
6 collocator must pay, with absolutely no requirement to define these costs in
7 advance. As long as BST has arbitrary control over the placement and sizing of a
8 new collocation area, the opportunity to inflate costs will exist. Moreover, BST will
9 have strong incentives (and the ability) to exploit this opportunity by over
10 provisioning the amount of space and facilities required to accommodate future
11 collocators.

12
13 For example, in a particular BST CO adequate space may in fact be available to
14 accommodate up to four CLECs in existing convenient equipment space in close
15 proximity to BST cross-connects with almost no requirement for building
16 renovations. However, if BST arbitrarily chooses to size the collocation area for
17 more than four CLECs it may have to locate the collocation area five floors away in
18 some remote area of the CO -- perhaps in an area that requires extensive building
19 renovations and is far from the cross-connects, creating the need for excessive and
20 costly cable lengths.

21
22 The issue of sizing a collocation area and its impact on the space preparation ICB
23 is of particular concern in light of the fact that Section 4 of BST's Property
24 Management Guidelines for Physical Collocation indicates that collocation areas
25 should be sized using a tentative rule of thumb of at least 3000- 5000 square feet.

1 Assuming an average of 270 square feet per CLEC request (200 square foot
2 requirement, plus 70 square feet for common space), a collocation area sized at
3 3000 -- 5000 square feet is likely suitable for between 11 and 18 CLECs. On the
4 surface, a long-term space planning strategy for collocation may appear sound.
5 However, in most cases, it will result in larger than necessary spaces being
6 prepared for collocation in BST COs and billed to the CLEC under an ICB charge.

7
8 In short, this type of undefined space preparation charge creates the opportunity for
9 barriers to entry and can be used to unreasonably discriminate against collocation
10 in BST COs. It also rewards BST for over-estimating the number of competitors that
11 will collocate in their COs with higher than necessary collocation charges.

12
13 **Q. WHAT IS YOUR POSITION REGARDING THE ESTABLISHMENT OF CLEC**
14 **COLLOCATION AREAS?**

15 **A.** In my opinion the best planning practice strategy for establishing new collocation
16 areas in existing COs is to size the collocation area to ensure optimum placement
17 in relation to cross-connects. This can be accomplished with smaller collocation
18 areas placed as close as possible to cross-connects. Most COs have various sized
19 pockets of space which are convenient and can be made available for CLEC
20 collocation by adopting best practice space planning strategies. In a CO
21 environment these smaller pockets of space are typically made available by:

22
23 ⇒ *Ongoing equipment modernization and/or removals;*

24
25 ⇒ *Staff reductions due to remote testing and surveillance;*

1 ⇒ *Relocation of administration staff to areas of the CO that are less*
 2 *convenient for equipment.*

3
 4 While the exact size of any specific collocation space may vary from case to case,
 5 when estimating the investments associated with collocation, a good basic
 6 assumption would be a collocation space of 550 square feet, which would be
 7 applicable for four small collocators (of 100 square feet each), two average
 8 collocators (of ²⁰⁰~~2000~~ square feet each) or one large collocator (of 400 square feet)–
 9 that is, for virtually all collocation scenarios. However, as I indicated above, 550
 10 square foot spaces are likely to be consistently available in BST COs.

11
 12 In summary, the dynamics of a progressive switching center is one of constant
 13 change. Therefore, to establish large and costly collocation areas in locations that
 14 are less than optimum represents regressive planning practice. Collocation areas
 15 should be sized small enough to take advantage of existing convenient space and
 16 allocated on a first come first served basis as directed by FCC guidelines Para. 585
 17 and 5.323 (f). Proceeding in this manner would promote parity by providing CLECs
 18 with the same opportunity to benefit from the ongoing dynamics of a constantly
 19 changing CO rather than being located in a remote area of the CO with large initial
 20 ICBs and ongoing cost penalties for connectivity.

21
 22 **Q. DO YOU BELIEVE THAT DEMOLITION AND OTHER CONSTRUCTION COSTS**
 23 **TO PREPARE CO SPACE FOR CLEC EQUIPMENT SHOULD BE CHARGED TO**
 24 **COLLOCATORS?**

25 **A. No. Central offices were originally constructed to house telecommunications**

1 equipment. Therefore, the best practice planning strategy used by most ILECs is to
2 ensure that any non-equipment group placed in the CO understands its tenure is
3 only until the space is required for equipment growth. The reason for this is two-
4 fold. First, CO equipment space costs much more to build than administration
5 buildings. Second, placing equipment in a space that is less than optimum in terms
6 of connectivity (that is, far from cross connects) results in ongoing cost penalties for
7 longer cable lengths.

8
9 While it may have been in BST's best interest to temporarily defer the cost of
10 expanding administrative space elsewhere by using portions of its COs for non-
11 equipment functions or by leaving redundant technologies in place, it should be the
12 responsibility of BST to restore that space for equipment use prior to renting it to a
13 CLEC. This is no different from any tenant/landlord relationship in which the
14 landlord assumes the responsibility to provide a tenant with 'clean space' suitable
15 for whatever use for which it is being leased. For example, if a landlord was
16 temporarily using one apartment in a large complex to store unused appliances and
17 decided to lease it as a residence, it would have to be restored to its original use by
18 the landlord. This would likely include removing redundant appliances, demolishing
19 temporary shelving units, painting, fixing damaged floor tiles, etc. Furthermore, if
20 the landlord had temporarily located an administrative employee in that apartment
21 space this person would have to be relocated to some other space in the complex.
22 But the new tenant would not bear the associated costs, and would only pay the fair
23 market determined rent.

24
25 In summary, the CLEC should not be required to bear the burden of space

1 preparation expenditures associated with restoring space to its intended use or for
2 the costs required to make CO equipment space suitable for the purpose for which
3 it is being rented. Indeed, BST includes a rental charge for building space that
4 effectively includes any such costs.

5
6 **Q. DO YOU HAVE CONCERNS REGARDING THE POTENTIAL FOR DOUBLE**
7 **RECOVERY UNDER BST'S SPACE PREPARATION ICB?**

8 **A.** Yes, BST's Property Management Guidelines for Collocation highlight numerous
9 scenarios when the CLEC may be assessed substantial space preparation charges
10 for items such as new walls, corridors, Heating, Ventilation and Air Conditioning
11 (HVAC) expansion, -48V Power Plant extensions, etc. While BST should not be
12 permitted to burden the CLEC with any unidentified ICB charges, the proposal to
13 assess CLECs an ICB to expand the -48V power plant (as outlined in the Power
14 Section of BST's Property Management Guidelines) is of particular concern since, if
15 implemented, it would result in double recovery.

16
17 BST's proposed monthly power price of \$7.64 per ampere for physical collocation is
18 developed in part based on an investment of \$165.80 per ampere for DC power
19 equipment plus a per ampere component for AC usage. Since the \$165.80 per
20 ampere investment is sufficient for a complete new -48V power plant, permitting
21 BST to also charge CLECs an ICB to expand the power plant would allow for
22 double recovery of power costs. The impact of collocation on the -48V power plant
23 is no different than the impact of any other tariffed service on BST equipment, such
24 as the switch or network equipment. In short, since BST has chosen to recover its -
25 48V power investment via a monthly per ampere charge any expansion of the -48V

1 power plant cannot be passed on to CLECs.

2

3 **Q. CAN YOU SUMMARIZE YOUR POSITION REGARDING ICBs FOR -48V**
4 **POWER AND HVAC EXTENSIONS?**

5 **A.** Yes. BST should eliminate all references to ICBs associated with power plant
6 expansions from its Property Management Guidelines for Collocation. In fact, by
7 pricing -48V power according to the number of amperes delivered, the CLEC is
8 already paying BST a 30% premium for power. This is because manufacturers of
9 telecommunications equipment, like manufacturers of all types of household
10 electrical appliances, typically recommend that their equipment be fused about 30%
11 higher than its expected drain at full capacity.

12

13 With regard to HVAC expansions, the Commission should instruct BST to develop
14 a pre-determined cost for HVAC rather than using an undefined ICB. This can be
15 accomplished, for example, by including a separate HVAC rate element. Since
16 almost all the DC power used to operate telecommunications equipment in a CO
17 environment is dissipated in heat, this new rate element should be tied to the
18 amount of power requested by a CLEC. The design options for CO mechanical
19 systems can vary between large building systems that are typically used to cool
20 multiple areas of the CO and smaller stand-alone units to cool a specific area.
21 However, according to a mechanical systems design consultant used during the
22 development of the MCI/ATT&T collocation cost model, the average 'installed' cost
23 of providing HVAC in a telecommunications environment is \$1785.00 per ton of air-
24 conditioning, or \$24.41 per DC ampere. By using this all-inclusive investment figure
25 of \$24.41 per DC ampere to develop a new rate element for HVAC, BST would

1 always be remunerated proportionally for the HVAC used by CLECs while at the
2 same time ensuring that it retains optimum flexibility in terms of CO air conditioning
3 designs. The Commission should therefore instruct BST to develop a rate element
4 for HVAC using the investment of \$24.41 per DC ampere requested by the CLEC.
5 HVAC costs would then be tied to the amount of power and associated heat
6 dissipation generated by CLEC equipment. CLECs with large installations would
7 correctly pay more for HVAC while smaller CLECs would pay less. Most important,
8 however, all CLECs would know in advance how much HVAC would cost, rather
9 than being assessed an arbitrary ICB.

10

11 **Q. CAN YOU PROVIDE COMMENTS REGARDING BST'S PROPOSAL TO PERMIT**
12 **CLECs TO ARRANGE THEIR OWN CAGE CONSTRUCTION?**

13 **A.** Yes. BST Property Management Guidelines permit CLECs to accept responsibility
14 for constructing their cages. However, in choosing this option, the CLEC must
15 agree to construct to BST specifications. For example, CLECs must use an area of
16 the CO that has been arbitrarily selected by BST and hire a BST approved
17 contractor.

18

19 The use of a single approved contractor is of particular concern since BST does not
20 utilize competitive tendering. Rather, it selects a number of contractors and places
21 them on its exclusive master agreement. This type of arrangement does not reflect
22 today's competitive environment and can only lead to higher costs for CLECs,
23 whether they assume responsibility for the work themselves, or allow BST to
24 manage the project for them. Interestingly enough, there is no mention of any
25 reduction in BST manpower if the CLEC assumes responsibility for arranging

1 construction. In short, there appears to be absolutely no advantage to the CLEC
2 whatsoever.

3
4 **Q. WHAT IS YOUR POSITION REGARDING CLECs ARRANGING THEIR OWN
5 CONSTRUCTION WORK?**

6 **A.** The best practice and least cost approach for arranging building renovations in a
7 competitive environment is to tender the project to a number of competing
8 contractors. It is difficult to conceive why BST does not want collocation projects to
9 be tendered in order to ensure a least cost installation. Furthermore, BST's
10 argument that tendering would drastically increase intervals is inaccurate since this
11 type of project is quite small (and "low tech") in terms of building construction work
12 and competitive tenders should not add more than a few weeks to the overall
13 project. In fact, it is conceivable that in addition to lower costs, competitive tendering
14 to multiple contractors could very well reduce the overall interval. For example, if
15 one of the contractors has a temporary surplus of resources it wishes to keep busy
16 pending some larger project, it may agree to a shorter interval or a lower cost.

17
18 It has been my experience that master agreements tend to create longer intervals
19 since the need to be competitive is eliminated from the process. The Commission
20 should therefore instruct BST to tender collocation projects to a minimum of 3
21 reputable contractors on BST's approved contractor list. In addition, if the CLEC
22 chooses to arrange for the construction work, BST should be instructed to reduce
23 its manpower requirements to reflect this reduced involvement.

24
25 **Q. PLEASE EXPLAIN WHY THE ENCLOSURE INVESTMENT IS EXCESSIVE.**

1 **A.** The space construction investment shown in the BST study identifies an input of
2 _____ for materials (using drywall) and contract labor associated with the first
3 100 square foot and a further investment of _____ for each additional 50
4 square feet. This results in an overall investment input of _____ for a CLEC
5 that requests 400 square feet of collocation space.

6
7 Since the vast majority of ILECs across the country use metal cages at a fraction of
8 this cost, I must conclude that BST has consciously ignored this least cost solution.
9 Indeed, a cage can be provided at a cost of \$2738.00. (The \$2738.00 figure uses
10 price information from Wireway/Husky Company, Inc. of Sterling, Massachusetts
11 for a 400 square foot (20x20) four-sided, 8-foot high cage, with sliding door and
12 lock, together with an installation component of 16 hours labor.) The _____
13 difference between a 400 square foot metal cage at \$2737.81 and BST's
14 _____ space construction investment for a 400 square feet area is
15 therefore directly attributable to BST's proposed method of providing collocation
16 enclosures using drywall.

17
18 **Q.** **IS BST'S METHOD OF PROVIDING ENCLOSURES FOR PHYSICAL**
19 **COLLOCATION EFFICIENT AND COST EFFECTIVE?**

20 **A.** No. BST proposes an approach to physical collocation that adds substantial
21 unnecessary costs through the use of drywall. For example, BST's proposal to
22 install drywall with gaps at the top and bottom of walls closed off with security
23 mesh restricts the overall ambient lighting and air conditioning. Although
24 openings are provided, air flow is restricted, resulting in the need for increased air
25 conditioning capacity and ducting. Similarly, the installation of drywall restricts the

1 overall ambient level of light, resulting in the need for additional light fixtures.
2 Using drywall construction materials also requires mandatory processes that add
3 to the overall cost of providing collocation. For example, the use of drywall
4 requires that a plaster-like compound be placed on all seams and joints. This
5 compound must then be wet sanded and the entire wall painted with more than
6 one coat of paint. Anyone who has worked with new drywall can attest to the fact
7 that this compounding, sanding and the requirement for multiple coats of paint is
8 not only extremely messy but also time-consuming and dictates lengthy
9 construction intervals.

10
11 BST also proposes to install a security mesh to close off the space between the
12 top of the drywall and the concrete ceiling. The use of a security mesh above 8'-
13 0" is completely unnecessary. Most of the collocation areas I've visited in ILEC
14 COs use 8'-0" cage material with no additional security mesh requirement above
15 that level. It is unlikely any individual will attempt to scale an 8'-0" drywall
16 (gypsum) partition. In addition, the use of mesh above 8'-0" interferes with cable
17 rack installations and makes ongoing equipment cabling activities more complex.

18
19 **Q. DOES BST PROVIDE ANY REASON FOR BUILDING ENCLOSURES WITH**
20 **DRYWALL RATHER THAN WIRE MESH?**

21 **A.** BST has stated that its decision to use drywall enclosures was made in the
22 interest of safety and telecommunications equipment performance. However,
23 safety concerns and equipment performance do not require drywall.

24
25 According to BST, one of the factors that influenced its decision to require

1 drywall enclosures was the potential placement of switching equipment in CLEC
2 collocation space. BST contends that most switching modules require an isolated
3 ground plane and, in the interest of safety and network protection, wire mesh
4 should not be placed within the central office.

5
6 BST is correct in its statement that switching equipment must be connected to an
7 isolated ground. However, this is only one of the ground planes included in the
8 isolated bonding network recommended by major suppliers of switching
9 equipment. The overall design of an isolated bonding network as proposed by
10 major switching suppliers such as Nortel incorporates the following:

11
12 ⇒ *Metal equipment relay racks isolated from both the floor and overhead*
13 *superstructure*

14
15 ⇒ *Isolated (separate) ground leads for equipment and ironwork (relay racks)*
16 *using the battery return bar of the BDFB or DC power plant*

17
18 ⇒ *All ironwork such as cable racks, framing bars, ventilation ducts, etc.*
19 *within seven feet of equipment are grounded to an integrated collector bar*
20 *which is also connected to the single point ground*

21
22 This seven foot rule ensures the safety of maintenance personnel by eliminating
23 the possibility of anyone coming in contact with two different ground planes. With
24 a wire cage installation the cage material would be grounded in the same manner
25 as the overhead ironwork and cable racks. If grounded correctly the installation of

1 wire mesh poses no more risk to personnel than the cable racks and overhead
2 ironwork technicians come into contact with constantly when running cable.

3
4 **Q. DO YOU HAVE ANY ADDITIONAL COMMENTS REGARDING THE USE OF**
5 **GYPHUM DRYWALL FOR COLLOCATION ENCLOSURES?**

6 **A.** Yes. The use of drywall enclosures requires the use of a temporary dust partition
7 to protect adjacent equipment during construction. BST intends to use a short-
8 term type of partition to protect working telephone equipment from airborne
9 contamination during construction. This costly temporary dust partition
10 (consisting of metal studs covered with fire retardant anti static polyethylene)
11 would not be required with a wire mesh cage. BST has indicated this dust
12 protection will cost _____ per linear foot. To demonstrate the excessiveness
13 of BST's estimate, I developed the cost of a permanent drywall partition using the
14 latest (1997) RS Means Building Construction Cost Data (RS Means) publication.
15 (RS Means is an estimating tool commonly used in the construction industry
16 throughout the United States and Canada. In fact, BST uses RS Means in the
17 preparation of its own cost model.) Using RS Means, the cost of a permanent
18 eight foot high wall constructed with 25 gauge, 3 5/8" wide metal studs, with 1/2"
19 drywall taped and sanded on both sides would be \$18.08 per lineal foot. Thus,
20 the _____ cost input for a BellSouth 'temporary' dust partition
21 made from polyethylene is more costly than a "permanent" drywall partition.

22
23 **Q. CAN YOU EXPLAIN HOW METAL CAGES OFFER GREATER FLEXIBILITY?**

24 **A.** Yes. Cage material is manufactured in various sizes that correspond to the
25 enclosure sizes CLECs might use to house their equipment. It is supplied in

1 prefabricated modules, which include all the required installation hardware.
 2 Systems can be shipped as a complete unit, including sliding door with lock. This
 3 material can be installed in short intervals with no requirement for dust
 4 partitioning. In addition, wire mesh cages offer much better security since it
 5 provides increased visibility over solid drywall installations.

6
 7 **Q. PLEASE SUMMARIZE YOUR POSITION REGARDING THE USE OF**
 8 **DRYWALL, RATHER THAN WIRE MESH ENCLOSURES.**

9 **A.** Wire mesh is cleaner, easier to install, safe, and is the most cost efficient method
 10 of providing for collocation. If grounded correctly, wire mesh poses no more risk
 11 than the overhead ironwork that is within a few inches of the top of equipment
 12 racks and in contact with technicians each time they run cables. ILECs such as
 13 Bell Atlantic and Nynex have been using wire mesh collocation enclosures in
 14 their COs without any reported safety or transmission problems. The Commission
 15 should therefore instruct BST to use least cost wire mesh cage enclosures for
 16 physical collocation. However, if the Commission chooses to allow BST to
 17 proceed with its costly proposal to use drywall for collocation enclosures in its
 18 COs, then at the very least, BST should be directed to replace its existing Space
 19 ~~Preparation~~ ^{Construction} investments with least cost cage investments. Suggested costs
 20 based on a price list from Wireway/Huskey of Sterling Massachusetts are as
 21 follows:

23	<u>100 SQUARE FOOT CAGE:</u>	\$1678.84
24	<u>200 SQUARE FOOT CAGE:</u>	\$2208.31
25	<u>300 SQUARE FOOT CAGE:</u>	\$2520.98

1 **400 SQUARE FOOT CAGE: \$2737.8**

2

3 **Q. ARE THERE ANY OTHER CONSTRUCTION COMPONENTS IN BST'S COST**
4 **MODEL YOU QUESTION?**

5 **A.** Yes. BST refers to a spreadsheet of estimated charges used by its Property
6 Management Services Personnel to establish physical collocation spaces. After
7 examining these cost figures, I find the costs estimated by BST to be excessive.
8 For example, BST uses a cost figure of _____ per lineal foot for a 1-hour fire
9 rated gypsum wall. This is high in comparison to a figure reflected in RS Means,
10 which indicates that an 8'-0" high, 1½ hour rated wall with 25 gauge metal studs,
11 spaced at 16" centers and covered with 2 layers of 1½ hour rated gypsum
12 board, costs \$3.39 per square foot, or \$27.12 per lineal foot, including an
13 overhead profit margin of 38 percent. BST is suggesting that a 1-hour rated wall
14 costs more than four times the national average in RS Means for a 1 ½ hour
15 rated wall.

16

17 Other examples of BST's high pricing practices include a gypsum wall at a cost of
18 _____ per lineal foot and a fluorescent light fixture at _____. RS Means
19 suggests a similar gypsum wall should not cost more than \$2.17 per square foot,
20 or \$18.08 per lineal foot, including a 41% overhead and profit markup and a
21 pendent type (chain hung) 4'-0" long, 2 tube fixture should cost \$95.47.

22

23 Using the same spreadsheet, BST's Property Management Services Personnel
24 indicate the cost to replace vinyl flooring is _____ per square foot. This figure
25 is much higher than the \$1.78 per square foot shown in RS Means. Again the RS

1 Means figure of \$1.78 incorporates a more than reasonable overhead and profit
2 margin of 21 percent. With regard to floor repair, it has been my experience that
3 replacement/repairs are only necessary after the removal of telephone
4 equipment. In a telecommunications environment floor repairs rarely involve the
5 installation of a complete new floor. Typically only those tiles with extensive
6 damage due to the removal of anchor bolts from previous technologies are
7 replaced. As previously noted, this type of repair undertaken simply to return
8 equipment space to an acceptable level prior to renting to the CLEC should
9 remain an ILEC responsibility, and would already be paid in the building rental
10 charge.

11

12 **Q. PLEASE EXPLAIN WHY YOU USE RS MEANS TO ANALYZE BST'S**
13 **CONSTRUCTION COST INPUTS?**

14 **A.** RS Means publications consist of a series of text publications commonly used to
15 produce building construction estimates by engineers, architects, and estimators
16 in the construction industry. The national average figures contained in this in-
17 depth publication are based on inputs from ILECs and other companies across
18 North America and updated yearly to ensure cost components remain current. In
19 fact, BST also refers to RS Means publications in its cost study. However, it is
20 clear through interrogatory responses that BST fails to use RS Means for
21 estimating the cost of collocation construction components such as gypsum wall,
22 vinyl flooring, and fluorescent light fixtures. In short, the best and most commonly
23 used construction-estimating tool demonstrates that BST has used inflated
24 estimates to exaggerate the costs associated with providing physical collocation.

25

1 **Q. WHAT IS YOUR PROPOSAL FOR ESTIMATING BUILDING CONSTRUCTION**
2 **COMPONENTS?**

3 **A.** Since RS Means is recognized as the foremost construction estimating tool in the
4 construction industry across North America, and its figures incorporate
5 substantial profit and overhead margins, it is the best way to develop estimates
6 for building construction components for a forward looking competitive
7 environment.

8
9 BST should replace all its historical estimates for building construction
10 components with the costs shown in the 1997 publications of RS Means entitled
11 "Building Construction Data" and "Electrical Cost Data". Proceeding in this
12 manner would provide all parties with the assurance that a degree of parity has
13 been incorporated into the process while at the same time ensuring that BST is
14 provided with a level of remuneration that accurately reflects current market
15 conditions.

16

17 **Q. CAN YOU EXPLAIN WHY YOU FEEL CABLE LENGTHS HAVE BEEN**
18 **OVERSTATED IN THE BST STUDY?**

19 **A.** Based on my experience in planning and provisioning cable routes for
20 telecommunications buildings, the cable lengths shown in BellSouth's study are
21 excessive and the result of regressive and not forward-looking planning
22 strategies - planning strategies that support the establishment of huge collocation
23 areas in locations far from the cross-connects. Cable lengths in BST's study
24 should be forward looking and incorporate progressive best practice planning
25 strategies that include:

1 ⇒ *Using vacant pockets of space in close proximity to cross-connects*

2

3 ⇒ *Relocating administration staff and other non-equipment entities to areas*
4 *of the CO less convenient for equipment use*

5

6 ⇒ *Removing redundant equipment temporarily retired-in-place*

7

8 Furthermore, the lengths shown in this study are not even representative of the
9 'average' cable lengths likely to be encountered for collocation in BellSouth COs.
10 Based on my 30+ years experience planning and provisioning cable routes in
11 ILEC COs, it is obvious to me that BST has developed its average cable lengths
12 using only existing large downtown COs. Thus, CLECs will be forced to bear the
13 cost of connectivity to BST cross-connects based solely on a blend of worse case
14 scenarios. The following table provides a summary of BST cable length
15 assumptions.

16

SUMMARY OF AVERAGE CABLE LENGTHS IN BELL SOUTH STUDIES		
DESCRIPTION	PHYSICAL	VIRTUAL
Entrance Cable – Manhole to Collocation Area	400 feet	350 feet
2 Wire & 4 Wire Cross-connects	400 feet	300 feet
DS-1 Cross-connects	300 feet	300 feet
DS-3 Cross-connects	300 feet	300 feet
Repeaters for DS-1	600 feet	NA
Repeaters for DS-3	400 feet	NA

17

1 Recent studies I have undertaken to develop forward-looking average cable
2 lengths identified that a three floor central office with an equipment footprint of
3 120 feet x 100 feet produced average cable lengths of 165 to 175 feet. An
4 explanation of the process used to develop these forward-looking average cable
5 length recommendations is included in my pre-filed testimony dated Nov. 13,
6 1997. BST's 'average' cable lengths of 300 and 400 feet (if these are proprietary,
7 so is the chart above) could only be produced by using extremely large
8 telecommunications buildings exclusively. Typically most cities will have one, and
9 possibly two, large multi-floor buildings in the major downtown core. Outside the
10 downtown core, however, the size of telecommunications buildings is
11 dramatically smaller. In fact, most COs located in urban communities
12 immediately adjacent to the downtown core have only one or two floors.
13 Therefore, it is obvious that BST has developed its average cable lengths based
14 on a few existing worse case building scenarios while ignoring the remaining
15 95%+ buildings in its network. This is particularly disturbing since these existing
16 downtown buildings are oversized because they were built to house less space-
17 efficient technologies that in most cases are no longer used, so vacant space
18 exists in these COs. The resultant cable lengths are therefore much longer than
19 would be required in a forward looking building which was correctly sized for
20 technologies currently being deployed. It is simply unreasonable for BST to
21 develop cable lengths based on these over-sized downtown buildings while
22 ignoring the vast majority of one and two floor buildings in its network – or the
23 available space within the downtown buildings.

24

25

1 **Q. WHY DO YOU DISAGREE WITH INCLUDING REPEATERS IN THE PHYSICAL**
2 **COLLOCATION STUDY?**

3 **A.** Repeaters are only required to regenerate the signal for cable lengths longer
4 than 450 feet for DS-3 and 655 feet for DS-1. Even the excessive average cable
5 lengths contained in the BST study do not extend beyond these trigger points.
6 Furthermore, the fact that repeaters are not included in BST's virtual study
7 provides evidence that BST anticipates no situations where repeaters would be
8 required for its own equipment areas. Therefore, to include any repeaters for
9 signal regeneration in the physical collocation study is discriminatory --
10 particularly since BST has arbitrary control over placement of the collocation area
11 within the CO. Furthermore, the FCC found, in its Second Report and Order on
12 Physical Collocation, dated June 13, 1997, that it was unreasonable for LECs to
13 charge interconnectors the cost of repeaters in a physical collocation
14 arrangement.

15

16 It should also be noted that the overall investment as a result of including
17 repeaters is significant since it includes a repeater bay and a repeater shelf, as
18 well as the actual repeater. In addition, BST includes another 400 feet of cable for
19 DS-3 cross-connects and 600 feet for DS-1 cross-connects when a repeater is
20 used. Naturally, these longer cable lengths also increase associated cable rack
21 support charges.

22

23 **Q. WHAT IS YOUR POSITION REGARDING REPEATERS?**

24 **A.** BST should remove all investments associated with the use of mid span
25 repeaters from its physical collocation cost study.

1 **Q. CAN YOU PROVIDE AN ESTIMATE OF THE CABLE LENGTHS THAT**
 2 **SHOULD BE USED TO CALCULATE COLLOCATION COSTS?**

3 **A.** Yes. As explained in my pre-filed testimony, dated Nov. 13, 1997, before this
 4 Commission, the average cable lengths should be developed using a forward
 5 looking three floor CO layout with best practice space planning strategies. Even
 6 this typical three floor building layout is likely much larger than the 'average' BST
 7 CO, making resultant average cable lengths extremely generous toward BST.
 8 The Commission therefore should instruct BST to replace its excessive average
 9 cable lengths with the following forward looking average lengths.

10

<i>SUMMARY OF FORWARD LOOKING AVERAGE CABLE LENGTHS</i>		
<i>DESCRIPTION</i>	<i>PHYSICAL</i>	<i>VIRTUAL</i>
Entrance Cable – Manhole to Collocation Area	300 feet	300 feet
2 Wire & 4 Wire Cross-connects	165 feet	165 feet
DS-1 Cross-connects	165 feet	165 feet
DS-3 Cross-connects	165 feet	165 feet
Repeaters for DS-1	0 feet	0 feet
Repeaters for DS-3	0 feet	0 feet

11

12 **Q. DO YOU AGREE WITH THE CABLE RACK LENGTH AND UTILIZATION**
 13 **INPUTS INCLUDED IN THE BST STUDY?**

14 **A.** No. First, BST's cable rack lengths are identical to their cable lengths. This is not
 15 possible since point to point telecommunications cabling must always be longer
 16 than the cable rack to account for the cable that descends ("drops") from the
 17 overhead cable rack to the equipment. For new 7 foot telecommunications

1 equipment, this distance is typically calculated at 15 feet (7'-6" at each end).
 2 Therefore, the cable rack input must be at least 15 feet less than the cable input.
 3 Second, the utilization factors (estimated number of cables that will be placed on
 4 a rack) is too low. The following table provides a summary of the cable rack
 5 utilization factors used by BST.
 6

BELLSOUTH CABLE RACK UTILIZATION INPUTS	
DESCRIPTION	UTILIZATION
_____	_____
_____	_____
_____	_____
_____	_____

7
 8 Having spent much of my career in ILEC COs designing new cable routes and
 9 developing recommendations to alleviate existing overhead cable congestion, I
 10 can attest to the fact that the average utilization of cable racks in the CO is
 11 significantly greater than the figures reflected in the BST study. (In fact, in some
 12 areas of the CO, such as above the cross-connects, one can routinely find cable
 13 pile-up on the order of 12" to 18", which represents a utilization exceeding 100%.)
 14 BST should be required to increase the cable rack utilization factors to be
 15 consistent with a best practices engineering approach -- at least 80-85% in both
 16 the physical and virtual studies.

17
 18 **Q. DO YOU HAVE ANY ADDITIONAL CONCERNS WITH REGARD TO CABLE**
 19 **RACK INVESTMENTS?**

1 **A.** Yes. First, the investments used for cable racking are about twice what they
2 should be in a competitive environment using least cost suppliers. BST uses an
3 investment of _____ per linear foot for cable racking. Recent studies and
4 actual projects performed by me indicate that the average price for cable racking
5 should be in the \$17.00 to \$18.00 per linear foot range for the material alone. In
6 fact, I have received quotes and estimates from contractors and suppliers to
7 support an all-inclusive cost of about \$40.00 per linear foot to Engineer, Furnish
8 and Install. These figures were developed using quotes from Central Steel
9 Fabricators, a supplier of cable racking to numerous ILECs, and Primal
10 Communications, a contractor specializing in overhead ironwork, cable rack and
11 telecommunications power equipment installations, and include all necessary
12 labor time in addition to the material price alone.

13

14 Second, the modeling of cable rack investments in the BST study does not
15 incorporate the fact that BST will also use these same cable racks once the
16 cabling extends beyond the collocation area. Anyone who has visited a CO can
17 attest to the fact that it is very difficult and not economically viable to provide
18 dedicated cable racks – particularly in areas where cross-connects are installed.
19 Therefore, except for a small portion of the cable rack within the collocation
20 common area, cable racking between the collocation area and BST cross-
21 connect equipment will be used by BST as well as CLECs.

22

23 **Q.** **WHAT ARE YOUR RECOMMENDATIONS WITH REGARD TO CABLE RACK**
24 **INVESTMENTS?**

25 **A.** BST should be required to reduce its cable rack investments in both the physical

1 and virtual studies costs by about 50% to reflect the use of least cost suppliers
2 and a competitive environment. Since the BST model charges CLECs the entire
3 amount for cable racking, when in fact BST will use a portion of this same cable
4 racking, BST should also be required to incorporate an occupancy factor of at
5 least 25% in the modeling of cable rack investments to reflect a portion of the
6 rack used by BST for its own cabling.

7
8 **Q. DO YOU AGREE WITH THE INVESTMENTS ASSOCIATED WITH THE POINT**
9 **OF TERMINATION BAY INCLUDED IN THE BST PHYSICAL COLLOCATION**
10 **STUDY?**

11 **A.** No. BellSouth proposes that the demarcation point between the ILEC and CLEC in
12 a physical collocation arrangement will be at a Point of Termination Bay (POT).
13 While I concur with the use of a POT bay as a means of isolating troubles and re-
14 routing circuits, the _____ for a DS-0 and _____ for a DS1 or DS-3
15 POT bay included in this cost study is excessive for a simple relay rack to house
16 passive cross-connect equipment. This relay rack is no different from the many
17 relay racks used by BST to mount DSX panels and other miscellaneous equipment
18 shelves. It has been my experience that this type of relay rack can be obtained from
19 numerous least cost suppliers for less than \$200.00. Indeed, while preparing my
20 technical report for collocation I received an all-inclusive quote of \$390.00 from a
21 contractor to Engineer, Furnish and Install this type of relay rack.

22
23 BST also uses extremely low utilization figures that further increase POT bay costs
24 in the study. For example, the projected utilization for 2 Wire and 4 Wire POT bays,
25 DS-1 POT bays, and DS-3 POT bays is _____ respectively.

1 Incorporating these utilization factors has a dramatic effect on increasing the
2 ultimate cost for the POT bay. In addition, BST does not provide the CLEC with an
3 opportunity to install its own POT bays. The result is that CLECs are forced to
4 absorb excessive POT bay charges with no alternate.

5

6 **Q. WHAT IS YOUR POSITION REGARDING POT BAYS?**

7 **A.** BST should be required to provide CLECs with the option of installing their own
8 POT bays in the common space selected by BST. This will permit CLECs to pursue
9 a least cost installation using suppliers who specialize in ironwork and
10 miscellaneous relay rack equipment.

11

12 **Q. DO YOU FEEL THAT THE MANPOWER INPUTS INCLUDED IN BST'S**
13 **APPLICATION CHARGE FOR PHYSICAL COLLOCATION IS REASONABLE?**

14 **A.** No. The concern I have with both the physical and virtual application charges is that
15 neither addresses the reduced manpower required for subsequent requests in the
16 same CO. I will deal with each separately. With a physical collocation arrangement,
17 the manpower required to implement a second collocation request in the same CO
18 will be much lower since many of the overall planning activities are completed with
19 the first request. For example, once the first CLEC is in place in a CO the overall
20 collocation area has already been established, cable routes providing connectivity
21 to cross-connects are installed, the entrance fiber route has been established, and
22 ILEC processes are in place. The BST application charge has been developed
23 using a single manpower input of 87.5 hours. Thus the same 87.5 hour application
24 charge will be levied over and over on each CLEC.

25

1 **Q. DO YOU HAVE SIMILAR CONCERNS WITH THE APPLICATION CHARGE**
2 **PROPOSED BY BST FOR VIRTUAL COLLOCATION?**

3 **A.** Yes. The virtual application charge includes a 45.0 hour BST manpower
4 requirement for each virtual request even though it is likely that many subsequent
5 requests by CLECs will only be to install additional cable between previously
6 installed virtual equipment and BST cross-connects. If BST estimates that the
7 manpower required to provide for the first collocation arrangement by a CLEC
8 includes equipment, plus power and equipment connectivity to BST cross-
9 connects, it is only reasonable that subsequent requests for cable only would
10 require less manpower.

11

12 **Q. DO YOU HAVE A SOLUTION TO THESE PHYSICAL AND VIRTUAL**
13 **APPLICATION PROBLEMS?**

14 **A.** Yes. For physical collocation, BST should be required to determine what
15 percentage of the 87.5 hours is for planning activities that will not be required once
16 the first collocator is in place in a particular CO. BST should then be required to
17 incorporate a second application fee into its physical study for subsequent
18 collocation requests to reflect the reduced BST involvement for subsequent
19 requests in the same CO. Based on my experience planning CO space I would
20 suggest a 30% reduction would be reasonable.

21

22 For virtual collocation, BST should be instructed to incorporate an application fee to
23 reflect the reduced manpower requirement associated with smaller virtual requests
24 for additional cable only. Based on experience I would suggest that the manpower
25 requirements associated with engineering a small cable installation as opposed to

1 an installation involving equipment, power and cabling would be on the order of at
2 least 50% less

3

4 In summary, the Commission should instruct BST to include a second application
5 charge in both their physical and virtual collocation studies to be implemented as
6 follows:

7 **Physical:** *The second application charge consisting of a 30% reduction in*
8 *manpower would be assessed to all subsequent CLECs requesting*
9 *physical collocation in a specific CO*

10

11 **Virtual:** *The second application charge consisting of a 50% reduction in*
12 *manpower would be assessed to any CLEC requesting a simple cable*
13 *installation to provide connectivity for previously installed virtual equipment*

14

15 **Q. IS BELL SOUTH CORRECT TO INCLUDE SECURITY ESCORTS IN ITS COST**
16 **STUDY?**

17 **A.** Security escorts are perfectly acceptable with virtual collocation, since CLEC
18 equipment is located in the same space as BST equipment. However, with physical
19 collocation CLECs are separated from BST equipment and in a best practice
20 planning strategy should be located off a corridor. Therefore, in a forward looking
21 study the use of security access cards should be included rather than escorts.
22 Access card readers have become the preferred method of providing security in the
23 telecommunications industry.

24

25 To ensure that this study is forward looking the Commission should instruct BST to

1 eliminate security escorts from its physical collocation study and replace it with a
2 one-time charge for access cards. If the Commission chooses not to instruct BST to
3 eliminate security escorts from its physical collocation study, then at the very least
4 BST should be required to submit a list of COs where security card readers have
5 been installed. Security escort charges would then only be valid for COs not on the
6 list. Naturally, a process would also have to be put in place to ensure this list is
7 updated on an ongoing basis as additional COs are fitted with card readers.

8

9 **Q. PLEASE SUMMARIZE YOUR TESTIMONY**

10 **A.** In summary, I recommend that the Commission adopt the MCI/AT&T collocation
11 model layout investments and cost model as presented in pre-filed testimony by
12 myself and Mr. John Klick on Nov. 13, 1997. However, if the Commission does
13 not decide to choose the MCI/AT&T study in its entirety, it must at the very least,
14 adjust the BellSouth physical and virtual collocation model to correct the obvious
15 flaws summarized in Exhibit RB-1 of this testimony.

16

17 **Q. DOES THAT CONCLUDE YOUR TESTIMONY?**

18 **A.** Yes it does.

19

20

21

22

23

24

25

1 BY MR. HATCH:

2 Q Mr. Klick, you have a summary of your testimony?

3 A (Witness Klick) I do.

4 Q Could you please give that?

5 COMMISSIONER DEASON: Mr. Hatch, before we get to
6 the summary, do you want the exhibits identified?

7 MR. HATCH: Oh, I'm sorry. Yes, I apologize.
8 Could I get Mr. Klick's exhibits identified, marked for
9 identification?

10 COMMISSIONER DEASON: Yes, composite exhibit 33.

11 MR. HATCH: And could I have Mr. Bissell's direct
12 and rebuttal exhibits marked for identification?

13 COMMISSIONER DEASON: Yes, composite 34.

14 BY MR. HATCH:

15 Q Now, Mr. Klick, could you give your summary
16 please?

17 A (Witness Klick) Yes, I'll be very brief.

18 My job in this tag team we have here today is to
19 take the investments that come from Mr. Bissell's analysis
20 and convert them into costs. In doing that, we've tried to
21 follow four principles. One, the first is that our costs
22 are forward-looking and do not reflect the embedded plant
23 that exists today.

24 Secondly, we have tried to design a model and a
25 set of costs that are flexible. They can be used in a wide

1 variety of situations and a wide variety of central offices
2 in a nondiscriminatory way.

3 Third, we have tried to follow costing principles
4 in terms of dealing with the long run and in terms of
5 trying to reflect cost causative principles, so the costs,
6 we have a particular item reflect the activities actually
7 required to construct and operate that particular item.

8 The fourth principle that we have tried to follow
9 in my effort is to provide a very open model. I think we
10 have a collocation cost model that does these calculations,
11 and we have tried to make it easy to use and very easy to
12 follow what is going on.

13 In terms of the effects of our costs, there are
14 really two points I want to emphasize for you in my
15 summary. One is that we believe the costs we have
16 developed provide for full recovery of the costs that would
17 be incurred by an efficient provider of collocation, and
18 that includes return on debt and equity capital or what is
19 sometimes thought of as profit.

20 The second point is that we believe our approach
21 balances the risk between the incumbent, BellSouth, and the
22 ALECs, and there are a couple of ways in which we have
23 tried to do that. Mr. Bissell will probably talk about
24 one, which is the way in which we have developed a cost in
25 terms of where in the CO, in the central office, the

1 collocation space is located; but from my perspective, we
2 have not developed our costs under the assumption that this
3 space will be fully occupied over its economic life, and we
4 have provided for empty time, time when BellSouth will not
5 be being compensated by anybody because the space is
6 unoccupied.

7 The fourth thing I want to talk about very
8 briefly is that we have developed our costs on both a
9 recurring and nonrecurring basis, and the essential
10 difference there is that to the extent these items can
11 either be shared between the incumbent and the alternative
12 LECs or to the extent they can be reused by subsequent
13 collocators, we have developed our costs on a recurring
14 basis after making some provision for downtime or nonuse.

15 For items that are going to be used by a single
16 alternative LEC or CLEC and then can't be reused by
17 subsequent collocators, we have developed on a nonrecurring
18 basis, one-time charge. That is all I want to say in my
19 summary. I'll turn it over to Mr. Bissell.

20 MR. HATCH: Mr. Bissell --

21 Commissioners, I had previously passed out a
22 color chart. This will be involved in Mr. Bissell's
23 summary.

24 BY MR. HATCH:

25 Q Mr. Bissell, did you prepare this chart, or was

1 it prepared by you or under your supervision?

2 A (Witness Bissell) I prepared it.

3 MR. HATCH: Commissioner Deason, could we request
4 that this be marked for identification.

5 COMMISSIONER DEASON: Yes, exhibit 35.

6 BY MR. HATCH:

7 Q Could you give your summary, Mr. Bissell?

8 A (Witness Bissell) Sure. Good afternoon, my name
9 is Rick Bissell, and because of my central office planning
10 experience, MCI and AT&T requested that I lead a team of
11 consultants to accomplish two tasks. First, create a
12 forward-looking central office model as well as a
13 collocation model for physical and a collocation model for
14 virtual collocation. Second, develop the investments
15 required to implement both physical and virtual
16 collocation. These investments were turned over to
17 Mr. Klick.

18 The technical model we created includes all
19 inclusive schematics for each connectivity arrangement.
20 It's sufficiently flexible to be used in urban, suburban
21 and rural environments, and where investments could not be
22 supported by supplier quotes or subject-matter expertise,
23 we chose to err on the conservative side towards
24 BellSouth.

25 Optimum flexibility has been incorporated in the

1 model by sizing it at only 550 square feet, the amount
2 typically used for roughly four to six desks in an office
3 environment. At 550 square feet the collocation model
4 provides sufficient space for between one and four CLECs,
5 together with common space to install interface equipment.
6 Common space is completely paid for by the CLECs, and the
7 aisle spacing is completely consistent with BellCore
8 practices and those found in any ILEC equipment area.
9 Placement of the collocation area is on the first come,
10 first serve basis which in a nutshell means placing the
11 equipment as close as possible to the cross connects. From
12 the point of view of collocation, that is the ILEC cross
13 connects whether it be voice grade or DS-1 and DS-3.

14 For those few major COs where a subsequent
15 collocation area may be required, it would, again, be
16 allocated in the next closest location with respect to the
17 cross connects, basically using the same planning
18 strategies that BellSouth would use for itself if it were
19 wanting to expand and looking for new equipment space. In
20 short, the planning philosophies I've used in this model
21 are no different than what I would use working for any
22 ILEC, and I would be more than happy to discuss questions
23 with regard to my planning experiences related to isolated
24 grounding, et cetera.

25 Both BellSouth and the MCI model use average

1 cable lengths to develop their connectivity investments.
2 Our cable lengths are 165 feet, and they are derived from
3 the worst case and a best case blend of scenarios based on
4 our forward-looking three-floor model. This approach is
5 generous compared to the shorter distance that would have
6 been generated had we used a blend of urban, suburban and
7 rural central offices in the BellSouth territory.
8 BellSouth, on the other hand, chose to use three to 400
9 feet lengths which, based on my experience, had to be
10 derived using only worst case downtown buildings.

11 While visiting Florida and other BellSouth
12 states, I've had the opportunity to see some of the
13 territory, and I don't see -- in terms of building
14 deployment, I don't see anything different than any other
15 Bell serving territory. I have seen one- and two-floor
16 buildings, the majority of them. Yes, there are one or two
17 large COs in the downtown area, but by and large the
18 majority of the buildings are one and two floors.

19 For BellSouth to base the collocation investments
20 solely on downtown buildings is fundamentally incorrect.
21 These buildings are oversized. They were originally built
22 for older and less space-efficient technologies, and they
23 represent a very small percentage of BellSouth offices.
24 MCI's model will fit nicely into some of the smaller
25 pockets of space in BellSouth's COs.

1 I would like to conclude this summary by
2 referring to the handout passed around by Mr. Hatch. The
3 first page, the schematic drawing on the first page is --
4 shows a few components necessary to implement collocation.
5 What is required is a segregated space in the CO for CLEC
6 equipment. That is on the top right-hand side. Fiber
7 connectivity between the first manhole, top left-hand side,
8 and that CLEC collocation area is provided by a riser
9 cable. Third, power requirements are required to provide
10 power to the CLEC equipment. And lastly, connections are
11 required to BellSouth cross connects. And that's all there
12 is to physical collocation. Virtual collocation is
13 identical except that the equipment would be located
14 adjacent to BellSouth equipment.

15 Page 2 of the handout shows some of the
16 collocation components and demonstrates why I refer to them
17 as low technology. As you can see, we are dealing with
18 nuts and bolts here. We are dealing with cable rack, iron
19 work, all items which are readily available by competitive
20 suppliers. Page 3 and 4 demonstrates -- shows two metal
21 enclosures being used by other incumbents. One is an MCI
22 installation in a Bell Atlantic central office. The other
23 is a Southwestern Bell collocation in a GTE central
24 office.

25 Again, as you can see, these enclosures are not

1 high tech., but more important they provide a secure
2 environment that can be installed quickly, economically,
3 without the dust that we see just down the hallway here,
4 and it minimizes the size and the complexity of the air
5 conditioning.

6 The last page of the handout and perhaps the most
7 important provides the Commission with an example of our
8 conservative approach in developing this model. The
9 investments were based on four 100 square foot areas plus a
10 common area completely paid for by the CLECs. However, as
11 the configuration changes to accommodate larger CLECs, the
12 investments become even more generous to BellSouth because,
13 as you can see, there are fewer panels, fewer gates, fewer
14 locks, et cetera. A few other examples of the same types
15 of strategy, we included HVAC in our investments which we
16 turned over to Mr. Klick, even though it can very well be
17 argued that we also have -- we also have the cost of a
18 complete new building, which likely includes HVAC. We have
19 used battery reserves of four hours which is roughly 25%
20 higher than what BellSouth would actually incur with an
21 on-site diesel generator. We have also based our power
22 consumption on fuse capacity, which is probably 30% higher
23 than actual load. For example, telecommunications
24 providers typically recommend 30% higher fusing. If you
25 want to compare that to a situation at home, your toaster

1 would likely take 11 amps, but the manufacturer would say
2 place it on a 15 amp fuse. We assumed the 15 amp fuse, not
3 11 amps.

4 I believe this model is comprehensive, reasonable
5 and an excellent tool to model costs. For that reason I'm
6 here to testify in support of the planning and investment
7 recommendations. Cost modeling investments will be
8 responded to by Mr. Klick. Thanks very much.

9 MR. HATCH: Tender Mr. Klick and Mr. Bissell for
10 cross.

11 COMMISSIONER DEASON: Mr. Self.

12 MR. SELF: I have no questions.

13 COMMISSIONER DEASON: Oh, it's your witness,
14 Mr. Bond.

15 MS. KEATING: Commissioner Deason.

16 COMMISSIONER DEASON: Yes.

17 MS. KEATING: Before you move to cross, staff
18 would ask that its exhibits for these witnesses be marked
19 at this time.

20 COMMISSIONER DEASON: Very well.

21 MS. KEATING: The first exhibit that we have,
22 staff exhibit JCK-4, and it is the deposition transcript
23 and the deposition exhibits and late-filed deposition
24 exhibits from Mr. Klick's and Mr. Bissell's January 16th
25 deposition.

1 COMMISSIONER DEASON: That would be exhibit 36.

2 MS. KEATING: Staff's next exhibit is exhibit JCK
3 Con., and it contains confidential portions from that
4 deposition.

5 COMMISSIONER DEASON: Exhibit 37.

6 MS. KEATING: Thank you.

7 COMMISSIONER DEASON: BellSouth.

8 MS. WHITE: Thank you, Commissioner Deason.

9 CROSS EXAMINATION

10 BY MS. WHITE:

11 Q Good afternoon, Mr. Klick and Mr. Bissell.

12 A (Witness Klick) Good afternoon.

13 A (Witness Bissell) Afternoon.

14 Q My name is Nancy White, and I represent BellSouth
15 Telecommunications, and I have some questions for you today
16 about the model that you are sponsoring on behalf of MCI
17 and AT&T.

18 Now is it true that what the MCI/AT&T cost model
19 for physical collocation does is assume a brand new central
20 office?

21 A (Witness Klick) The costs that it develops are
22 based on a brand new central office. It's our view, very
23 strong view that those costs are appropriate for
24 establishing collocation prices in existing central
25 offices.

1 Q Now would you agree that BellSouth has an
2 obligation under the Telecommunications Act to provide
3 physical collocation?

4 A It has an obligation, yes.

5 Q And are there any exemptions or exceptions to
6 that obligation?

7 A I believe there are.

8 Q Would you agree that one of them includes whether
9 there is space available?

10 A Yes.

11 Q Would you agree that the space available that
12 they are talking about is the space available in an
13 existing central office?

14 A Yes.

15 Q Okay. And by the way, either one of you who can
16 answer these questions is fine. I'm not going to address
17 them to necessarily one or the other.

18 Now your cost model does not design an optimal
19 collocation layout using existing BellSouth central
20 offices; is that correct?

21 A I think we had this question at the deposition,
22 and both Mr. Bissell and I chimed in, but it does -- we
23 believe that it is applicable to existing central offices,
24 but it does not rely on the embedded plant in the existing
25 central offices.

1 Q Well, you didn't look at any existing BellSouth
2 central offices in Florida in order to design the central
3 office in your model, did you?

4 A (Witness Bissell) No, and based on my planning
5 experience, I don't think that that's necessary. I think
6 that what we have to understand here is that the central
7 offices are all similar. They all use the same types of
8 equipment. They've all had modernization in the same way.
9 They have all replaced switches, et cetera, et cetera. And
10 in fact, I think what we are saying is that there are
11 pockets of space, and I believe that BellSouth testimony
12 attests to the fact that there are, in fact, pockets of
13 space; and this layout would fit into those smaller pockets
14 of space without creating the need for an extremely large
15 collocation area.

16 Q Well, once again, your cost model for physical
17 collocation assumes that you are going to build a brand new
18 central office; isn't that right?

19 A It assumes the cost of building a brand new
20 central office, but Mr. Klick could probably address more
21 the economic implications of that.

22 A (Witness Klick) Yeah, what we are saying
23 basically is in a competitive environment, if collocation
24 were being offered in a competitive environment, you could
25 charge no more for --

1 MS. WHITE: Excuse me, Mr. Deason, I know we are
2 trying to get through this, and I thought my question was a
3 yes or no one about whether their model assumes that the
4 cost of building a brand new central office; and I think
5 that's been answered, so I'm not sure that an explanation
6 is needed.

7 COMMISSIONER DEASON: Well, we generally allow
8 the witnesses to explain their answer, but I would
9 encourage them to be extremely brief in their explanations

10 A (Witness Klick) I just wanted to say that in a
11 competitive environment you could charge no more for
12 collocation than the cost of constructing it new, and
13 that's what our model develops.

14 Q Now would you agree that when an incumbent LEC or
15 any company decides to go out and build a brand new central
16 office that they take into account factors other than
17 collocation space in making that decision?

18 A I would assume so.

19 Q Have either one of you performed any analysis to
20 determine whether the central office in your model would be
21 more efficient than BellSouth's existing Florida central
22 offices?

23 A (Witness Bissell) It's just common sense that a
24 brand new building designed for today's technology would,
25 in fact, be more efficient than a building that is designed

1 for previous technologies.

2 Q So is your answer really based on, in with the
3 new, out with the old just because it's old?

4 A No, my answer was that if you -- if one builds a
5 brand new switching center it's going to be a lot more
6 efficient than a switching center that was built for
7 technologies a long time ago.

8 A (Witness Klick) I believe Ms. Redmond agreed with
9 that in her deposition.

10 Q Does the cost model include any costs associated
11 with demolishing or renovating BellSouth's existing central
12 office space?

13 A No, the cost model reflects the cost of
14 constructing it new.

15 Q Does the model include any costs of moving
16 existing office space from an existing BellSouth Florida
17 central office?

18 A No, nor should it.

19 Q Does your model assume that 68 days -- that a
20 time period of 68 days from the time that the ALEC requests
21 physical collocation until the time it is implemented?

22 A (Witness Bissell) Our model assumes 68 business
23 days.

24 Q 68 business days?

25 A That's right, 14 weeks roughly.

1 Q Okay. And does that 68 business days include the
2 obtaining of a building permit if one is needed?

3 A If one is needed. Likely, if we were to use
4 metal cages in many cases and if we were also to use the
5 existing equipment spaces at 550 square feet, there likely
6 in many cases would not be requiring -- we would not
7 require a permit. We may need an electrical permit, but we
8 likely would not need a building permitting. If --

9 Q But would you -- I'm sorry.

10 A If in case -- There would be some cases,
11 naturally, where you would, in fact, have to move
12 administration people out, et cetera, like what's going on
13 down the hall here, and you would likely need a building
14 permit for that. And yes, we assumed that in those cases
15 the building permit would be done right at the front end,
16 as soon as the drawings were done, simultaneous to doing
17 the tendering.

18 Q So is the obtaining of a building permit included
19 in the 68 days?

20 A If necessary, yes.

21 Q Okay. And do you have any direct knowledge of
22 the permitting process in Florida, particularly in south
23 Florida?

24 A No, I don't. I would assume it would be roughly
25 between four to five weeks to get a building permit.

1 Q But you don't have any direct knowledge of the
2 permitting process?

3 A No, I don't.

4 Q Does the cost model take into account the
5 permitting requirements found in Florida, particularly
6 south Florida?

7 A The cost model takes into account the obtaining
8 of a building permit not specific to south Florida.

9 Q Does the cost model include the cost of
10 purchasing the land for the new central office?

11 A (Witness Klick) Yes.

12 A (Witness Bissell) Yes, it does.

13 Q And does the model, does your model assume a \$20
14 per square foot price for land?

15 A (Witness Klick) In the runs that we have made
16 for Florida, it does. That is an adjustable input, but we
17 have used a \$20 per square foot figure.

18 Q Okay. Now is that figure derived without any
19 reference to where the building will be located? And by
20 that I mean whether it will be located in a rural area, a
21 major metropolitan area or a suburban area.

22 A As the Florida run was made, yes. Obviously it
23 can be adjusted if it needs to be.

24 Q In fact, does this land value come from the
25 Hatfield model?

1 A I believe it's consistent with the Hatfield
2 model, I'm not sure though; it may not be.

3 Q Okay. So don't know whether this figure is taken
4 from the Hatfield model?

5 A I don't recall.

6 Q Okay. Does your model include the cost of
7 installing security access card arrangements for buildings
8 that don't have them?

9 A (Witness Bissell) The model includes the
10 complete construction of a brand new building, which would
11 include security access arrangements.

12 Q Does your model use Florida specific tax rates?

13 A (Witness Klick) The run -- again, the runs we
14 made use a 5% default value for Florida, and those are
15 adjustable as well.

16 Q And the default values that you talk of about the
17 model, did they come from subject-matter experts?

18 A I guess in a way they did, but we have just used
19 a 5% other tax number as an approximation.

20 Q Does the model use a Florida specific rate for
21 electricity, for power?

22 A Again, we have used a default value of what, five
23 cents an amp?

24 A (Witness Bissell) We have used five cents. The
25 testimony includes the five cents as a method of showing

1 how we would develop the AC energy cost.

2 A (Witness Klick) Obviously -- Go ahead.

3 A (Witness Bissell) If that were six cents here --

4 A (Witness Klick) We'd plug in six cents.

5 A -- it wouldn't matter.

6 Q And the five --

7 A The intention was to show how we would develop
8 it.

9 COMMISSIONER DEASON: Wait a second. We have got
10 a panel here. We only have one court reporter, we don't
11 have a panel of court reporters, so you all have to
12 hesitate between your answers so she can keep track.

13 And Ms. White, you need not to interrupt during
14 their answers. Only one person at a time.

15 MS. WHITE: I apologize, Commissioner Deason.

16 A (Witness Klick) As do I.

17 Q Would you like -- Now nobody wants to talk.
18 Would you like to continue your answer?

19 A Go ahead.

20 A (Witness Bissell) What I was saying was that the
21 example of the five cents was to depict how we would
22 achieve the cost for AC energy. This cost could be five
23 cents or six cents or seven cents, whatever the local rate
24 would be.

25 Q But the model that you filed here used the

1 default rate of five cents, correct?

2 A (Witness Klick) The model run we have filed used
3 the default. The model that we have filed provides for
4 that to be adjustable by the user.

5 Q Now your model assumes that collocation space is
6 requested in increments of a hundred square feet; is that
7 correct?

8 A (Witness Bissell) Yes, it does.

9 Q Okay. And I'm looking at, I guess it's the last
10 page of your handout, which is exhibit 35. Is a hundred
11 feet -- a hundred square feet, excuse me, is that the
12 smallest collocation space assumed by the model?

13 A Yes, it is.

14 Q Okay. And the model assumes that collocation
15 cages will be built of wire mesh?

16 A Yes, it does.

17 Q Does the model assume that the economic life of
18 this wire mesh cage is 40 years?

19 A (Witness Klick) I believe it's actually 50 years.

20 Q 50 years, okay. And the model assumes that the
21 cost of this cage will be recovered via a recurring rate?

22 A Yes.

23 Q Now let me give you a hypothetical that might
24 sound familiar, but if a company comes into BellSouth's --
25 a BellSouth central office and takes one hundred feet for

1 collocation, for physical collocation and leaves after one
2 year, will BellSouth recover the cost of the cage?

3 A It depends on what happens after that one year,
4 whether another collocator comes in to use the space or
5 not, so it depends.

6 Q If another collocator comes in and stays for 49
7 years, then BellSouth will recover the cost?

8 A If the second collocator comes in and stays for
9 49 years, BellSouth will over recover cost because we have
10 built into the model an allowance for a time when the cage
11 would be empty; so if the cage is, in fact, occupied for
12 the full 50 years, BellSouth would over recover by about 35
13 percent.

14 Q And is this an occupancy factor?

15 A Yes, ma'am.

16 Q And in the cost model, I believe you use 75%?

17 A That's correct.

18 Q And does that mean that the model assumes that
19 three out of the four years it will be occupied?

20 A Not necessarily. The 75% reflects a time value
21 of money calculation so occupancy early in the cage's life
22 accounts for more than occupancy late in the cage's life.
23 So it reflects an assumption that on a present value basis
24 you will obtain payment in three quarters of the years; but
25 in fact, as we discussed in the deposition, if the cage

1 were occupied for the first 14 or 15 years and then empty
2 thereafter, BellSouth would break even.

3 Q And if the cage is not occupied for the first 14
4 years, will BellSouth break even?

5 A It depends on what happens in the following 35
6 years.

7 Q Well, if your assumption, if your 75% occupancy
8 factor is wrong, who bears that financial risk?

9 A It depends. If the 75% occupancy factor is too
10 low, then the collocators are paying too much. If the
11 occupancy factor is too high, then the collocators are
12 paying too little, and that's why I referred to in my
13 presentation, in my summary, a process of trying to balance
14 that risk.

15 Q All right. Now was the occupancy factor based on
16 any forecast of demand by BellSouth of ALEC demand for
17 physical collocation in Florida?

18 A No, it's a default value. It's an estimate. It
19 reflects our thoughts about what's appropriate, I guess,
20 based on a number of factors, including the fact that the
21 collocation space is relatively small which should improve
22 the likelihood of its being occupied over its life. But it
23 was not based on any kind of demand forecast per se.

24 Q Now does not the model assume that all common
25 space is built out with the first ALEC order? And by

1 common space, looking at the last page of exhibit 35, is
2 that the space in these diagrams without the blue dots?

3 A (Witness Bissell) Yes, it is.

4 Q Okay. It was the easiest way I could think to
5 describe it. And that's common space that everyone will
6 use or all the collocators will use?

7 A Yes, it is.

8 Q Okay. Now the model assumes that the incumbent
9 local exchange company and the alternate local exchange
10 company will share cable racks; is that correct?

11 A Yes, it does.

12 Q And are you aware of whether the ALECs in Florida
13 are willing to share cable racks?

14 A No, I'm not, but they wouldn't have a choice
15 because in a central office, once you get close to the
16 cross connects which has all the cabling from every piece
17 of equipment in there, it would be physically impossible to
18 have every ALEC have its own rack on the floor going,
19 approaching the cross connects.

20 Q And it looks in this diagram, and I guess you can
21 also see it on page 1 of exhibit 35, the rectangle called,
22 labeled POT bays, P-O-T, POT bays. It's on the last page
23 of exhibit 35 and the first page.

24 A Yes.

25 Q What is a POT bay?

1 A POT bay is a relay rack of equipment. If you
2 look on the third picture, that would be a relay rack
3 there; and what would happen was the POT bay would have the
4 terminations of the CLEC as well as the terminations coming
5 from the ILEC, BellSouth, and there would be a cross
6 connection made. So it is the point of termination bay,
7 and it's a demarcation between the CLEC and the ILEC.

8 Q And your model envisions that the ALECs will
9 share this relay rack or POT bay?

10 A No, the model assumes that each ALEC would have
11 its own POT bay.

12 Q Okay.

13 A But in the same common area.

14 Q I see. So in your model the POTS bay would be to
15 serve all four of the collocators if there were four
16 one-hundred square feet collocators?

17 A The POT bay lineup would be used to serve them
18 all. But as you can see on the picture, on the figure
19 on -- on the third page you can see that this POT bay is
20 roughly two feet wide. Now in the lineup you can place ten
21 of those in there. So they would all be placed one after
22 another in there. Similar, exactly the same as equipment
23 lined up in BellSouth territory.

24 Q Okay. Now do you recall testifying in Alabama,
25 Mr. Bissell, regarding this same cost model?

1 A Yes.

2 Q And do you recall Mr. Twomey asking you whether
3 MCI had rejected collocated space because the POTS bay was
4 located where other collocators besides MCI could get to
5 it?

6 A Vaguely.

7 Q Okay. And in your vague recollection, do you
8 remember whether you said you knew nothing of the
9 situation?

10 A I would have said that because I don't.

11 Q After your testimony in that case, did you follow
12 up with your client to determine whether MCI had indeed
13 rejected collocated space in Alabama because the POTS bay
14 was exposed?

15 A No, I did not.

16 Q Now Mr. Klick, you filed testimony in Alabama and
17 I believe Mr. Natalli substituted for you; is that correct?

18 A (Witness Klick) I recall that he did, yes.

19 Q And Mr. Natalli works for you or works with you?

20 A Yes.

21 Q Did you read the transcript and see the questions
22 that were asked about the exposed POTS bay in Alabama?

23 A I actually tried to read the transcript, and the
24 copy I had was every other page so I gave up.

25 Q So can I assume --

1 A The answer is, no, I have not read it.

2 Q I'm sorry. So can I assume that you did not make
3 an inquiry of MCI after the Alabama hearing to determine
4 whether MCI had, in fact, rejected collocated space where
5 the POTS bay was exposed?

6 A I have not made any such inquiry.

7 Q Do either of you know a Mr. Ron Martinez or
8 Martinez who is an executive staff member two of law and
9 public policy group with MCI?

10 A (Witness Klick) No.

11 A (Witness Bissell) No, I don't.

12 Q Okay. Will you accept subject to check that Mr.
13 Martinez is an executive staff member two of the law and
14 public policy group of MCI?

15 A (Witness Klick) I guess so.

16 A (Witness Bissell) Sure.

17 Q Okay. Would it surprise you to learn that if
18 other ALECs have access to the POTS bay in the common area
19 that MCI uses that as a matter of policy MCI will not
20 accept that space or that at least it would require a vice
21 president's approval to do so?

22 A (Witness Bissell) I would be very surprised at
23 that because I have seen POTS bays located in a common
24 area. For example, Franklin Street in Boston,
25 Massachusetts, the POTS bays are, in fact, located in a

1 common area, so I would be surprised. I don't know for a
2 fact though.

3 MS. WHITE: Commissioner Deason, I'm going to
4 hand out a copy of volume 12 of the transcript from the
5 North Carolina 271 proceeding. It was Docket Number
6 P-55, SUB1022, and ask that it be marked for
7 identification.

8 COMMISSIONER DEASON: It will be identified as
9 exhibit 38.

10 MS. WHITE: And I would ask that once the
11 witnesses have it they turn to page 267 of that
12 transcript. Well, let me do it this way.

13 BY MS. WHITE:

14 Q You might want to start -- you can look at page 6
15 of the transcript and see that Mr. Martinez's testimony
16 begins on page 109. And if you would both look at page,
17 the bottom of page 267, line 17 through 24, and page 268,
18 lines 1 through 7; and I understand if you'd like to read
19 some before and some after. Assuming that Mr. Martinez --
20 Have you both had a chance to look at it?

21 A (Witness Bissell) Yes.

22 Q Assuming that Mr. Martinez is being accurate and
23 it would require a vice presidential level waiver in order
24 to accept a collocation area with an exposed POTS bay, are
25 you asking this Commission to accept a model and to approve

1 costs based on that model when your own client, MCI, won't
2 take space configured that way?

3 A (Witness Klick) I don't read this the way you
4 appear to be reading it, and I think --

5 Q All right. Well, let's look at pages --

6 A Let's --

7 Q I'm sorry.

8 A (Witness Bissell) I read it as if -- I read it
9 as if he's saying that he would not want other ALECs to
10 have -- to be able to work on the MCI POTS bay, to have
11 access to the MCI POTS bay, not the fact that it were
12 there.

13 Q All right. Well, let's try it this way. When
14 you've got this --

15 A (Witness Klick) May I answer the question?

16 Q Oh, I'm sorry, go ahead.

17 A As I read this transcript on 263, Mr. Martinez
18 says he has no personal knowledge of any such situation, so
19 I'm not sure -- I thought your question had to do with him
20 having testified about MCI's having rejected such space;
21 and I read page 263 of this transcript as saying he
22 wouldn't know about it.

23 Q I'm sorry, page what?

24 A 263 lines 16 through 20, or 16 through 22.

25 Q Well, let's go back to page 267. Why don't

1 you --

2 A Well, I'm trying to read it in context, and the
3 context starts out with him being asked if he knew anything
4 about this, if he had any personal knowledge, and he says
5 no. Now I understand you to be asking us what -- to
6 confirm that Mr. Martinez said something that I read in
7 this thing he has no personal knowledge about.

8 Q I'm not asking you to confirm that Mr. Martinez
9 said that. Why don't you read, please read page 267, lines
10 17 through 19? That's the question. Could you please read
11 that aloud?

12 A Which lines please?

13 Q Lines 17 through 19 on page 267.

14 A I can read those lines. "If other LECs have
15 access to the POTS bay that MCI uses, as a matter of
16 policy, MCI would not accept this space for collocation?"
17 That's a question.

18 Q And would you please read the answer?

19 A The answer is, "As a matter of policy, that
20 would -- it would require a vice president's approval to do
21 otherwise. Remember that the POTS bay termination is
22 exposed termination where improper solder falling on the
23 tips and rings could not only dis -- disable a customer,
24 but because of the nature of the equipment, multiple
25 customers could be affected; and it would be a very

1 difficult isolation problem to be able to discern that
2 that's, in fact, what had happened. It would waste a lot
3 of time and have a lot of customers out of service waiting
4 for that."

5 And I think that goes to what Mr. Bissell was
6 talking about.

7 Q Well, in your hypothetical, say you have four
8 collocators and you've got -- I mean, I'm sorry, in your
9 model you've got four collocators and you've got four POTS
10 bays lined up in the common area.

11 A Lined up side by side.

12 Q That's what you said that your model shows, right?

13 A I said solder --

14 A (Witness Bissell) Yes.

15 A (Witness Klick) -- solder wouldn't be falling
16 down from one --

17 A (Witness Bissell) Yes.

18 A (Witness Klick) -- onto somebody else's, would
19 it, if they are side by side?

20 Q All right. Now are those POTS bays -- Let's
21 say that you've got an MCI POTS bay, an AT&T POTS bay, and
22 an MFS WorldCom POTS bay?

23 A Side by side?

24 A (Witness Bissell) Yes.

25 Q Side by side.

1 A (Witness Klick) Okay.

2 Q Now in the common space, is there anything that
3 would protect that POT bay -- strike that. Let me start
4 over again.

5 Is there anything that covers that POT bay as a
6 protection? Is the POT bay covered with wire mesh?

7 A (Witness Bissell) Our model assumes that the
8 CLEC purchases the POT bay; so, yes, it could be, if need
9 be. For example, there are POT bays that have doors on
10 them, and if that were the case, then they would purchase a
11 POT bay with the doors on it. Similarly, if you go through
12 BellSouth offices, you'll see some of the transmission --
13 some of the transmission equipment does, in fact, have
14 doors on it, and if they were worried about that, they
15 could have doors on it with little locks as well.

16 Q Do you know whether MCI's POT bays have doors on
17 them?

18 A No, I don't.

19 Q If MCI has POT bays without doors in this lineup
20 of MCI POTS bay, AT&T POTS bay, and MFS WorldCom POTS bay,
21 if a renegade MFS WorldCom employee wanted to do something
22 to MCI's POTS bay, would there be anything to stop it if it
23 didn't have any doors on it?

24 A Well, if it were wire mesh, someone would
25 probably see them; but other than that, probably not.

1 Q Now I'm confused. I thought we were talking
2 about a POTS bay that didn't have any doors on it.

3 A Pardon me?

4 Q You said you didn't know whether MCI has POTS
5 bays with doors or without doors.

6 A Well, you can buy a POTS bay with doors or
7 without doors.

8 Q I understand.

9 A So if they were concerned about it, they would
10 likely buy -- whoever was concerned about it, would likely
11 buy one with doors.

12 Q But you think that this statement by Mr. Martinez
13 is that they don't want -- Repeat for me again please
14 what you think this statement by Mr. Martinez means.

15 A I interpret this as him saying that they wouldn't
16 want anyone having access to their POT bay, i.e., sharing
17 the POT bay, working on the same POT bay; and that's not
18 what we are saying. We are saying each one has its own POT
19 bay.

20 Q Now in your model, does the cost model assume
21 that -- does your cost model configuration of the
22 collocation space leave room for collocators to expand
23 their collocation space in a contiguous manner?

24 A No, our model assumes that the CLEC would be --
25 it would behoove the CLEC to provide sufficient space for

1 itself in much the same way that BellSouth has to. It
2 would have to forecast the amount of space it required, and
3 if it did not forecast correctly, it would have to purchase
4 another one hundred square feet.

5 Q And even if that additional hundred square feet
6 was on another floor?

7 A If, if --

8 Q Or on the opposite side of the building?

9 A If that were the case, yes.

10 Q Okay. Are you familiar with the FCC's rules on
11 collocation?

12 A Not, not --

13 A (Witness Klick) Generally.

14 A (Witness Bissell) Generally, but not intimately,
15 no.

16 MS. WHITE: Commissioner Deason, I'm handing out
17 the FCC rules, Section 51.323, standards for physical
18 collocation and virtual collocation, and I'd ask that this
19 be marked for identification.

20 COMMISSIONER DEASON: Exhibit 39.

21 BY MS. WHITE:

22 Q Would you take a look at (f)(2) of those rules,
23 51.323(f)(2)?

24 (Witnesses reviewed document)

25 Q Do those rules state that to the extent possible

1 an incumbent LEC shall make contiguous space available to
2 requesting telecommunication carriers that seek to expand
3 their existing collocation space?

4 A (Witness Bissell) Yes, that's what it says. It
5 doesn't say at all cost though.

6 Q I understand, but it does say that to the extent
7 possible?

8 A And so does this model, to the extent possible.
9 If there were only one collocator in this model, there
10 would be three left, or if you had a -- if BellSouth had a
11 forecast for more than four hundred square feet, they would
12 construct two models adjacent to each other, but it would
13 be costed on a hundred square feet; that's all we are
14 saying.

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

16 COMMISSIONER DEASON: Staff.

17 (Transcript continues in sequence in Volume VIII)

18

19

20

* * * *

21

22

23

24

25

<p>*</p> <p>* 934:14,14,14,14</p> <p>1</p> <p>1 936:10 10 935:19 1120 934:25 12 933:38 935:7,7,9,9 151 931:9 19 935:2 936:8 1996 930:7 1998 931:6 936:8 1:00 931:7</p>	<p>Commenced 931:7 COMMISSION 930:1 COMMISSIONER 931:4,5 934:3,5,6,8,11 935:24 936:2,5, 11 937:1,4 Commissioners 935:21 Communications)DOCKET 930:8 Connecticut 934:25 consistent 935:23,25 consisting 935:2,19 consists 936:8 continues 934:2 Corporation 930:13 correct 935:10,11 corrections 935:4,12 936:16 costs 935:24</p>	<p>L</p> <p>late-filed 936:9 later 936:20 line 935:7,9 936:19</p> <p>M</p> <p>marked 936:7 may 934:3 MCI 930:13 Metropolitan 930:4 METZKE 931:11</p> <p>N</p> <p>N.W 934:25 name 934:21,23 NANCY 931:11 need 935:7 noted 931:14 now 936:15 NUMBER 933:2,14 935:8,8 936:1,3,12 numbers 936:10</p>	<p>SECOND 930:20 Section 933:15 sections 935:22 Self 932:6 934:3,5,20 935:21 936:4,13 937:1 sentence 936:21 sequence 934:2 SERVICE 930:1 SESSION 930:20 shall 937:4 sheet 935:22 should 935:23 936:1,20 sir 934:23 935:3,6,11,14,17,20 936:18,25 staff 936:5 stand 934:9 stricken 933:4 935:23 SUB1022 933:14 Suite 934:25 SUSAN 931:4 sworn 934:7,10,18</p>
<p>2</p> <p>2 936:10 27 931:6</p> <p>3</p> <p>3 936:19 30 933:3 936:3,16,23 31 933:5 936:12 32 933:6 33 933:8 34 933:9 35 933:10 39 933:15</p>	<p>D</p> <p>DATE 931:6 Dave 934:6 DAVID 932:5 934:10,16,23 DAY 930:20 DC 934:25 DEASON 934:3,5,6,8,11 936: 2,5,11 937:1,4 deleted 936:20 deposition 935:6 936:8,9,9 describes 935:22 Description 933:3 Direct 932:6,10 934:19 935:2, 9,13 937:2 DNP-4 933:5 936:6 DOCKET 930:4 933:38 done 935:25 duly 934:10,18 during 935:6</p>	<p>O</p> <p>objection 937:4 office 934:24 Okay 936:22 one 936:18 OSS 935:24 other 935:12 936:15,16 out 935:21</p>	<p>T</p> <p>Tallahassee 931:10 Telecommunications 930:7, 10,11,13,15,16 terms 930:6,9,14 testified 934:18 Testimony 932:7 933:7 935:2, 5,13,19,23 936:15,19 937:2 Thank 934:5 936:4 That's 935:9,11 though 937:3 TIME 931:7 936:6 today 935:16 936:23 Transcript 934:2 936:9 Tuesday 931:6</p>
<p>4</p> <p>400 934:25</p> <p>9</p> <p>9 936:19 930 930:22 960757-TP 930:4 960833-TP 930:8</p>	<p>E</p> <p>Examination 932:6 934:19 exhibit 936:1,3,12,16,23 EXHIBITS 933:1,6,8,9 936:10</p>	<p>P</p> <p>p-55 933:14 p.m 931:7 packet 936:6 PAGE 930:22 935:7,9 936:19 pages 935:2,19 passed 935:21 PELLEGRINI 936:5 Petition 930:4,8 please 934:9,21,22 PORTER 932:5 934:6,8,10,16, 21,23 936:14 Porter's 933:3,6 935:22 936:8 937:2 Prefiled 932:7,10,11 935:18 937:2 prepared 933:10 935:1,18 president 934:24 prior 935:24 PROCEEDINGS 931:2 PUBLIC 162:1 purposes 936:7</p>	<p>U</p> <p>under 930:11,16</p>
<p>A</p> <p>Act 930:7 address 934:22 ADMTD 933:2 affairs 934:24 after 934:17 AFTERNOON 930:20 again 936:20 allowed 936:19 answers 935:16 936:24 APPEARANCES 931:13 appears 936:20 arbitration 930:5,9,14 ask 936:6 asked 935:15 936:23 AT&T 930:8 attention 935:7 Avenue 934:25</p>	<p>F</p> <p>FCC 933:15 filed 935:1 first 934:18 five 935:8 FLORIDA 930:1 931:10 follows 934:18 four 935:8</p> <p>G</p> <p>GARCIA 931:5 give 934:21 936:1 government 934:24 guess 935:25</p>	<p>Q</p> <p>questions 935:16 936:23</p> <p>R</p> <p>raise 934:9 rates 930:6 Re 930:4,8 read 937:3 Rebuttal 932:7,11 933:7 935: 19,22 936:14,19 937:2 record 934:22 937:3 regarding 935:24 repeated 936:18 REPORTED 931:11 request 937:1 resale 930:11,16 respect 936:14 right 934:9 Room 931:9 RPR 931:11 rules 933:15 ruling 935:24</p>	<p>V</p> <p>Very 936:2 VI 934:2 vice 934:23 VII 930:21 933:1 VOLUME 930:21 933:1,38 934:2</p> <p>W</p> <p>Washington 934:25 well 936:2 Whereupon 934:10,15 will 936:2,11 Without 937:4 witness 934:7,17 word 936:18,19 WorldCom 934:6,17,24</p>
<p>B</p> <p>BEFORE 162:1 931:3 935:25 behalf 934:17 BellSouth 930:5,10,15 Bissell 932:11 Bissell's 933:9 brought 935:6 business 934:22</p>	<p>H</p> <p>hand 934:9 HEARING 931:2 heretofore 931:14</p> <p>I</p> <p>ID 933:2 identification 936:7 identified 936:3,6,7,11,15 Inc 930:14 934:24 Inserted 932:7,10,11 937:3,5 interconnection 930:6</p>	<p>S</p> <p>same 935:15,16 936:23,24</p>	<p>Y</p> <p>yet 934:7</p>
<p>C</p> <p>call 934:3 called 934:17 calls 934:6 can 934:21 case 935:2,19 cause 935:1,18 CCR 931:11 certain 930:9,14 CHAIRMAN 931:3 change 935:7,15 936:22 changes 935:4,12 936:16,22 Chart 933:10 CLARK 931:4 Clark's 935:24</p>	<p>J</p> <p>January 931:6 936:8 JOE 931:5 JOHNSON 931:3 JULIA 931:3</p> <p>K</p> <p>Klick 932:10 Klick's 933:8</p>		

<p>\$</p> <p>\$19.50 970:19</p> <p>&</p> <p>& 988:15</p> <p>*</p> <p>* 988:13,13,13,13</p> <p>1</p> <p>1 975:10 989:20 12 980:5 13-99 990:14 15 977:17 978:8 16 991:12 18 980:1,5 983:2 19 991:12 1967 983:11 1968 983:8,9 1969 983:9 1996 969:11 1998 976:21</p> <p>2</p> <p>20 972:11 976:8 200 991:12 2000 991:11 21st 968:19 22314 989:3 2A 990:6 2B 990:6</p> <p>3</p> <p>30 973:24 986:12,14 31 986:18 32 968:6 986:12,14 32% 982:18</p> <p>5</p> <p>530 970:15</p> <p>6</p> <p>6 991:11 66 989:2 660 970:17 670 989:2 6th 976:21</p> <p>7</p> <p>7 976:23 70 982:25 983:4</p> <p>8</p> <p>8 974:10,18,18 976:1 991:11 80% 982:25 983:5 87 976:19,23 977:17</p> <p>9</p> <p>9 982:2,4 90% 982:2,10 97-0235 967:9</p> <p>A</p> <p>A-I-I-e-n 989:6 about 968:15,16 969:15 970: 12,13,17 971:1 975:24 984:4 985:14 990:2 abundantly 987:9 accept 969:19 970:2 accommodate 987:24 acquisition 969:8 activities 978:2,3 actually 968:15 add 989:20 added 969:23 additional 982:11 address 988:21,23 989:2 990: 12,14 addressing 984:14</p>	<p>admitted 986:14,18 adopt 972:24 adopted 973:3 986:1 ADSL 969:9,10,20 972:8 974: 23 975:7 979:22,25 980:2,12 981:1,12,14,19,20,24 982:3,8 advertise 972:8 advertisements 972:6 affirmatively 978:4 after 987:1 988:17 afternoon 973:19,20 again 977:16 978:7 against 972:13 aggressive 970:21 ago 968:15,16 969:9 978:4 agreement 967:8 973:4 983: 17,19,21 984:2 985:17,20,22, 24 ALEC 975:24 Alexandria 989:2 Allen 989:5 allow 980:18 almost 968:15 970:5 already 967:11,13 971:10 973: 3 989:24 although 970:4 amendment 967:8 among 973:9 975:23 984:3 amounts 972:3 ANSWER 977:3,14,21 978:17, 21 answered 978:3 answers 991:20,25 anybody 979:3 anything 971:4 anywhere 971:3 979:10 appear 982:7 appreciate 971:23 appropriate 972:19 975:16 981:5 appropriately 981:22 approximately 987:1 approximation 983:4 arbitrated 983:17,21 985:20 area 980:4 article 968:20 ask 971:12,18 972:24 973:1 982:23 asked 972:22 978:12 991:19, 23 asking 970:15,17 975:1 978: 15 979:13 assertion 987:11 associated 985:2 assume 969:25 assumptions 975:20,24 AT&T 988:3,16 989:9 990:19 attached 199:2 967:20 972:7 975:10 990:5 attempting 977:22 attention 968:18 attorney 971:15 available 973:5 980:15,20 981:6,7 average 982:9</p> <p>B</p> <p>back 968:14 979:12 987:3,20 background 976:24 977:6 bad 970:2 based 983:25 basis 985:7 before 969:13 978:5 984:18,21 986:24 987:4 beg 982:4 began 969:10 983:10 begin 986:24 987:1 beginning 974:18 976:22 978: 8 behalf 988:16 989:7,9 990:17 believe 972:4 974:17 975:19 976:21 978:16 982:17,18 984:</p>	<p>23 Bell 976:13 978:5 979:12,14, 19 BellSouth 967:8 969:20 970:3, 5 972:3,14 973:2,9,21 975:18 977:23 984:5 985:21 BellSouth's 968:1 972:6 975: 14 985:15 BellSouth/MFS 983:20 985:17 between 967:8 982:25 983:4 Bissell 988:4,8,15 990:1,11, 13,13 991:23 992:1,8 Bond 973:13,14 both 980:4 bother 984:17 bridge 970:1 brief 968:9 987:2 bring 968:17 BST's 982:2,12,15,21 983:2 985:2 BST/MFS 983:17 business 984:5 985:1 988:23 989:1 990:14</p> <p>C</p> <p>cable 970:2 979:20 Cage 991:14 California 969:11 call 968:18 987:3,4 called 988:16 calls 988:3 came 989:16 Can 968:12 970:9 971:16 972: 13 980:3 981:18,24 Canal 989:2 cannot 967:12 971:22 979:25 981:1,10,12,19 career 983:10 carrier 980:4,18,19 981:2,3,10, 18,25 982:16,20 categories 975:12 cause 989:10 990:20 Center 989:2 central 981:5 Chairman 992:2 change 989:18 991:6 changes 967:17,23 989:13 991:4,6 charge 970:17 972:23 975:3 985:15 charges 973:2 975:2 989:25 chief 985:14 clarification 971:19 CLARK 988:24 clear 984:20 CLECs 985:3 coils 981:13,16 collaborated 976:13 collocation 973:2,4 974:24 983:14,22 984:4 985:3,15 989: 17,21,24 column 968:20 come 971:25 coming 984:18 commercially 980:20 981:8 Commission 967:10 975:6 Commissioner 968:2,6 970: 23 971:5,6,11,21 973:7,11,13, 15,16 986:4,6,7,9,11,13,17,20, 23 987:3,13,19,23 988:6,9,10, 24 992:5,10 Commissioners 967:6 968:14 986:7 commissions 970:21 common 969:23 975:4 companies 977:23 company 968:23 compensatory 985:24 compete 972:13 complaints 984:4 985:14 composite 968:4,6 concern 969:16</p>	<p>conclude 987:6 conclusion 972:16 conducting 988:1 confident 987:9 confirm 970:12 Congress 969:13,14 connectivity 990:1 considering 969:1 construction 985:15 991:13, 15 consultant 990:16 contained 974:18 contains 983:21 contend 975:24 context 971:9 978:16 979:13 copper 980:5,13,15,19,20 981: 24 982:13 copy 967:7,11 correct 970:18 974:24 975:16, 17,18,25 976:2,8,9,18,22 977: 5,10,13,15 978:2,25 979:10,11, 11,23 980:6,13 981:2,13,16 982:3,11 983:8,11,12,14,17,18 984:6,19 985:17,18 990:7 corrections 967:17,23 978:21 989:13 991:4,16 corroborate 969:6 cost 969:23,23,24 970:11 975: 2,4,9,11 983:25 985:21 989:22 cost-based 983:21 costs 969:22 970:7 972:10,18, 20,22 990:2 course 969:4 creating 976:17 credible 969:1 972:12 criticized 975:18 cross 969:5 973:5,9,17 CSA 981:23 current 980:9 currently 980:15 987:6</p> <p>D</p> <p>data 975:13 date 980:20 deals 989:17 Deason 968:2,6 970:23 971:5, 6,11,21 973:7,8,11,13,15,16 986:4,7,9,11,13,17,20,23 987: 3,13,19,23 988:6,9,10 992:5,10 December 969:11 decisions 970:20 defer 985:22 degree 975:21 Democrat 968:19 demonstrate 982:8 deposition 971:20,22 976:15, 19,20 977:16 978:19 984:11, 19,21,23,24 989:16 described 970:6 design 977:11,19 978:10 980: 3,24 981:15 designated 967:21 designed 980:2,3 981:23 designs 980:10,11 determining 983:14 developed 971:10 976:11 developing 976:6 977:1 development 976:13 didn't 984:22 986:25 digital 980:18,19 981:2,3,10, 18,23,25 982:16,20 direct 967:3 968:3 970:25 971: 2,13 972:1,15 974:8,10 975:10 982:1,4 988:1,18 989:11 990:4, 21,23 991:24 992:3,7 directly 967:25 disagree 975:20 discussed 989:19 disputing 985:7 DNP-1 967:4 DNP-2 967:4,7 DNP-3 967:21</p>
---	--	---	---

<p>document 967:13 dollars 970:17 972:11 done 987:21 989:21 door 971:16 double 972:22 duly 988:8,17</p>	<p>Future 968:21 981:25</p>	<p>JCK-2B 989:16 John 988:3,15,22 989:1</p>	<p>most 967:11 move 986:12 moves 986:15 Ms 984:8,13 985:11 much 968:23 969:15 986:22 must 980:12</p>
<p>E</p>	<p>G</p>	<p>K</p>	<p>N</p>
<p>Edgevalley 990:14 either 980:3,5 electronics 980:14 elements 989:21 eleven 987:16 else 979:3,10 embedded 972:18 980:11,25 employed 989:4 990:15 employees 985:3 encompassed 974:18 engineer 982:24 entered 983:23 984:2 entitled 968:20 errata 978:18 Essentially 989:19 established 981:19 even 970:9 evening 987:21 event 989:23 ever 979:2 everyone 987:9 evidence 971:8 985:10 examination 969:5 973:6,17 988:18 examine 973:9 exceed 979:25 exchange 979:17 exclude 969:22 excluded 970:5 excuse 969:18 970:15 972:15 981:23 excused 986:19,21 exhibit 967:11,21 968:6 969: 13 972:7 973:24 974:4 975:10 977:17 986:15,17 989:16,20 990:3,24 991:2,14 exhibits 967:3,18 968:3 986: 11,12,13 990:5 991:5,16 existing 972:8,9 expenses 984:6 985:1,2 experience 979:12 explain 969:3 extension 980:18</p>	<p>game 987:14 general 982:25 give 969:5 991:8,10 giving 976:15 goal 968:24 good 968:14 973:19,20 982:23 group 977:21</p>	<p>K-e-n-t 989:5 K-l-i-c-k 988:23 989:1 Kent 989:5 Klick 988:3,5,8,15,20,22,22 989:1,5 991:19,22 992:3 know 967:13 982:14,20 983: 24</p>	<p>name 973:21 988:20,22 989:1 990:11,13 near 981:25 need 987:4,24,24 negative 987:10 negotiated 983:18 neither 981:14 never 976:5,8 new 971:4 next 968:4 987:4 991:12 None 987:12 nonrecurring 970:10,17 972: 23 973:2 974:24 975:6,11 989: 25 nor 981:14,15 normal 972:20 nothing 971:19 977:5 notwithstanding 981:17 Now 967:2 968:12 981:17 984: 3 Number 967:9 970:18 975:10 986:15 989:20 991:11 numbers 970:15 971:24</p>
<p>F</p>	<p>H</p>	<p>L</p>	<p>O</p>
<p>facilities 981:24 fact 969:21 970:5 972:21 981: 17 983:25 fair 975:19 977:1,3 familiar 974:1 familiarity 977:11,18 978:9 far 971:10 FCC 969:13 feet 980:1,5,6 983:3 few 969:3 978:4 fiber 982:19 filed 972:5 984:13 989:10 990: 20 Finally 973:1 finish 987:9,14,15 firm 989:5 first 970:16 988:17 991:12 five 987:15 follow 987:20 follows 988:17 forms 977:24 forward-looking 969:18 980: 10,24 981:15 found 983:17 four 987:1 free 972:11,11 front 968:19 function 975:22 further 986:2</p>	<p>half 968:16 970:5 hand 988:7 happy 970:20 Hatch 973:11,12 987:12,18 988:2,3,19 992:2,7 HDSL 969:9,20 974:24 975:7 981:15 982:8 heading 974:15 heard 971:8 hearing 968:22 987:3,8 help 968:22 here 968:15 969:21 970:8 984: 18 987:22 high 969:2 970:2 higher 985:16 home 987:15 hope 971:25 hour 987:10 hours 970:13 however 970:10 hundred 980:13 982:12</p>	<p>language 972:5 last 968:25 973:9 976:8 late-filed 989:20 later 971:25 length 980:5 989:20 990:2 less 983:2 let 967:12 Let's 974:10 987:3 levels 973:3 Library 969:14 light 973:25 like 968:16,18,23 969:3,15 limit 971:12 980:4 limitation 980:23 limitations 980:8 limiting 978:13 line 970:11 972:9,9 976:23 977:17 978:8 991:11,12 live 969:11 970:9 load 981:12,16 982:21,25 local 969:12,15 972:21 979:17 London 990:14 looking 973:24 976:24 loop 969:16,17 970:3,4,7,16, 16 975:1 979:23,25 980:2,7,12, 18,19 981:2,3,10,18,23,23,25 982:9,16,20 loops 969:12,20,25 970:6,7 975:7 978:25,25 979:3,5,7,15, 22 980:22 981:1,9,12,14,15,15, 18,19,20,21 982:2,3,8,8,12,15, 21 983:2 lost 984:2 low 972:11 lower 970:8 985:20 Lynott 987:7,20</p>	<p>o'clock 987:1,16 object 970:5,24 objection 971:12 986:13,17 992:5,10 objective 968:21 obvious 978:17 offer 968:23 972:1,5,10,12 offered 971:24 984:2 985:23, 25 offering 969:2,10 office 981:6 official 967:10,14 okay 973:10 974:7,10,17,22 975:14 976:3,22 978:7 988:6 991:11 one 967:9,21 968:20,22 984:3 985:14 989:15,22 991:2 ongoing 971:7 only 969:21 971:21 974:23 975:2 981:24 Ontario 990:14 onto 971:1 open 977:24 opened 971:16 operating 976:13,18 977:23 operational 976:6,11 977:1,8, 13,20 978:10 operations 977:22 opinion 975:11 982:10 985:19, 23 opportunity 984:8 Order 967:9,14 974:15 975:21 985:3 987:4 ordered 969:17 972:18 ordering 978:24 979:2 orders 967:9 organization 977:22 OSS 974:1 975:25 other 969:6 970:20 971:14 973:10 975:23 977:23 984:3 985:2 out 970:11 987:22 outside 979:19 982:11,24 983: 7 over 969:12 981:2,10,18,25 982:15 own 972:6 976:18</p>
<p>J</p>	<p>I</p>	<p>M</p>	<p>P</p>
<p>January 968:19 976:21 JCK-1 990:5 JCK-2 990:5 JCK-2A 990:6</p>	<p>I'd 968:16,18 969:3,15 973:8 identification 976:22 identified 967:4 968:4 identify 977:24 Illinois 970:22 976:12 978:5, 13 979:12,14,16,19 implementation 977:12,19 978:10 implementing 977:8 improper 971:3 Inc 973:22 include 969:21 985:1 included 970:13 includes 971:19 including 972:3 975:3 inclusion 984:5 incorrect 975:25 independent 975:5,9 983:13 985:10 990:16 industry 977:24 982:24 inform 987:18 information 969:6 971:1,14 974:17 informed 987:5 inserted 992:3,6,8,11 inside 972:11 integrated 981:2,3,10,18 982: 16,19 interacting 985:3 interconnection 967:7 interface 977:22 interfaces 977:12,19 978:10 interim 973:4 985:16,22,24 Internet 968:21 intervention 975:21 introduced 980:16 involvement 976:5,6 977:8 978:24 979:2,5 isn't 976:7 issue 974:1 issues 968:16 984:14</p>	<p>made 969:11 975:15 989:13, 15,24 main 969:16 maintenance 972:20,23 make 970:7 978:21 986:25 manual 975:21 many 968:16 978:4 979:20 982:10 marked 976:21 977:17 marketing 984:6 985:1 marketplace 980:15 material 967:25 974:6 983:5 matter 983:25 May 971:18 980:11,16 981:7 984:10 986:19,20 MCI 988:16 989:9 990:19 method 980:3,4 MFS 967:8 969:8 MFS/BellSouth 985:20 microphone 988:25 Mike 973:21 million 970:6 minutes 969:3 987:1 modems 972:12 modification 989:15 990:3 modifications 975:15 moment 970:14 984:12 moments 978:4 money 984:2 month 972:11 more 970:19</p>	<p>o'clock 987:1,16 object 970:5,24 objection 971:12 986:13,17 992:5,10 objective 968:21 obvious 978:17 offer 968:23 972:1,5,10,12 offered 971:24 984:2 985:23, 25 offering 969:2,10 office 981:6 official 967:10,14 okay 973:10 974:7,10,17,22 975:14 976:3,22 978:7 988:6 991:11 one 967:9,21 968:20,22 984:3 985:14 989:15,22 991:2 ongoing 971:7 only 969:21 971:21 974:23 975:2 981:24 Ontario 990:14 onto 971:1 open 977:24 opened 971:16 operating 976:13,18 977:23 operational 976:6,11 977:1,8, 13,20 978:10 operations 977:22 opinion 975:11 982:10 985:19, 23 opportunity 984:8 Order 967:9,14 974:15 975:21 985:3 987:4 ordered 969:17 972:18 ordering 978:24 979:2 orders 967:9 organization 977:22 OSS 974:1 975:25 other 969:6 970:20 971:14 973:10 975:23 977:23 984:3 985:2 out 970:11 987:22 outside 979:19 982:11,24 983: 7 over 969:12 981:2,10,18,25 982:15 own 972:6 976:18</p>

P	Q	R	T
<p>page 967:7 968:1,19 974:10,18,18 976:1,19,23 977:17 982:1,4 991:9,11,12 panel 987:6,20 988:2 paper 968:20 pardon 982:4 part 967:9,13 972:19,20 participated 977:25 participation 976:25 parties 967:7,13 973:10 partly 977:23 pay 972:22,22 PELLEGRINI 986:5,15 people 967:11 percent 980:13 982:13 percentage 982:12,15,21 983:2 Perhaps 971:15 permitted 973:9 personally 977:25 physical 974:24 983:14,21 985:15 piggybacks 972:9 pioneered 969:9 placed 970:1 plan 987:14 planning 989:22 plant 970:14 972:18,21 979:19 982:11,24 983:7 Plaza 989:2 please 968:12 988:6,10,20,21 990:11,12 991:8,10 plug-ins 980:17 981:6,7 point 970:24 975:15 976:4 987:15,17 Porter 967:2 968:9 971:18,23 973:19 974:23 975:7 976:7 977:7 978:24 979:22 983:7,13 984:3 985:12 986:3,20,22 Porter's 968:3 portion 969:21 975:2 982:18 position 972:1 prefilled 971:13,21 preparation 991:13 prepare 974:4 975:5 983:13 989:10 990:20 prepared 969:19 974:3 975:9 990:1,8 991:17 presentations 969:12 presented 971:9 presumably 972:10 prevent 969:2 previously 967:15 976:21 977:17 981:19 prices 968:25 969:16 primarily 969:9 principle 968:21 prior 969:8 984:11,24 proceeding 968:18 969:1 976:16 983:24 984:15 989:8,11 990:18,21 process 971:7 processes 972:4 promptly 986:24,25 properly 970:1 980:2 propose 970:4 proposed 970:3 972:24 973:2 975:1 983:16 984:4 985:21 proposes 969:20 proposing 970:8 974:23,25 provide 968:12 970:20 989:22,25 provided 970:19 981:24 providers 979:17 provision 982:3 provisioning 979:5,7,14 pursued 971:16 pursuing 968:24 put 971:1,9</p>	<p>quality 970:2 Question 976:20,24 977:14,18 978:4,7,13,15 979:13 982:23 questions 973:12,14 986:2,5 991:19,23</p> <p style="text-align: center;">R</p> <p>raise 988:7 raised 984:14 rate 972:23 rates 969:19,20 970:22 972:10,24 973:3 974:23,25 975:1,6 983:16,21,23,24 984:4 985:16,16,16,19,23,24 986:1 RB-1 990:24 991:2,14 reach 987:8,17 read 967:12 978:7 984:8,10,17,21,22,24 991:12,13,15 992:4 reality 968:17 realize 987:24 reasonable 987:10 reasons 989:22 rebuttal 967:20 968:4 970:25 971:2,14 972:2,7 984:9,13 990:21 991:1,2,6,24 992:8 recalculation 972:2 recall 978:22 984:7,10,11,16 recess 986:24 987:2 recognition 967:10,14 record 967:6,14 971:1 988:21 990:12 992:4 recovered 972:20 recovering 972:10 recovery 969:22 975:3 recurring 969:16,19 975:1 redirect 971:15 986:9,10 Redmond 984:13 Redmond's 984:8 985:11 reduce 973:1 reference 976:25 references 969:6 referred 971:3 Referring 976:19 977:16 refute 985:11 regarding 975:6,20 relying 971:8 remember 976:15 represent 973:21 representation 985:5 request 968:2 972:16 973:8 986:1 987:19 989:23 992:2,7 require 972:17 980:15 982:10 required 972:4 residential 979:23 980:7,22 981:9,15,17,21 residual 969:22 975:3 resistance 980:3 resourceful 971:15 respect 990:4,23 991:1 respectfully 970:18 972:16,24 984:1 response 978:16 986:8 responsible 976:17 review 987:5 revised 980:3 Rick 988:3,15 990:13 right 970:9 975:22 976:4,7 984:7 988:7 rings 983:14 Road 990:14 RRD 981:23</p> <p style="text-align: center;">S</p> <p>said 970:12,22 976:17 982:4,18 984:23 986:24 same 975:12 979:23 980:8,23 981:20 987:21 991:19,20,23,25 saying 984:20,21 says 977:6</p>	<p>scheduled 987:6 seated 988:11 second 970:16 989:22,25 sections 973:24 see 974:15 976:25 SELF 199:1 967:6,16 968:2,7,8 971:5,6 973:5 986:10,12,19 served 981:1,10,18 982:15 service 968:23 969:3 972:8 974:15 975:21 services 969:10 serving 980:4 several 969:5 shall 992:5,10 shared 969:23 975:3 sheet 978:18 shorter 982:9 should 970:22 974:19 985:21 991:11,13,14 show 980:17 significantly 970:8 982:9 similarly 991:13 simply 969:1 970:11 985:21 since 983:8 984:19 sir 967:5,19,22,25 973:23 974:2,9,12,14 975:17,19,23 977:3 978:20 979:1,9 983:9 984:7,10 skip 971:24 some 968:17 982:17 989:20,20 990:2 somebody 989:24 something 972:12 somewhere 983:4 soon 981:8 sooner 987:22 sorry 976:10 990:6 991:10 sources 969:6 space 985:14 991:15 specifically 970:21 Speedier 968:20 spend 970:14 spliced 979:19 splices 970:2 staff 968:14 970:19 973:10 986:4,5,15 stage 987:8 stand 988:7 standard 970:3,4 979:23 981:21 standards 977:25 980:24,25 standing 969:13 starting 975:15 state 968:24 969:10 970:21 988:20 990:11 statement 975:19 977:2,4 still 981:20,22 stricken 974:19 studies 972:3 982:7 985:21 study 969:17,18,18,25 970:6 972:17,19 975:5,9,11,12,14,18 983:14 subject 985:11 991:16 submit 975:6 submitted 972:3 978:18 subsequent 989:23 substance 975:25 such 981:7 suggest 970:18 984:1 Suite 989:2 summarized 971:22 summarizing 970:25 971:7 summary 968:9 971:4,13,17 990:2 supervision 990:9 991:17 support 972:1 976:6,11,13,18 977:1,8,13,20 978:11 supposed 970:24 sure 969:5 sustained 971:12 sworn 988:4,9,17 system 976:6,11,18 977:8 systems 976:14 977:1,13,20 978:11</p>	<p style="text-align: center;">T</p> <p>take 969:3 986:23 taken 967:10,15,25 976:20 talk 969:15 990:1 talking 968:16 Tallahassee 968:19 tap 970:1 technology 969:9,12 980:19 Telecommunications 973:22 983:10 990:16 telephone 972:9 tell 969:7 TELRIC 969:17 ten 987:1 termed 984:5 985:1 testified 982:1,7,17 988:17 testify 987:7 testifying 978:3 989:7 990:17 testimony 967:3,20 968:4,10 970:12,25 971:2,2,4,7,9,14 972:2,2,5,7,15,25 973:25 974:7,8,11,20 975:11 976:1,10,12 978:12 979:18 981:20,22 982:1,5 983:20,23 984:9,14,17,25 985:6,9,11 986:1 989:11,14 990:3,4,21,23 991:1,5,7,20,24 992:3,8 Texas 970:21 Thank 968:7,11 971:18,23 973:4,16 974:22 978:23 986:3,22 988:10 that's 967:25 969:16 972:14 973:10 975:17,25 976:2,4,9,18 977:3,5,10 978:2,17 979:11,12,20 980:6 981:16 982:10,11 983:5,12,18 984:7,19 985:18 987:16 990:7 therefore 970:1 therein 971:3 they'll 969:2 things 975:23 984:3 think 969:4 970:3,10 985:25 988:24 990:1 those 967:17 969:21 970:22 971:25 972:19,22 977:24 983:16 985:2,16,20 986:1 989:21 991:16,16 though 970:9 992:4,8 thought 975:15 978:13,15 979:13 thousand 980:1,5,6 983:3 three 968:3 987:21 990:5 time 972:4 973:8 976:12 986:25 today 968:22 969:17 978:12 980:16 981:24 984:18 987:8 991:25 tomorrow 987:10 tonight 987:16 top 969:24 touch 968:17 trade 980:17 true 982:10 try 968:17 987:17 trying 969:7 971:9 TSLRIC 969:18,22,24,25 972:17,19 975:2 Tuesday 976:20 two 967:3 968:25,25 989:22 TWOMEY 970:23 973:7,8,15,16,18,21 986:2 type 979:20</p> <p style="text-align: center;">U</p> <p>unbundled 978:25 979:3,14 under 980:9,11,24,25 981:3 990:8 991:17 understand 968:22 971:11 979:22,24,25 980:2 981:1,12 984:13,25 985:5 understanding 980:7,9,10,12,</p>

14,16,22 981:5,7,9,11,14 982:
24
universal 982:19
up 971:25 982:18 989:16
upgrade 970:13
upgraded 982:2
upgrades 982:11
upgrading 972:18
upon 971:8
us 969:2
usable 980:17
use 975:24
used 975:12,14 977:12
uses 972:8 975:12,13

V

various 977:24
very 967:12 968:23 969:15
 970:20 971:15 981:25 986:22
 987:13,25
viewpoint 987:11
Virginia 989:3
virtual 989:17,21,23
virtue 967:14
vitae 978:6
voluntarily 983:18 984:1
voluntary 983:24

W

Wait 970:23
want 984:20
wanted 967:12
Washington 980:17
way 970:11,13
we're 987:16
Web 968:1
Wednesday 968:19
well 967:12 970:15 979:11
 982:23 984:20 987:13,25
Wells 987:7,20,22,25
what's 971:10
Whatever 987:23
Whereupon 988:8,14
Whether 979:10 982:19 983:
25
whom 989:4 990:15
will 969:4 970:19 971:24,25
 982:2 987:9
wiring 972:11
withdraw 974:7
withdrawn 973:25
within 974:19
Without 986:13,17 992:5,10
witness 970:6,24 971:18,23
 972:14 973:5 982:17,18 986:3,
19,22 987:4 988:5,22 990:13
 991:22 992:1
witnesses 970:12 988:16
word 991:12,14
words 991:14
work 978:4 979:20
worked 983:7
working 969:12 977:21
WorldCom 969:8,19 978:2,16
 979:1,10
wouldn't 984:1

Y

year 968:15,15 969:8
years 968:25 976:8 978:5 979:
20
yesterday 970:7
yet 981:6

\$	accounts 1091:22	1096:2 1102:20	bolts 1078:18
\$20 1087:13,17	accurate 1097:22	assumed 1080:2 1086:14	Bond 1080:14
*	achieve 1089:22	1090:12	Boston 1096:24
* 1104:20,20,20,20	Act 1082:2	assumes 1083:17,19 1084:3	both 1074:8 1075:15 1076:25
1	activities 1073:6	1085:22 1090:5,14,20 1091:18	1082:22 1097:16,20
1 1093:21 1097:18	actual 1079:23	1093:8 1094:10 1101:7 1102:24	bottom 1097:17
100 1079:9	actually 1073:6 1079:20 1090:19 1095:23	Assuming 1097:19,22	brand 1081:19,22 1083:17,19
109 1097:16	additional 1103:5	assumption 1074:2 1091:23	1084:4,15,24 1085:5 1088:10
11 1080:1,3	address 1082:16 1083:20	1092:7	break 1092:2,4
12 1097:4	adjacent 1078:14 1104:12	AT&T 1075:10 1081:17 1100:21 1101:20	brief 1072:17 1084:9
14 1085:25 1092:1,3	adjustable 1087:16 1088:15 1090:4	Atlantic 1078:22	briefly 1074:8
15 1080:2,2 1092:1	adjusted 1087:23	attests 1083:12	build 1083:17 1084:15
16 1098:24,24	administration 1086:12	available 1078:19 1082:9,11,12 1104:1	building 1077:13 1079:18
165 1077:2	affected 1099:25	average 1076:25	1083:19 1084:4,24,25 1086:2,8,13,15,18,25 1087:8,19 1088:10 1103:8
16th 1080:24	after 1074:14 1091:1,3 1094:21 1095:11 1096:3 1097:19	aware 1093:12	buildings 1077:10,16,18,20,21 1088:7
17 1097:17 1099:10,13	afternoon 1075:8 1081:11,12,13	B	builds 1085:4
19 1099:10,13	again 1076:15 1078:25 1083:16 1088:13,22 1101:4 1102:13	back 1098:25	built 1077:21 1085:6 1090:15 1091:10 1092:25
2	ago 1085:7	balance 1092:13	business 1085:22,24 1086:1
2 1078:15	agree 1082:1,8,11 1084:14	balances 1073:21	buy 1102:6,10,11
20 1098:24	agreed 1085:8	base 1077:19	C
22 1098:24	ahead 1089:2,19 1098:16	based 1077:3,9 1079:9,21	cable 1077:1,2 1078:9,18
24 1097:17	air 1079:4	1081:22 1083:4 1085:2 1092:15,20,23 1098:1	1093:10,13
25% 1079:19	aisle 1076:7	basically 1076:17 1083:23	cabling 1093:16
263 1098:17,21,24	Alabama 1094:24 1095:13,16,22 1096:3	basis 1074:9,14,18 1076:10 1091:23	cage 1090:18,21 1091:2,10,11,25 1092:3
267 1097:11,17 1098:25 1099:9,13	ALEC 1085:20 1092:16,25 1093:18 1094:10	battery 1079:19	11,25 1092:3
268 1097:17	ALECs 1073:22 1093:12 1094:8 1096:18 1098:9	bay 1093:25 1094:1,3,6,9,11,14,17,19 1095:3,13,22 1096:5,18 1097:24 1098:10,11 1099:15,21 1100:21,21,22 1101:3,5,6,8,11,20,20,20,22 1102:2,6,16,17,17	11,25 1092:3
271 1097:5	allocated 1076:16	bays 1093:22,22 1096:23,25 1100:10,20 1101:9,16,19 1102:5	11,25 1092:3
3	allow 1084:7	bears 1092:8	can 1072:25 1074:10,12 1078:17,25 1079:2,13,16 1082:15
3 1078:20	allowance 1091:10	because 1074:5 1075:9 1079:12 1085:3 1091:9 1093:15	1087:23 1089:12 1093:20
30% 1079:22,24	aloud 1099:11	1095:3,10,13 1096:23 1099:24	1094:18,19,20 1095:25 1096:2 1097:14 1099:14 1102:6
33 1072:10	alternate 1093:9	become 1079:12	can't 1074:16
34 1072:13	alternative 1074:11,16	before 1072:5 1080:17 1097:19	capacity 1079:22
35 1075:5 1090:10 1091:12 1092:5 1093:1,21,23	amount 1076:1 1103:2	begins 1097:16	capital 1073:18
36 1081:1	amp 1080:2,2 1088:23	behalf 1081:16	card 1088:7
37 1081:5	amps 1080:1,3	behoove 1102:25	Carolina 1097:5
38 1097:9	analysis 1072:19 1084:19	believe 1073:15,20 1080:4 1082:7,23 1083:11 1085:8 1088:1 1090:19 1091:16 1095:17	carriers 1104:2
39 1103:20	another 1091:4,6 1094:22 1103:4,6	Bell 1077:15 1078:22,23	case 1077:3,3,10 1086:10 1095:11 1101:10 1103:9
4	answer 1082:16 1084:8 1085:2,4 1089:18 1096:1 1098:15 1099:18,19	BellCore 1076:7	cases 1086:4,6,10,14
4 1078:20	answered 1084:5	BellSouth 1073:21 1074:4 1075:24 1076:18,25 1077:7,8,11,19,23 1078:11,14 1079:12,20 1081:7,14 1082:1,19 1083:1,11 1085:16 1090:25 1091:2,7,9,12 1092:2,4,16 1094:5,23 1101:12 1103:1 1104:10	causative 1073:5
40 1090:18	answers 1089:12,14	1085:11 1090:24	center 1085:5,6
400 1077:8	anybody 1074:5	besides 1095:4	central 1073:1,25 1075:9,12 1077:7 1078:22,23 1081:19,22,24 1082:13,19,23,25 1083:2,2,6,18,20 1084:4,15,20,21 1085:11,17 1087:10 1090:25 1093:15
49 1091:6,9	anyone 1102:16	best 1077:3	cents 1088:23,24,25 1089:3,4,21,23,23,23 1090:1
5	anything 1077:14 1099:3 1101:2,5,22	between 1073:21 1074:11 1076:4 1078:7 1086:25 1089:12 1094:7	cetera 1076:24 1079:14 1083:9,9 1086:12
5% 1088:14,19	apologize 1072:7 1089:15	Bissell 1073:23 1074:19,20,25 1075:2,7,8,9 1080:9 1081:11,13 1082:22 1083:4 1084:23 1085:22 1087:12 1088:9,24 1089:3,20 1090:8 1093:3 1094:25 1096:11,16,22 1097:21 1098:8 1100:5,14,17,24 1101:7 1103:14 1104:4	chance 1097:20
50 1090:19,20 1091:12	appear 1098:4	blend 1077:3,6	changes 1079:11
51.323 1103:17	applicable 1082:23	blue 1093:2	charge 1074:18 1083:25 1084:11
51.323(f)(2) 1103:23	approach 1073:20 1077:4 1079:8		chart 1074:22,25
550 1076:1,3 1086:5	approaching 1093:19		check 1096:12
6	appropriate 1081:23 1092:19		chimed 1082:22
6 1097:14	approval 1096:21 1099:20		choice 1093:14
68 1085:19,20,22,24 1086:1,19	approve 1097:25		chose 1075:23 1077:8
7	approximation 1088:19		CLEC 1074:16 1078:5,8,10 1094:4,7 1101:8 1102:24,25
7 1097:18	area 1076:8,9,15 1077:17 1078:8 1079:10 1083:15 1087:20,21,21 1094:13 1096:18,24 1097:1,24 1100:10		CLECs 1076:4,6 1079:10,11
75% 1091:16,20 1092:7,9	areas 1079:9		client 1095:12 1098:1
A	argued 1079:17		close 1076:11 1093:15
able 1098:10 1100:1	around 1078:2		closest 1076:16
about 1073:23 1074:7 1081:16 1082:12 1084:3 1088:16 1091:12 1092:19 1095:22 1098:20,22 1099:4,7 1100:6 1101:14 1102:2,9,10	arrangement 1075:19		CO 1073:25 1078:5
AC 1089:1,22	arrangements 1088:7,11		collocated 1095:3,13 1096:4
accept 1096:12,20 1097:24,25 1099:16	ask 1080:18 1097:6,10 1103:18		collocation 1073:10,17 1074:1 1075:13,13,14,16 1076:3,9,12,15 1077:19 1078:4,8,12,12,16,23 1081:19,24 1082:3,19
access 1088:7,11 1096:18 1098:11 1099:15 1102:16	asked 1095:22 1099:3		
accommodate 1079:11	asking 1095:2 1097:25 1099:5,8		
accomplish 1075:11	associated 1085:10		
account 1084:16 1087:4,7	assume 1081:19 1084:18 1085:19 1086:24 1087:13 1090:17 1092:24 1095:25		

1083:15,17,23 1084:12,17
 1085:21 1090:5,12,14 1091:1,1
 1092:17,21 1097:24 1099:16
 1102:22,23 1103:11,18,18
 1104:3
collocator 1091:4,6,8 1104:9
collocators 1074:13,17 1092:
 10,11 1093:6 1094:15,16 1095:
 4 1100:8,9 1102:22
color 1074:22
come 1072:19 1076:9 1087:24
 1088:17
comes 1090:24 1091:4,6,8
coming 1094:4
Commission 1079:7 1097:25
COMMISSIONER 1072:5,10,
 13 1075:3,5 1080:11,13,15,16,
 20 1081:1,5,7,8 1084:7 1089:9,
 15 1097:3,8 1103:16,20 1104:
 16
Commissioners 1074:21
common 1076:5,6 1079:10
 1084:23 1092:24 1093:1,5
 1094:13 1096:18,23 1097:1
 1100:10 1101:2
company 1084:15 1090:24
 1093:9,10
compare 1079:25
compared 1077:5
compensated 1074:5
competitive 1078:19 1083:23,
 24 1084:11
complete 1079:18 1088:10
completely 1076:6,7 1079:10
complexity 1079:4
components 1078:4,16
composite 1072:10,13
comprehensive 1080:4
Con 1081:3
concerned 1102:9,10
conclude 1078:1
conditioning 1079:5
confidential 1081:3
configuration 1079:11 1102:
 21
configured 1098:2
confirm 1099:6,8
confused 1102:1
connection 1094:6
connections 1078:10
connectivity 1075:19 1077:1
 1078:7
connects 1076:11,13,17 1078:
 11 1093:16,19
conservative 1075:23 1079:8
consistent 1076:7 1088:1
construct 1073:7 1104:12
constructing 1084:12 1085:14
construction 1088:10
consultants 1075:11
consumption 1079:22
contains 1081:3
context 1099:2,3
contiguous 1102:23 1104:1
continue 1089:18
continues 1104:17
convert 1072:20
copy 1095:24 1097:4
correct 1082:20 1090:1 1091:
 17 1093:10 1095:17
correctly 1103:3
COs 1076:14 1077:17,25
cost 1073:5,10,24 1079:17
 1080:7 1081:18 1082:18 1083:
 16,19 1084:4,12 1085:10,13,13
 1087:4,7,9,9 1088:6 1089:1,22,
 22 1090:21 1091:2,7,9,16
 1094:25 1102:20,21 1104:5
costed 1104:13
costing 1073:3
costs 1072:20,21,25 1073:5,
 13,15,16 1074:2,8,13 1080:5
 1081:21,23 1085:10,15 1098:1

couple 1073:22
court 1089:10,11
covered 1101:6
covers 1101:5
create 1075:11
created 1075:18
creating 1083:14
cross 1076:11,12,17 1078:11
 1080:17 1081:9 1093:16,19
 1094:5
customer 1099:23
customers 1099:25 1100:3

D

days 1085:19,20,24 1086:1,19
dealing 1073:4 1078:17,18
DEASON 1072:5,10,13 1075:
 3,5 1080:11,13,15,16,20 1081:
 1,5,7,8 1084:1,7 1089:9,15
 1097:3,8 1103:16,20 1104:16
debt 1073:18
decides 1084:15
decision 1084:17
default 1088:14,16,22 1090:1,
 3 1092:18
demand 1092:16,16,23
demarcation 1094:7
demolishing 1085:11
demonstrates 1078:16,20
depends 1091:3,5 1092:5,9
depict 1089:21
deployment 1077:14
deposition 1080:22,23,23,25
 1081:4 1082:21 1085:9 1091:
 25
derived 1077:2,10 1087:18
describe 1093:5
design 1072:24 1082:18 1083:
 2
designed 1084:24,25
desks 1076:2
determine 1084:20 1095:12
 1096:3
develop 1075:14 1077:1 1089:
 1,7
developed 1073:16,24 1074:2,
 8,13,17
developing 1079:8
develops 1081:21 1084:13
diagram 1093:20
diagrams 1093:2
didn't 1083:1 1101:23 1102:2,
 4
diesel 1079:21
difference 1074:10
different 1076:21 1077:14
difficult 1100:1
direct 1072:11 1086:21 1087:1
 1099:23
disable 1099:23
discern 1100:1
discuss 1076:22
discussed 1091:25
distance 1077:5
Docket 1097:5
document 1103:24
does 1073:10 1081:19 1082:
 18,22,24 1085:10,15,19 1086:1
 1087:4,9,12,13,13,16,24 1088:
 6,12,20 1090:8,16,17 1091:18
 1092:24 1093:11 1101:13
 1102:20,21 1104:6,8
doesn't 1104:5
doing 1072:20 1086:16
done 1086:15,16
doors 1101:9,11,14,15,16,19,
 23 1102:2,5,5,6,7,11
dots 1093:2
down 1079:3 1086:13 1100:16
downtime 1074:14
downtown 1077:10,17,20
drawing 1078:3

drawings 1086:16
DS-1 1076:13
DS-3 1076:13
during 1089:13
dust 1079:3

E

each 1075:19 1094:10 1102:
 18 1104:12
early 1091:21
easiest 1093:4
easy 1073:11,11
economic 1074:3 1083:21
 1090:17
economically 1079:2
effects 1073:13
efficient 1073:17 1084:21,25
 1085:6
effort 1073:9
either 1074:11 1082:15 1084:
 19 1096:7
electrical 1086:7
electricity 1088:21
else's 1100:18
embedded 1072:22 1082:24
emphasize 1073:14
employee 1101:21
empty 1074:4 1091:11 1092:1
enclosures 1078:21,25
encourage 1084:9
end 1086:15
energy 1089:1,22
environment 1076:3 1079:2
 1083:23,24 1084:11
environmets 1075:21
envisions 1094:8
equipment 1076:5,8,11,19
 1078:6,10,13,14 1083:8 1086:5
 1093:17 1094:1,22 1099:24
 1101:13
equity 1073:18
err 1075:23
essential 1074:9
establishing 1081:24
estimate 1092:18
et 1076:24 1079:14 1083:9,9
 1086:12
even 1079:12,16 1092:2,4
 1103:5
every 1093:16,18 1095:24
everyone 1093:5
exactly 1094:22
EXAMINATION 1081:9
example 1079:7,23 1089:21
 1096:24 1101:9
examples 1079:14
excellent 1080:5
except 1078:13
exceptions 1082:5
exchange 1093:9,9
Excuse 1084:1 1090:11
executive 1096:8,13
exemptions 1082:5
exhibit 1072:10 1075:5 1080:
 21,22 1081:1,2,2,5 1090:10
 1093:1,21,23 1097:9 1103:20
exhibits 1072:6,8,12 1080:18,
 23,24
existing 1081:24 1082:13,19,
 23,24 1083:1 1084:21 1085:11,
 16,16 1086:5 1104:3
exists 1072:23
expand 1076:19 1102:22
 1104:2
experience 1075:10 1077:9
 1083:5
experiences 1076:23
expertise 1075:22
experts 1088:17
explain 1084:8
explanation 1084:5
explanations 1084:9

F

f)(2 1103:22
fact 1083:10,12,12 1084:25
 1086:11 1087:24 1091:11,25
 1092:20 1096:4,25 1097:2
 1098:11 1100:2 1101:13
factor 1091:14 1092:8,9,11,15
factors 1084:16 1092:20
falling 1099:22 1100:15
familiar 1090:24 1103:10
FCC 1103:17
FCC's 1103:10
feet 1076:1,3 1077:2,9 1086:5
 1090:6,11,11,25 1094:16,20
 1103:4,5 1104:11,13
few 1076:14 1078:4 1079:14
fewer 1079:13,13,13
Fiber 1078:6
figure 1087:17,18 1088:3
 1094:18
filed 1089:25 1090:2,3 1095:
 16
financial 1092:8
fine 1082:16
first 1072:21 1075:11 1076:9,
 10 1078:3,3,7 1080:21 1092:1,
 3,25 1093:23
fit 1077:24 1083:13
five 1086:25 1088:22,24,25
 1089:6,21,22 1090:1
flexibility 1075:25
flexible 1072:25 1075:20
floor 1093:18 1103:6
floors 1077:18
Florida 1077:11 1083:2 1084:
 21 1085:16 1086:22,23 1087:5,
 6,8,16,22 1088:12,14,20 1092:
 17 1093:12
follow 1072:21 1073:3,8,12
 1095:11
following 1092:5
foot 1079:9 1087:14,17
forecast 1092:16,23 1103:2,3
 1104:11
forward-looking 1072:22
 1075:12 1077:4
found 1076:8 1087:5
four 1072:21 1076:2,4 1079:9,
 19 1086:25 1091:19 1094:15,
 15 1100:7,9,9 1104:11
fourth 1073:8 1074:7
Franklin 1096:24
front 1086:15
full 1073:16 1091:12
fully 1074:3
fundamentally 1077:20
further 1104:15
fuse 1079:22 1080:2,2
fusing 1079:24

G

gates 1079:13
gave 1095:24
generally 1084:7 1103:13,14
generated 1077:6
generator 1079:21
generous 1077:5 1079:12
give 1072:4,15 1075:7 1090:23
goes 1100:5
Good 1075:8 1081:11,12
got 1089:9 1098:14 1100:8,9,
 9,21
grade 1076:13
grounding 1076:24
group 1096:9,14
GTE 1078:23

guess 1088:18 1090:9 1092:19 1093:20 1096:15

H

hall 1086:13
 hallway 1079:3
 hand 1077:8 1097:4
 handing 1103:16
 handout 1078:2,15 1079:6 1090:10
 happen 1094:3
 happened 1100:2
 happens 1091:3 1092:5
 happy 1076:22
 HATCH 48:1 1072:5,7,11,14 1074:20,24 1075:3,6 1078:2 1080:9
 Hatfield 1087:25 1088:1,4
 having 1098:20,20 1102:16
 hearing 1096:3
 here 1072:18 1078:18 1079:3 1080:6 1083:6 1086:13 1089:3, 10,25
 hesitate 1089:12
 high 1079:1 1092:11
 higher 1079:20,22,24
 home 1079:25
 hours 1079:19
 how 1089:1,7,21
 However 1079:10
 hundred 1090:6,10,11,25 1103:4,5 1104:11,13
 HVAC 1079:15,18
 hypothetical 1090:23 1100:7

I

I'd 1103:18
 i.e 1102:16
 identical 1078:13
 identification 1072:9,12 1075:4 1097:7 1103:19
 identified 1072:6,8 1097:8
 ILEC 1076:8,12,22 1094:5,7
 implement 1075:15 1078:4
 implemented 1085:21
 implications 1083:21
 important 1079:1,7
 impossible 1093:17
 improper 1099:22
 improve 1092:21
 include 1085:10,15 1086:1 1087:9 1088:6,11
 included 1079:15 1086:18
 includes 1073:18 1075:18 1079:18 1082:8 1088:9,25
 including 1092:20
 inclusive 1075:19
 incorporated 1075:25
 incorrect 1077:20
 increments 1090:6
 incumbent 1073:21 1074:11 1084:14 1093:8 1104:1
 incumbents 1078:21
 incur 1079:20
 incurred 1073:17
 indeed 1095:12
 input 1087:16
 inquiry 1096:3,6
 install 1076:5
 installation 1078:22
 installed 1079:2
 installing 1088:7
 intention 1089:7
 interface 1076:5
 interpret 1102:15
 interrupt 1089:13
 intimately 1103:14
 investment 1080:6
 investments 1072:19 1075:14, 16,21 1077:1,19 1079:9,12,15 1080:7
 involved 1074:22

iron 1078:18
 isn't 1083:18
 isolated 1076:23
 isolation 1100:1
 item 1073:6,7
 items 1074:10,15 1078:19
 itself 1076:18 1103:1

J

January 1080:24
 JCK 1081:2
 JCK-4 1080:22
 job 1072:18

K

KEATING 1080:15,17,21 1081:2,6
 keep 1089:12
 kind 1092:23
 Klick 1072:2,3,15,17 1075:17 1079:16 1080:8,9 1081:11,12, 21 1083:20,22 1084:10 1085:8 1087:11,15 1088:13 1089:2,4, 16 1090:2,19 1095:16,18 1096: 10,15 1098:3,15 1100:15,18 1101:1 1103:13
 Klick's 1072:8 1080:24
 knew 1095:8 1099:3
 know 1084:1 1088:3 1096:7 1097:1 1098:22 1101:16 1102: 4
 knowledge 1086:21 1087:1 1098:18 1099:4,7

L

labeled 1093:22
 land 1087:10,14,24
 large 1077:17,17 1083:14
 larger 1079:11
 last 1079:6 1090:9 1093:1,22
 lastly 1078:10
 late 1091:22
 late-filed 1080:23
 law 1096:8,13
 layout 1082:19 1083:13
 lead 1075:10
 learn 1096:17
 least 1096:20
 leave 1102:22
 leaves 1091:1
 LEC 1074:16 1084:14 1104:1
 LECs 1074:12 1099:14
 left 1104:10
 left-hand 1078:7
 lengths 1077:1,2,9
 less 1077:22
 let 1090:23 1097:12 1101:3
 let's 1098:5,6,13,25 1100:20
 level 1097:23
 life 1074:3 1090:17 1091:21,22 1092:22
 like 1078:1 1086:12 1089:17, 18 1097:18
 likelihood 1092:22
 likely 1079:18 1080:1 1086:3, 5,8,13 1102:10,10
 line 1097:17
 lined 1094:23 1100:10,11
 lines 1097:18 1098:24 1099:9, 12,13,14
 lineup 1094:17,20 1101:19
 little 1092:12 1101:15
 load 1079:23
 local 1089:23 1093:9,9
 located 1074:1 1078:13 1087: 19,20 1095:4 1096:23,25
 location 1076:16
 locks 1079:14 1101:15
 long 1073:4 1085:7
 look 1083:1 1094:2 1097:14, 16,20 1098:5 1103:22
 looking 1076:19 1090:9 1093:

1
 looks 1093:20
 lot 1085:5 1100:2,3
 low 1078:17 1092:10

M

ma'am 1091:15
 made 1087:15,22 1088:14 1094:6 1096:6
 major 1076:14 1087:21
 majority 1077:16,18
 make 1073:11 1096:2 1104:1
 making 1074:14 1084:17
 manhole 1078:7
 manner 1102:23
 manufacturer 1080:1
 many 1086:4,6
 marked 1072:8,12 1075:4 1080:18 1097:6 1103:19
 Martinez 1096:7,8,13 1097:19, 22 1098:17 1099:6,8 1102:12, 14
 Martinez's 1097:15
 Massachusetts 1096:25
 matter 1089:5 1096:19 1099: 15,19
 may 1076:15 1086:7 1088:2 1098:15
 MCI 1075:10 1076:25 1078:21 1081:16 1095:3,4,12 1096:3,4, 9,14,19,19 1098:1,10,11 1099: 15,16 1100:21 1101:19,20 1102:4
 MCI's 1077:24 1098:20 1101: 16,22
 MCI/AT&T 1081:18
 mean 1087:20 1091:18 1100:8
 means 1076:10 1102:14
 member 1096:8,13
 mesh 1090:15,18 1101:6,24
 metal 1078:20 1086:4
 method 1088:25
 metropolitan 1087:21
 MFS 1100:22 1101:20,21
 might 1090:23 1097:14
 minimizes 1079:4
 model 1072:24 1073:9,10 1075:12,13,13,18 1076:1,3,20, 25 1077:4,24 1079:8 1080:4,5 1081:16,18 1082:18 1083:3,16 1084:3,13,20 1085:10,13,15, 19,22 1087:4,7,9,13,13,25 1088:2,4,6,9,12,17,20 1089:25 1090:2,3,5,12,14,17,20 1091: 10,16,18 1092:24 1093:8 1094: 8,10,14,25 1097:25 1098:1 1100:9,12 1101:7 1102:20,20, 21,24 1104:8,9
 modeling 1080:7
 models 1104:12
 modernization 1083:8
 money 1091:21
 more 1076:22 1079:1,12 1083: 20,25 1084:11,21,25 1085:5 1091:22 1104:11
 most 1079:6
 move 1080:17 1086:11
 moving 1085:15
 MS 1080:15,17,21 1081:2,6,8, 10 1084:1 1085:8 1089:13,15 1097:3,10,13 1103:16,21 1104: 15
 much 1080:8 1092:10 1103:1
 multiple 1099:24

N

name 1075:8 1081:14
 Nancy 1081:14
 Natali 1095:17,19
 naturally 1086:11
 nature 1099:24
 necessarily 1082:17 1091:20

necessary 1078:4 1083:5 1086:20
 need 1083:14 1086:7,8,13 1089:13 1101:8
 needed 1084:6 1086:2,3
 needs 1087:23
 new 1076:19 1079:18 1081:19, 22 1083:17,19 1084:4,12,15,24 1085:3,5,14 1087:10 1088:10
 next 1076:16 1081:2
 nicely 1077:24
 nobody 1089:17
 nondiscriminatory 1073:2
 nonrecurring 1074:9,17
 nonuse 1074:14
 nor 1085:18
 North 1097:5
 nothing 1095:8 1104:15
 Now 1072:15 1081:18 1082:1, 18 1084:14 1087:18 1089:17 1090:5,23 1092:15,24 1093:8 1094:20,24 1095:16 1099:5 1100:20 1101:2 1102:1,20
 number 1088:19 1092:20 1097:5
 nuts 1078:18
 nutshell 1076:10

O

obligation 1082:2,4,6
 obtain 1091:24
 obtaining 1086:2,18 1087:7
 Obviously 1087:22 1089:2
 occupancy 1091:14,21,22 1092:7,9,11,15
 occupied 1074:3 1091:11,19 1092:1,3,22
 offered 1083:24
 office 1073:25 1075:9,12 1076:2 1078:22,24 1081:20,22 1082:13 1083:3,18,20 1084:4, 16,20 1085:12,16,17 1087:10 1090:25 1093:15
 offices 1073:1 1077:7,23 1081:25 1082:20,23,25 1083:2, 7 1084:22 1101:12
 Oh 1072:7 1080:13 1098:16
 Okay 1082:15 1086:1,21 1087: 18 1088:3,6 1090:9,14,20 1093:4,8 1094:12,24 1095:7 1096:12,17 1101:1 1103:10
 old 1085:3,3
 older 1077:22
 on-site 1079:21
 once 1083:16 1093:15 1097: 10
 One 1072:21 1073:15,24 1076: 4 1077:15,16,18 1078:21 1082: 8,15,17 1084:3,19 1085:4 1086:2,3 1089:10,14 1090:25 1091:1,3 1094:21 1100:16 1102:11,18 1103:4 1104:9
 one-hundred 1094:16
 one-time 1074:18
 only 1076:1 1077:10 1089:10, 14 1099:23 1104:9
 onto 1100:18
 open 1073:9
 operate 1073:7
 opportunity 1077:12
 opposite 1103:8
 optimal 1082:18
 Optimum 1075:25
 order 1083:2 1092:25 1097:23
 originally 1077:21
 other 1077:8,11,14 1078:21,22 1079:14 1082:17 1084:16 1088:19 1095:4,24 1096:18 1098:9 1099:14 1101:25 1104: 12
 otherwise 1099:21
 out 1074:21 1084:15 1085:3

1086:12 1091:19 1092:25
 1097:4 1099:3 1100:3 1103:16
 over 1074:3,19 1075:16 1079:
 16 1091:9,12 1092:22 1101:4
 oversized 1077:21
 own 1093:18 1094:11 1098:1
 1102:18

P

P-55 1097:6
 P-O-T 1093:22
 page 1078:3,3,15,20 1079:6
 1090:10 1093:1,21,22,23 1094:
 19 1095:24 1097:11,14,16,16,
 17,17 1098:21,23,25 1099:9,13
 pages 1098:5
 paid 1076:6 1079:10
 panel 1089:10,11
 panels 1079:13
 Pardon 1102:3
 particular 1073:6,7
 particularly 1086:22 1087:5
 passed 1074:21 1078:2
 paying 1092:10,12
 payment 1091:24
 people 1086:12
 per 1087:14,17 1092:23
 percent 1091:13
 percentage 1077:23
 performed 1084:19
 perhaps 1079:6
 period 1085:20
 permit 1086:2,7,7,14,15,18,25
 1087:8
 permitting 1086:8,22 1087:2,5
 person 1089:14
 personal 1098:18 1099:4,7
 perspective 1074:1
 philosophies 1076:20
 physical 1075:13,15 1078:12
 1081:19 1082:3 1083:16 1085:
 21 1091:1 1092:17 1103:17
 physically 1093:17
 picture 1094:2,18
 piece 1093:16
 place 1080:2 1094:20
 placed 1094:21
 Placement 1076:9
 placing 1076:10
 planning 1075:9 1076:17,20,
 23 1080:6 1083:4
 plant 1072:22 1082:24
 please 1072:4,16 1099:9,10,
 12,18 1102:13
 plug 1089:4
 plus 1079:9
 pockets 1077:25 1083:11,12,
 13
 point 1073:20 1076:12 1094:6
 points 1073:14
 policy 1096:9,14,19 1099:16,
 19
 portions 1081:3
 possible 1076:11 1103:25
 1104:7,8
 POT 1093:22,22,25 1094:1,3,
 9,11,17,19 1101:3,5,6,8,9,11,
 16,19 1102:16,17,17,18
 POTS 1094:14 1095:3,13,22
 1096:5,18,23,25 1097:24 1098:
 10,11 1099:15,21 1100:9,20,
 21,21,22 1101:20,20,20,22
 1102:2,4,6
 power 1078:9,10 1079:21
 1088:21
 practices 1076:8
 prepare 1074:25
 prepared 1075:1,2
 present 1091:23
 presentation 1092:13
 president's 1096:21 1099:20
 presidential 1097:23

previous 1085:1
 previously 1074:21
 price 1087:14
 prices 1081:24
 principle 1073:8
 principles 1072:21 1073:3,5
 probably 1073:23 1079:22
 1083:20 1101:25,25
 problem 1100:1
 proceeding 1097:5
 process 1086:22 1087:2 1092:
 13
 profit 1073:19
 protect 1101:3
 protection 1101:6
 provide 1073:9,16 1078:9
 1079:1 1082:2 1102:25
 provided 1074:4 1078:8
 provider 1073:17
 providers 1079:24
 provides 1076:4 1079:7 1090:
 3
 provision 1074:14
 public 1096:9,14
 purchase 1101:10 1103:3
 purchases 1101:8
 purchasing 1087:10

Q

quarters 1091:24
 question 1082:21 1084:2
 1098:15,19 1099:10,17
 questions 1076:22 1080:12
 1081:15 1082:16 1095:21
 quickly 1079:2
 quotes 1075:22

R

rack 1078:18 1093:18 1094:1,
 2,9
 racks 1093:10,13
 rate 1088:20 1089:23 1090:1,
 21
 rates 1088:12
 read 1095:21,23 1096:1 1097:
 18 1098:3,8,8,17,21 1099:2,6,
 9,9,10,14,18
 readily 1078:19
 reading 1098:4
 really 1073:14 1085:2
 reason 1080:5
 reasonable 1080:4
 rebuttal 1072:12
 recall 1088:5 1094:24 1095:2,
 18
 recollection 1095:7
 recommend 1079:24
 recommendations 1080:7
 recover 1091:2,7,9,12
 recovered 1090:21
 recovery 1073:16
 rectangle 1093:21
 recurring 1074:9,13 1090:21
 Redmond 1085:8
 refer 1078:16
 reference 1087:19
 referred 1092:12
 referring 1078:2
 reflect 1072:22 1073:5,6
 reflects 1085:13 1091:20,23
 1092:19
 regard 1076:23
 regarding 1094:25
 rejected 1095:3,13 1096:4
 1098:20
 related 1076:23
 relatively 1092:21
 relay 1094:1,2,9
 rely 1082:24
 remember 1095:8 1099:21
 renegade 1101:21
 renovating 1085:11

Repeat 1102:13
 replaced 1083:9
 reporter 1089:10
 reporters 1089:11
 represent 1077:23 1081:14
 request 1075:3
 requested 1075:10 1090:6
 requesting 1104:2
 requests 1085:20
 require 1086:7 1096:20 1097:
 23 1099:20
 required 1073:7 1075:15
 1076:15 1078:5,9,11 1103:2
 requirements 1078:9 1087:5
 requiring 1086:6
 reserves 1079:19
 respect 1076:16
 responded 1080:8
 return 1073:18
 reused 1074:12,16
 reviewed 1103:24
 Rick 1075:9
 right 1083:18 1085:25 1086:15
 1092:15 1098:5,13 1100:12,20
 right-hand 1078:6
 rings 1099:23
 riser 1078:8
 risk 1073:21 1092:8,14
 Ron 1096:7
 room 1102:22
 roughly 1076:2 1079:19 1085:
 25 1086:24 1094:20
 rules 1103:10,17,22,25
 run 1073:4 1087:22 1088:13
 1090:2
 runs 1087:15 1088:13
 rural 1075:21 1077:7 1087:20

S

said 1095:8,10 1099:6,9 1100:
 12,13 1102:4
 same 1076:17 1079:14 1083:
 7,8 1094:13,22,25 1102:17
 1103:1
 say 1074:18 1080:1 1084:10
 1100:7,21 1104:5,6
 saying 1083:10,22 1089:20
 1098:9,21 1102:15,18,18 1104:
 14
 says 1098:18 1099:4 1104:4
 scenarios 1077:3
 schematic 1078:3
 schematics 1075:19
 se 1092:23
 second 1073:20 1075:14
 1089:9 1091:8
 Secondly 1072:24
 Section 1103:17
 secure 1079:1
 security 1088:7,11
 see 1077:12,13,14 1078:17,25
 1079:3,13 1093:21 1094:14,18,
 19 1095:21 1097:15 1101:12,
 25
 seek 1104:2
 seen 1077:15 1096:23
 segregated 1078:5
 Self 1080:11,12
 sense 1084:23
 sequence 1104:17
 serve 1076:10 1094:15,17
 service 1100:3
 serving 1077:15
 set 1072:25
 seven 1089:23
 shall 1104:1
 share 1093:10,13 1094:9
 shared 1074:11
 sharing 1102:16
 short 1076:20
 shorter 1077:5
 should 1085:18 1092:21

show 1089:7
 showing 1088:25
 shows 1078:4,15,20 1100:12
 side 1075:23 1078:6,7 1100:
 11,11,19,19,23,23,25,25 1103:
 8
 similar 1083:7 1094:22
 Similarly 1101:11
 simultaneous 1086:16
 single 1074:15
 situation 1079:25 1095:9
 1098:18
 situations 1073:1
 six 1076:2 1089:3,4,23
 size 1079:4
 sizing 1076:1
 small 1077:23 1092:21
 smaller 1077:24 1083:13
 smallest 1090:12
 solder 1099:22 1100:13,15
 solely 1077:20
 some 1074:14 1077:12,24
 1078:15 1081:15 1086:10
 1097:19,19 1101:12,13
 somebody 1100:18
 someone 1101:24
 something 1099:6 1101:21
 sometimes 1073:19
 soon 1086:16
 sorry 1072:7 1086:9 1096:2
 1098:7,16,23 1100:8
 sound 1090:24
 south 1086:22 1087:6,8
 Southwestern 1078:23
 space 1074:1,3,5 1076:4,5,6,
 19 1077:25 1078:5 1082:9,11,
 12 1083:11,13,14 1084:17
 1085:12,16 1090:5,12 1091:4
 1092:21,25 1093:1,2,5 1095:3,
 13 1096:4,20 1098:2,20 1099:
 16 1101:2 1102:22,23,25 1103:
 2 1104:1,3
 space-efficient 1077:22
 spaces 1086:5
 spacing 1076:7
 specific 1087:8 1088:12,20
 sponsoring 1081:16
 square 1076:1,3 1079:9 1086:
 5 1087:14,17 1090:6,11 1094:
 16 1103:4,5 1104:11,13
 staff 1080:17,22 1096:8,13
 1104:16
 Staff's 1081:2
 standards 1103:17
 start 1097:14 1101:3
 starts 1099:3
 state 1103:25
 statement 1102:12,14
 states 1077:12
 stays 1091:6,8
 stop 1101:22
 strategies 1076:18
 strategy 1079:15
 Street 1096:24
 strike 1101:3
 strong 1081:23
 SUB1022 1097:6
 subject 1096:12
 subject-matter 1075:22 1088:
 17
 subsequent 1074:12,17 1076:
 14
 substituted 1095:17
 suburban 1075:20 1077:6
 1087:21
 such 1096:6 1098:18,20
 sufficient 1076:4 1102:25
 sufficiently 1075:20
 summary 48:2 1072:6,15
 1073:15 1074:19,23 1075:7
 1078:1 1092:13
 supervision 1075:1
 supplier 1075:22