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August 11, 1999

Mrs. Blanca S. Bayo, Director
Division of Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Docket No. 990649-TP

Dear Mrs. Bayo:

Enclosed for filing in the above-referenced docket are an original and fifteen (15) copies of the direct testimony of Dr. August H. Ankum on behalf of AT&T Communications of the Southern States, Inc. and MCI WorldCom, Inc.

Copies of the foregoing are being served on all parties of record in accordance with the attached Certificate of Service.

Thank you for your assistance with this matter.

Yours truly,

Tracy Hatch

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CERTIFICATE OF SERVICE
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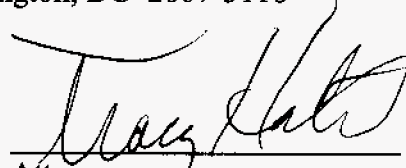
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ORIGINAL

**BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION**

DOCKET NO. 990649-TP

DIRECT TESTIMONY

OF

DR. AUGUST H. ANKUM

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

AND

MCI WORLDCOM, INC.

August 11, 1999

DOCUMENT NUMBER-DATE

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TP 30-RECORDS/REPORTING

1 **DIRECT TESTIMONY OF**
2 **DR. AUGUST H. ANKUM**
3 **ON BEHALF OF**
4 **AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.**
5 **AND**
6 **MCI WORLDCOM, INC.**
7 **DOCKET NO. 990649-TP**
8

9 Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS
10 ADDRESS.

11 A. My name is Dr. August H. Ankum. I am Senior Vice President of QSI
12 Consulting, Inc., a consulting firm specializing in economics and
13 telecommunications issues. My business address is 1350 North Wells, Suite
14 C501, Chicago, Illinois 60610.

15
16 Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK
17 EXPERIENCE.

18 A. I received a Ph.D. in Economics from the University of Texas at Austin in 1992,
19 an M.A. in Economics from the University of Texas at Austin in 1987, and a
20 B.A. in Economics from Quincy College, Illinois, in 1982.

21 As a consultant, I have worked with large companies, such as AT&T
22 Communications of the Southern States, Inc., MCI WorldCom, Inc., cable

1 companies, and a variety of smaller companies. Before practicing as an
2 independent consultant, I worked for MCI Telecommunications Corporation
3 ("MCI") as a senior economist. At MCI, I provided expert witness testimony
4 and conducted economic analyses for internal purposes. Prior to joining MCI
5 in early 1995, I worked for Teleport Communications Group, Inc. ("TCG"), as
6 a Manager in the Regulatory and External Affairs Division. In this capacity, I
7 testified on behalf of TCG in proceedings concerning local exchange
8 competition issues, such as Ameritech's Customer First proceeding in Illinois.
9 From 1986 until early 1994, I was employed as an economist by the Public
10 Utility Commission of Texas ("PUCT") where I worked on a variety of electric
11 power and telecommunications issues. During my last year at the PUCT I held
12 the position of chief economist. Prior to joining the PUCT, I taught
13 undergraduate courses in economics as an Assistant Instructor at the University
14 of Texas from 1984 to 1986.

15

16 Q. PLEASE PROVIDE A LIST OF REGULATORY PROCEEDINGS IN WHICH
17 YOU PARTICIPATED?

18 A. A list of proceedings in which I have participated is attached to this testimony
19 as Attachment AHA-1.

20

OVERVIEW

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Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address some of the issues raised in the July 20th, 1999, Order, Appendix A, in the current proceeding. Specifically, I will address issues 1 and 3(a).

Q. PLEASE SUMMARIZE YOUR TESTIMONY AND STATE YOUR RECOMMENDATIONS.

A. In this testimony I discuss and recommend the following:

-- Prices for unbundled network elements and combinations of network elements should be set at economic cost. By "economic cost" I mean the total element long run incremental cost ("TELRIC") plus a reasonable share of forward looking, economic shared and common costs. This methodology promotes economic efficiency and is compensatory for the incumbent LECs, BellSouth, GTE and Sprint.

-- The TELRIC costing and pricing standard is consistent with the language of the Federal Telecommunications Act of 1996. It provides for prices that are based on economic cost, include a reasonable profit and are non-discriminatory.

Further, although I am not an attorney, I have been advised that the FCC's

1 authority to specify the standards for implementing Section 252(d)(1) was
2 recently affirmed by the United States Supreme Court. (AT&T Corp. et. al. v.
3 Iowa Utilities Board, et. al., Docket No. 97-826. January 25, 1999.) As such, the
4 FCC's TELRIC based pricing methodology is the appropriate standard in this
5 proceeding, both from a legal as well as from an economic perspective.

6

7 **TELRIC IS THE APPROPRIATE METHOD FOR DETERMINING THE**
8 **COSTS FOR UNBUNDLED NETWORK ELEMENTS**

9

10 Q. WHAT IS THE APPROPRIATE METHOD FOR COSTING UNBUNDLED
11 NETWORK ELEMENTS?

12 A. In view of the pro-competitive intent of the Telecommunications Act of 1996
13 and consistent with sound economic and regulatory principles, costs for
14 unbundled network elements should be set at forward-looking, economic costs.
15 Specifically, by "forward-looking economic costs," I mean the total service long
16 run incremental cost of the network element in question, *plus* a reasonable share
17 of forward-looking, efficient, shared and common costs.

18

19 Q. WHY IS IT IMPORTANT THAT COSTS BE DETERMINED BASED ON
20 FORWARD-LOOKING, ECONOMIC COSTS?

21 A. In order for this Commission to be able to carry out the pro-competitive
22 mandates of the Telecommunications Act of 1996, the Commission needs

1 information about the ILECs' true, forward-looking economic costs. Only if
2 prices for unbundled network elements reflect the ILECs' true forward-looking,
3 economic costs, will efficient, widespread competitive entry be possible in
4 Florida. I understand that this phase of the proceeding is not about pricing.
5 However, the ultimate purpose of identifying costs in Phase II of this proceeding
6 is to allow the Commission to set permanent prices for unbundled network
7 elements in compliance with the requirements of the Telecommunications Act
8 of 1996. In view of this, it is important to recognize that, as a general principle,
9 prices for unbundled network elements should be set at rates that are: (1) at
10 forward-looking economic costs; and (2) non-discriminatory.

11

12 Q. WHY IS IT IMPORTANT TO SET RATES ON A FORWARD-LOOKING
13 BASIS?

14 A. Rates should be set at forward-looking economic costs for three important
15 reasons. First, the purpose of regulation is to act as a substitute for market forces
16 when market forces are insufficient to control the actual and potential pricing
17 abuse by a monopoly provider. If market forces were at work on network
18 elements, the prices of those network elements would be at or near economic
19 cost, as I have defined it. Since market forces are not at work on these network
20 elements, regulation must step in to emulate what would occur in a competitive
21 situation: that is, set rates for network elements at economic cost.

22 Second, prices that reflect forward-looking, economic costs send the

1 appropriate price signals to all market participants, thus ensuring that market
2 actions properly reflect a weighing of the societal costs and benefits of
3 consuming telecommunications services. Conversely, if prices do not reflect
4 these costs, then society invariably will either over-consume or under-consume
5 telecommunications services, depending on whether prices are below or above
6 cost. This issue does not just impact end-users, but it also has ramifications for
7 society at large. Telecommunications products are a critical input for many
8 firms in many industries. To the extent that prices for telecommunications
9 products are set above cost, it will adversely affect the competitiveness of firms
10 and industries in Florida. As such, the overall welfare of the citizens of Florida
11 will be diminished if prices deviate from economic costs.

12 Third, prices for essential inputs that are set at cost promote efficient
13 market entry. In contrast, prices that deviate from economic cost discourage
14 efficient entry or promote inefficient entry. For example, if prices for unbundled
15 network elements and interconnection services are set above economic cost then
16 an *efficient* CLEC may be *precluded* from entering the market. The reason is
17 that the prices a CLEC pays to the ILEC are a cost of production that must be
18 recovered from end-users. Thus, the higher the prices for unbundled network
19 elements and interconnection services, the higher will be the prices CLECs must
20 charge their end-users (all other things equal.) Conversely, if prices for
21 unbundled network elements and interconnection services are set below
22 economic costs, then a carrier that is *inefficient* may be inappropriately

1 encouraged to enter the market because its low input prices would still allow it
2 to make a profit. Since the public interest is best served by promoting only
3 efficient entry, prices should be set at economic cost.

4

5 Q. WHY SHOULD PRICES FOR UNBUNDLED NETWORK ELEMENTS BE
6 NONDISCRIMINATORY?

7 If rates are discriminatory, some carriers in the competitive process will gain an
8 advantage not because they achieve superior efficiency, product innovation or
9 service quality, but simply because they enjoy preferential rates. This type of
10 discrimination is harmful because it burdens society with providers that in a
11 fully competitive market place would either not survive or be forced to improve
12 their efficiencies. Most important here is, of course, the potential price
13 discrimination that would occur if the ILEC were allowed to set rates for
14 unbundled network elements that are higher or otherwise less favorable to the
15 CLECs than the forward-looking economic costs that the ILEC incurs when it
16 uses these same facilities in the provision of service to its own retail customers.

17 Last, rates for network elements that reflect or incorporate the ILECs'
18 embedded costs do nothing but protect the ILECs from competition. Under such
19 pricing, the ILECs are all but indifferent to competitive entry, since they will
20 always recover their embedded costs, whether from their own retail customers
21 or from competitors who need to purchase the network elements. No
22 competitor, including the ILECs, can be protected in that fashion and have

1 competition work to reduce prices and bring benefits to consumers. Simply put,
2 if the Commission is serious about bringing the benefits of competition to the
3 consumers of Florida, it must adopt cost-based rates for network elements and
4 expose the ILECs to the forces of competition.

5 In short, if prices deviate from true forward-looking economic costs then
6 invariably the competitive process will be impaired and social well being will
7 be harmed. In view of this, it is critically important that the Commission select
8 the appropriate principles to guide staff and the other parties in Phase II of this
9 proceeding in the identification of costs for unbundled network elements.

10

11 Q: DO THE TERMS TSLRIC AND TELRIC GENERALLY REFER TO THE
12 SAME COSTING METHODOLOGY?

13 A. Yes. The term TELRIC was introduced by the FCC in its Local Competition
14 Order¹ to emphasize that the focus of the costing exercise was on network
15 elements rather than on end-user retail services. If the TSLRIC methodology is
16 used to determine the costs for unbundled network elements -- as opposed to the
17 costs for finished retail services -- then it should identify the same costs as the
18 TELRIC methodology. In short, the difference between the two terms is largely
19 semantic.

20 Moreover, I believe the Commission itself has previously noted that, at
21 least theoretically, there should not be substantial differences between the
22 TSLRIC cost of a network element and the TELRIC cost of a network element

1 (See Order No. PSC-97-0064-FOF-TP, page 25).

2

3 Q. HAS THE FCC ITSELF RECOGNIZED THAT TSLRIC AND TELRIC IN
4 ESSENCE REPRESENT THE SAME METHODOLOGY?

5 A. Yes. In its Local Competition Order, the FCC noted that prices for unbundled
6 network elements (and for interconnection) should “be based on the TSLRIC
7 (Total Service Long Run Incremental Cost) of the network elements, which we
8 will call Total Element Long Run Incremental Costs (TELRIC).” (Paragraph
9 672)

10 In what follows, I will use the term TELRIC to refer to the costing
11 methodology for determining forward-looking, economic costs.

12

13 **DISCUSSION OF TELRIC PRINCIPLES**

14

15 Q. PLEASE DISCUSS THE BASIC PRINCIPLES OF TELRIC.

16 A. Generally speaking, TELRIC is the economic cost of providing a product (such
17 as an unbundled network element) when a firm has sufficient time to vary *all*
18 inputs used to provide that product. To determine the TELRIC of a network
19 element, cost studies should employ a number of costing principles. These
20 costing principles are:

21

22 *Principle # 1: The firm should be assumed to operate in the long run.*

1 party owns or controls something the other party desires. Under
2 section 251, monopoly providers are required to make available
3 their facilities and services to requesting carriers that intend to
4 compete directly with the incumbent LEC for its customers and
5 its control of the local market. Therefore, although the 1996 Act
6 requires incumbent LECs, for example, to provide
7 interconnection and access to unbundled elements on rates, terms,
8 and conditions that are just, reasonable, and nondiscriminatory,
9 *incumbent LECs have strong incentives to resist such obligations.*
10 (Emphasis added.) (Paragraph 56)

11

12 Thus, the Commission should refuse to take on faith the veracity of the
13 incumbent LECs' cost studies. Each aspect of the cost studies must be
14 documented in such a manner so as to allow full verification by the
15 Commission as well as by the other parties in this proceeding.

16

17 Q. PLEASE DISCUSS THE FIRST PRINCIPLE THAT THE FIRM SHOULD
18 BE ASSUMED TO OPERATE IN THE LONG RUN.

19 A. The "long run" for purposes of a cost study should be defined as a period of
20 time long enough to allow for the assumption that the firm is in the planning
21 stage and able to vary all inputs in the production process. In other words, in
22 the long run all inputs are variable.² This is the standard economic definition

1 of "long run."

2 The essence of this assumption is to allow a cost analyst to identify only
3 those costs that a firm would incur if it were to construct and operate an
4 optimally efficient network for a given level of output. Conversely, it allows the
5 cost analyst to exclude from cost studies those costs that stem from an ILEC's
6 embedded inefficiencies.³

7 The assumption that the company is operating in the long run allows the
8 Commission to determine the company's costs and set prices for unbundled
9 elements as if the company were operating in a competitive environment. That
10 is, it allows the Commission to set prices that emulate competitive market results
11 even though the market for unbundled elements is currently still distorted by the
12 presence of monopoly power.

13

14 Q. PLEASE DISCUSS THE SECOND PRINCIPLE THAT THE RELEVANT
15 INCREMENT OF OUTPUT SHOULD BE TOTAL COMPANY DEMAND
16 FOR THE UNBUNDLED NETWORK ELEMENT.

17 A. The relevant increment of output should be total company demand for the
18 unbundled network element in question. Total company demand should not be
19 determined as demand just from CLECs for an unbundled element.⁴ Included
20 in total company output should also be the demand for the network element as
21 used in the ILEC's retail products. For example, in determining the costs of
22 unbundled voice grade loops, the ILEC's should consider the total number of all

1 types of loops in service. That is, total demand should include the loops
2 currently purchased by CLECs and all the loops used in providing service to the
3 ILEC's own retail customers. Specifically, with respect to the total quantity of
4 demand to be used in TELRIC studies, the FCC found in Section 51.511(a):

5 The forward-looking economic cost per unit of an element equals
6 the forward-looking economic cost of the element, as defined in
7 Section 51.505 of this part, divided by a reasonable projection of
8 the *sum* of the total number of units of the element that the
9 incumbent LEC is likely to provide to *requesting carriers* and
10 the total number of units of the element the incumbent LEC is
11 likely to use in offering its *own services*, during a reasonable
12 measuring period. (Emphasis added.)

13

14 Moreover, this TELRIC principle prevents determining costs based on some
15 smaller increment of additional output over and above the current total level of
16 output. For example, under TELRIC, it would not be appropriate to identify the
17 costs of a voice grade unbundled loop based on the costs of constructing an
18 additional 1000 voice grade loops used to serve a newly constructed suburb.

19

20 Q. PLEASE DISCUSS WHY THE USE OF A SMALLER INCREMENT OF
21 OUTPUT MAY LEAD TO INACCURATE COST INFORMATION.

22 A. If the company's cost function displays increasing efficiencies (economies of

1 scale) or decreasing efficiencies (dis-economies of scale) then cost estimates can
2 vary dramatically if an increment of output that is smaller than total output is
3 studied.

4 For example, if a small increment of output is selected in a range of
5 output where the company experiences significant economies of scale, then the
6 cost estimate will be lower than the cost estimate based on total output.
7 Consequently, if prices were set based on the costs of such a small increment of
8 output, and if these prices were to apply to all units to be sold by the ILEC, then
9 the company would under-recover its costs. The resulting economic inefficiency
10 would be twofold. First, this practice would promote inefficient market entry
11 by CLECs by means of unbundled elements. Second, it may artificially
12 discourage customers from obtaining services from the ILEC which may be
13 perceived as a high cost provider (unless the ILEC sets prices below its true
14 costs in an effort to compete with the CLECs, a practice which cannot be
15 sustained in the long run.)

16 The converse of this scenario is true if cost studies are based on a small
17 increment of output over a range where the ILEC experiences dis-economies of
18 scale. In this case, costs would be greater than those based on total output for
19 a network element, efficient entry would be discouraged, and the ILEC would
20 artificially appear to be the low cost provider.

21 In any event, only if costs reflect the total output for a particular network
22 element will costs be consistent with long run efficiency principles. Hence the

1 terminology “total element long run incremental costs” or TELRIC.

2

3 Q. DOES THE REQUIREMENT THAT COSTS BE BASED ON TOTAL
4 OUTPUT ALSO ALLOW CLECS TO REAP THE BENEFIT OF THE ILECS’
5 ECONOMIES OF SCALE?

6 A. Yes. In its Local Competition Order, the FCC noted the requirement the
7 incumbent local exchange companies must share with entrants their economies
8 of density, connectivity, and scale. Specifically, the FCC found:

9 The incumbent LECs have economies of density,
10 connectivity, and scale; traditionally, these have been
11 viewed as creating a natural monopoly. As we pointed
12 out in our NPRM, *the local competition provisions of the*
13 *Act require that these economies be shared with entrants.*

14 We believe they should be shared in a way that permits
15 the incumbent LECs to maintain operating efficiency to
16 further fair competition, and to enable the entrants to
17 share the economic benefits of that efficiency in the form
18 of cost-based prices. (Paragraph 11, footnote omitted)

19

20 Any economies of scale can only be captured if costs reflect the totality of the
21 incumbent LEC’s operations. Hence, the requirement that TELRIC studies are
22 to be based on total output.

1 Q. PLEASE DISCUSS THE THIRD PRINCIPLE THAT TECHNOLOGY
2 CHOICES SHOULD REFLECT LEAST-COST, MOST EFFICIENT
3 TECHNOLOGIES.

4 A. For purposes of a TELRIC study, cost analysts should assume that output is
5 provided by means of least-cost, most efficient technologies. This principle is
6 in effect a corollary of the first principle that the company is operating in the
7 long run, i.e., the company is operating in the planning period and all costs are
8 variable. Clearly, if a company is operating in the planning stage, it would not
9 deploy obsolete or inefficient technologies but deploy only those technologies
10 that were least-cost and most efficient.

11 A consequence of this principle is that the appropriate technology mix
12 to be used in cost studies may not correspond to actual technologies that the
13 company may actually be deploying or has deployed in the past. For example,
14 for historic reasons the ILEC may be serving a distant community by means of
15 copper feeder and distribution systems even though it would be cheaper to use
16 fiber based digital loop carrier ("DLC") technologies. For purposes of a
17 TELRIC study, the cost analyst should ignore that the company in actuality may
18 be deploying copper feeder and assume that, instead, a fiber based DLC system
19 is being used.

20 Alternatively, a company may be installing facilities in the feeder portion
21 of its local loop that are 100% based on fiber technologies. There may be a lot
22 of reasons for a company to be doing this -- it may be the least-cost

1 methodology, it may be part of the company's plan to provide broadband
2 service, or it may be that the company is simply being inefficient in the
3 deployment of its network. Examining the motives that drive a company's
4 decision to deploy certain facilities is a particularly difficult exercise and one
5 that is largely irrelevant for costing purposes. What *does* matter is the question:
6 what is the least-cost, forward-looking technology available *for the unbundled*
7 *network element under examination.*⁵

8 No commission should just assume that what the ILEC is actually doing
9 is necessarily consistent with a least cost, forward-looking technology
10 deployment. For example, in determining the cost for basic voice grade
11 unbundled loops, cost analysts should simply answer the question of which
12 technology would be most cost efficient -- i.e., least cost -- in providing voice
13 grade service. If this is copper for shorter loops, then the cost analyst should
14 ignore the costs associated with the deployment of a broadband network. (Of
15 course, those cost would be relevant in determining the costs of providing
16 broadband services.) Again, the challenge of the TELRIC method is to evaluate
17 costs in a long run, least cost, forward-looking framework even though at times,
18 what the company is actually building may look quite different.

19 In any event, cost analysts should only be allowed to select technologies
20 that are currently available on the market. New technologies that exist only in
21 laboratories should not be used for TELRIC purposes. One reason is that no real
22 world firm, no matter how efficient, would be able to use technologies that are

1 not yet available. So it would be an unreasonable benchmark. Next, if certain
2 technologies are not currently available on the market, the Commission would
3 be unable to determine the appropriate vendor prices for these technologies.

4

5 Q. SHOULD A TELRIC STUDY ASSUME THAT THE ILEC'S SWITCHES
6 REMAIN IN THEIR CURRENT LOCATIONS?

7 A. According to the FCC, yes. In its Local Competition Order, the FCC found that
8 the reconstruction of the local network for cost purposes should assume that the
9 switch locations remain the same. Specifically, the FCC found that TELRIC
10 should be "measured based on the use of the most efficient telecommunications
11 technology currently available and the lowest cost network configuration given
12 the existing location of the incumbent LEC's wire centers." (Local Competition
13 Order, Sec. 51.505(b)(1).)

14 Obviously, the danger exists that incumbent LECs will introduce into the
15 TELRIC studies possible embedded inefficiencies of their historic network
16 associated with the existing switch locations and *existing central office spaces*.

17 This would not be appropriate. While cost studies should be based on the
18 existing switch locations, they must also assume --for cost study purposes -- that
19 new and efficient central office buildings have been constructed that permit
20 efficient, least cost, collocation arrangements. Particularly inappropriate would
21 be to include costs associated with reconfigurations of the central offices, such
22 as the costs for clearing of space, to accommodate collocation: *under TELRIC*,

1 *embedded inefficiencies should be ignored.*

2

3 Q. PLEASE DISCUSS THE FOURTH PRINCIPLE THAT COSTS SHOULD BE
4 FORWARD-LOOKING.

5 A. **TELRIC studies should be forward-looking. This means that, for purposes of**
6 **a TELRIC study, cost analysts should ignore embedded inefficiencies in the**
7 **ILEC's network and operations. For example, an ILEC may employ certain**
8 **outdated analog switches. However, if these switches are not part of a forward-**
9 **looking technology mix (whether they are is an issue to be decided in Phase II**
10 **of this proceeding), then the cost analysts should assume the use of more**
11 **advanced switches in the cost study.**

12 **However, the principle that costs should be forward-looking does not just**
13 **pertain to investments but to all aspects of the ILEC's operations. For example,**
14 **under this principle, the ILEC's common costs should also be forward-looking.**
15 **Thus if the ILEC deploys an inefficiently large cadre of middle level managers**
16 **that will ultimately be reduced to more efficient levels, then common cost**
17 **studies should reflect these planned efficiency improvements. (Shared and**
18 **common costs are discussed in more detail in a separate section below.)**

19 **Furthermore, the principle that costs be forward-looking also requires**
20 **that vendor prices for equipment are based on most current vendor contracts and**
21 **not on outdated and superseded contracts. Most importantly, the Commission**
22 **should verify that the discounts obtained by the ILEC are in fact properly**

1 reflected in the cost studies. This in turn requires that the Commission should
2 ensure that its staff and other parties have complete and open access to the
3 ILEC's vendor contracts. (Subject to any reasonable non-disclosure requirement
4 of the Commission.)

5 Last, the principle also means that fill factors should be determined not
6 based on current or actual fill factors experienced in the LEC network; rather,
7 fill factors should be based on the efficient utilization of state-of-the art facilities
8 *over the entire economic life* of the facility.

9
10 Q. DID THE FCC FIND THAT FORWARD-LOOKING COSTS ARE MOST
11 COMPATIBLE WITH THE PROMOTION OF EFFICIENT COMPETITION?

12 A. Yes. The FCC found that *forward-looking economic costs* -- not embedded costs
13 -- should be the basis for pricing interconnection and unbundled elements. As
14 the FCC stated:

15 In the following sections, we first set forth generally,
16 based on the current record, a cost-based pricing
17 methodology based on forward-looking economic costs,
18 which we conclude is the approach for setting prices that
19 best furthers the goals of the 1996 Act. In dynamic
20 competitive markets, firms take action based not on
21 embedded costs, but on the relationship between
22 market-determined prices and forward-looking economic

1 costs. (Paragraph 620)

2

3 The substantial weight of economic commentary in the
4 record suggests that an “embedded cost”-based pricing
5 methodology would be pro-competitor -- in this case the
6 incumbent LEC -- rather than pro-competition.

7 (Paragraph 705, footnote omitted)

8

9 Q. PLEASE DISCUSS THE PRINCIPLE THAT COST IDENTIFICATION
10 SHOULD FOLLOW COST CAUSATION.

11 A. While this principle is implied in the other principles, the cost causation
12 principle is essential in ensuring that only relevant costs are included in the
13 TELRIC studies. Under the cost causation principle, only those efficiently
14 incurred costs that are caused by an activity in the long run can directly be
15 associated with that activity. That is, costs are caused by an activity, in the long
16 run, if the costs are brought into existence as a direct result of the activity and
17 are avoided when the activity ceases.

18 A rigorous application of the cost causation principle will purify cost
19 studies by preventing TELRIC from becoming contaminated by unrelated costs,
20 costs that are the result of embedded inefficiencies, or costs that are retail-related
21 shared or common costs. For example, retail related costs for advertising and
22 product promotion are not caused by the provision of unbundled network

1 elements for wholesale purposes. As a result, such costs should be excluded
2 from the pertinent TELRIC studies.

3

4 Q. IS YOUR DISCUSSION OF TELRIC CONSISTENT WITH THE COSTING
5 PRINCIPLES DISCUSSED IN THE FCC'S LOCAL COMPETITION
6 ORDER?

7 A. Yes. In its Local Competition Order the FCC discussed costing principles that
8 are both sound and consistent with economic theory. As evidenced by the select
9 quotes from and references to the FCC's Local Competition Order, the FCC's
10 discussion of TELRIC is consistent with the principles I have discussed in this
11 testimony.

12

13 **SHARED AND COMMON COSTS SHOULD BE DETERMINED**

14 **CONSISTENT WITH THE PREVIOUSLY DISCUSSED TELRIC**

15 **PRINCIPLES**

16

17 Q. SHOULD THE ILEC BE ALLOWED TO RECOVER A REASONABLE
18 ALLOCATION OF FORWARD-LOOKING, EFFICIENTLY INCURRED
19 SHARED AND COMMON COSTS?

20 A. Yes. Consistent with the notion that cost based prices should allow an efficient
21 firm to remain economically viable, it is important that the Commission allow
22 for a reasonable allocation of forward-looking, efficiently incurred shared and

1 common costs. *Generally speaking, shared and common costs can be defined*
2 *as economic costs efficiently incurred in providing a group of elements or*
3 *services that cannot be attributed directly to individual elements or services.*
4 Critically important here is to recognize that as with the costs for unbundled
5 network elements, shared and common costs should be forward-looking and
6 efficiently incurred and be identified consistent with the previously discussed
7 TELRIC principles.

8
9 Q. DO YOU EXPECT COMMON COSTS AS DEFINED UNDER TELRIC TO
10 BE A LARGE PERCENTAGE OF THE FORWARD-LOOKING ECONOMIC
11 COST?

12 A. No. Forward-looking common costs are expected to be relatively small when
13 a properly executed TELRIC study is performed. Most if not all of the relevant
14 shared costs will be included in the calculation of the TELRIC of the various
15 elements. Also, certain costs that at casual observation may appear as shared
16 and common costs do in fact vary with the size of the firm. To the extent that
17 such costs vary directly with the size of the firm and the provision of network
18 elements, such variable support costs would also be included in a proper
19 estimate of the TELRIC of an element. If such costs that have previously been
20 classified as common costs are instead included in the estimates of TELRICs,
21 there are few forward-looking shared and common costs to be added to the
22 computed TELRICs when determining a proper measure of the forward-looking

1 economic costs.

2

3 Q. SHOULD RETAIL RELATED SHARED AND COMMON COSTS BE
4 EXCLUDED FROM THE TELRIC FOR UNBUNDLED NETWORK
5 ELEMENTS?

6 A. Yes. The Commission must recognize that the ILECs, such as BellSouth, are
7 vertically integrated firms that provide both wholesale and retail functions. That
8 is, the ILECs build and maintain a telecommunications network that is used not
9 only to provide unbundled network elements and other services to competitors
10 but also to provide service to their own retail customers. Since under the
11 TELRIC principles -- most notably principle # 4 Cost Causation -- wholesale
12 customers are in no way responsible for retail related costs, any such cost should
13 be excluded from the TELRICs. Moreover, the Commission should take great
14 care in its examination of the shared and common costs to ensure that no retail
15 related costs are inadvertently -- or deliberately -- included.

16

17 Q. HAS THE FCC FOUND THAT RETAIL RELATED COSTS SHOULD BE
18 EXCLUDED FROM COMMON COST STUDIES?

19 A. Yes. The FCC essentially requires -- for cost study purposes -- that the local
20 exchange carrier is split into two virtually separate subsidiaries: a *wholesale*
21 subsidiary and a *retail* subsidiary. The sole purpose of the wholesale subsidiary
22 is to run the network and provide unbundled elements not only to entrants, but

1 also to the retail subsidiary of the incumbent LEC. As such, any retail related
2 costs should be excluded from the cost studies for UNEs and interconnection
3 studies. According to the FCC:

4 Common costs also include costs incurred by a firm's
5 operations as a whole, that are common to all services and
6 elements (e.g., salaries of executives involved overseeing all
7 activities of the business), although for the purpose of pricing
8 interconnection and access to unbundled elements, which are
9 intermediate products offered to competing carriers, the
10 relevant common costs do not include billing, marketing and
11 other costs attributable to the provision of retail
12 service...(Paragraph 694)

13

14 We further conclude that, for the aggregate of all unbundled
15 network elements, incumbent LECs must be given a
16 reasonable opportunity to recover their forward-looking
17 common costs attributable to operating the wholesale
18 network.... (Paragraph 698)

19

20 Q. SHOULD THE COMMISSION BE CAUTIOUS THAT SHARED AND
21 COMMON COSTS DO NOT BECOME A "DUMPING GROUND" FOR
22 EMBEDDED COSTS?

1 A. Yes. The Commission should unequivocally embrace costing principles that
2 identify only forward-looking economic costs for unbundled network elements.
3 It is precisely this benchmark that is consistent with efficient pricing standards.

4 The Commission should recognize, however, that the task of identifying
5 true forward-looking economic shared and common costs is formidable. The
6 incentive of the ILECs during costing and pricing proceedings remains to
7 recover as much of its embedded and inefficiently incurred costs as a state
8 commission will allow. Since it is often easier for the state commissions and
9 other cost analysts to determine whether the costs for specific unbundled
10 network elements are efficiently incurred than whether the nebulous shared and
11 common costs are efficiently incurred, the latter have been convenient
12 “dumping grounds” for “make-whole” costs.

13 In view of this the Commission should explicitly reject -- a priori -- any
14 of the various strategies used to increase “overhead” costs:

- 15 (1) claims regarding cost of inadequate depreciation rates in the past;
- 16 (2) recovery of embedded "common" costs;
- 17 (3) recovery of retail-related "common" costs;
- 18 (4) recovery of "opportunity cost" associated with common costs;
- 19 (5) recovery of the same “common” costs multiple times.

20

1 **TELRIC IS THE APPROPRIATE MEASURE OF ECONOMIC COST**
2 **CONSISTENT WITH THE PRO-COMPETITIVE INTENT OF THE**
3 **FEDERAL TELECOMMUNICATIONS ACT OF 1996**

4
5 Q. HAS THE TELECOMMUNICATIONS ACT OF 1996 CHANGED
6 TRADITIONAL REGULATORY AND PUBLIC POLICY OBJECTIVES?

7 A. Yes. The Telecommunications Act of 1996 ("the Act of 1996") represents a
8 dramatic public policy effort to change the monopolistic nature of local
9 exchange telecommunications markets in the United States.

10 Prior to the passage of the Act of 1996, public policy sanctioned local
11 exchange markets that were dominated by single providers of
12 telecommunications services, the incumbent local exchange carriers ("LECs").

13 The monopolistic nature of these markets was maintained by anti-competitive
14 actions on the part of the incumbent LECs and pro-incumbent policies
15 promulgated by federal and state regulators. While it is true that regulators have
16 at times tolerated some forms of competition, for the most part, competition was
17 viewed as an undesirable threat to the status quo and found to be illegal, often
18 upon the request of the incumbent LECs.

19 The presumption underlying traditional public policies was that
20 telecommunications services were best and most cheaply provided by single
21 firms that would operate free of competition, but under the regulatory oversight
22 of state PUCs and the FCC. In retrospect, this Faustian bargain, struck between

1 regulators and the companies they regulated, entailed that the companies could
2 operate free of competition in return for “quality” telephone service at
3 “affordable” prices to all citizens of the United States. The genesis of this
4 arrangement is found in legislation passed in the beginning of this century: the
5 Communications Act of 1934 charged policy makers with the task

6 to make available to all people of the United States a
7 rapid, efficient, nationwide, and world-wide wire and
8 radio communications service with adequate facilities at
9 reasonable charges.⁶

10

11 However, as the national policy pendulum began to swing away from regulation
12 and toward free and competitive markets as a means of achieving general
13 economic welfare, policymakers were urged to re-examine the traditional
14 practice of protecting incumbent LECs from competition under the guise of
15 promoting affordable telephone service. Increasingly there were calls for
16 regulators to relax their hold on local exchange markets and to allow for
17 competitive entry. It was argued, and rightly so, that if free and competitive
18 markets ensured consumers general access to state of the art products and service
19 at affordable prices in virtually all industries in the United States economy, then,
20 presumably, free and competitive markets could do the same for
21 telecommunications products and services.

22 The recognition that traditional modes of regulation could no longer

1 serve the nation in an increasingly competitive world -- in which state-of-the-art
2 communications networks play such a critical role -- culminated in the passage
3 of the Act of 1996. The provisions of the Act of 1996 radically overhaul
4 traditional modes of regulation: rather than impeding competition, they actively
5 *endorse* and *promote* it. As the FCC notes in paragraph one of its Local
6 Competition Order:

7 The Telecommunications Act of 1996 fundamentally changes
8 telecommunications regulation. In the old regulatory regime
9 government encourages monopolies. In the new regulatory
10 regime, we and the states remove the outdated barriers that
11 protect monopolies from competition and affirmatively promote
12 efficient competition using tools forged by Congress.
13 Historically, regulation of this industry has been premised on
14 the belief that service could be provided at the lowest cost to the
15 maximum number of consumers through a regulated monopoly
16 network. State and federal regulators devoted their efforts over
17 many decades to regulating the prices and practices of these
18 monopolies and protecting them against competitive entry. The
19 1996 Act adopts precisely the opposite approach. *Rather than*
20 *shielding telephone companies from competition, the 1996 Act*
21 *requires telephone companies to open their networks to*
22 *competition.* (Emphasis added.)

1 Thus, the passage of the Act of 1996 mandates that traditional modes of
2 regulation be abandoned in favor of policies that promote competition, even if
3 that means exposing the incumbent LECs to the rigors of the marketplace.

4

5 Q. DOES THE ACT OF 1996 STATE THAT PRICES SHOULD BE SET AT
6 COST?

7 A. As an economist, I believe it does. Specifically, Section 252(d)(1) of the Act of
8 1996 provides as follows:

9 (1) INTERCONNECTION AND NETWORK ELEMENT
10 CHARGES.-

11 Determination by a State commission of the just and reasonable
12 rate for the interconnection of facilities and equipment for
13 purposes of subsection (c)(2) of section 251, and the just and
14 reasonable rate of network elements for purposes of subsection
15 (c)(3) of such section --

16 (A) shall be --

17 (i) based on the cost (determined without reference to a rate-of-
18 return or other rate-based proceeding) of providing the
19 interconnection or network element (whichever is applicable), and

20 (ii) nondiscriminatory, and

21 (B) may include a reasonable profit.

22

1 Q. IN YOUR OPINION AS AN ECONOMIST, IS THE LANGUAGE OF THE
2 ACT OF 1996 CONSISTENT WITH YOUR RECOMMENDATION THAT
3 THE COMMISSION SET PRICES AT ECONOMIC COST, THAT IS, AT
4 TELRIC?

5 A. I am not an attorney and therefore I cannot provide a legal opinion here.
6 However, as an economist, I can advise the Commission that the TELRIC
7 standard is consistent with the language of the Act of 1996:

8

9 -- TELRIC is an appropriate measure of the “cost (determined without
10 reference to a rate-of-return or other rate-based proceeding) of providing
11 the interconnection or network element”;

12 -- as discussed above, setting prices at TELRIC results in prices that are
13 “nondiscriminatory”; and

14 -- again, as discussed above, TELRIC includes a “reasonable profit.”

15

16 Furthermore, the TELRIC standard is consistent with the pro-competitive
17 intentions of the Act of 1996. As discussed, TELRIC promotes efficient market
18 entry and ensures that ratepayers receive the benefits of competition.

19

20 Q. IF RATES FOR UNBUNDLED ELEMENTS WERE SET AT ECONOMIC
21 COST, THEN WOULD THE ILECS BE FORCED OUT OF BUSINESS?

22 A. No. This is a classic “red herring” argument that the Commission should

1 dismiss out of hand. First, the argument is false. If all rates were set at economic
2 cost, as I suggest, then the company in question would be pricing all products
3 efficiently. The firm would receive from its consumers all the revenues required
4 to recover its efficiently incurred costs plus a return on its investments such that
5 if the firm were operating in a competitive market then the company could
6 maintain its operations viably.

7 To the extent these revenues -- which recover the cost of efficient
8 operations -- were to fall short of the ILECs' embedded costs, then any shortfall
9 in revenues would be an appropriate market incentive for the ILECs to straighten
10 out their cost structure, just like competitive firms are forced to do on an
11 ongoing basis. This type of cost discipline is a requirement of competitive
12 markets -- it is how competitive markets operate and should operate. By
13 extension, this is how good regulation should operate if it seeks to promote the
14 public interest. In contrast, to the extent the ILECs' rates now reflect
15 inefficiencies, consumers in Florida are, in effect, supporting inefficient
16 operations that the ILECs could not get away with if the market were
17 competitive.

18 Second, I am not recommending that in this proceeding the Commission
19 set all of the ILECs' prices at economic costs. The issue in this case is the
20 costing and pricing of a subset of the ILECs' "products," namely network
21 elements to be purchased by dependent competitors. Thus, since my
22 recommendation would leave the ILECs' current retail rates in place, there

1 should not be any impact from pricing unbundled network elements at economic
2 costs on the ILECs' revenue stream. Of course, the emergence of competition
3 may impact the ILECs' revenue growth, but, as discussed previously, this is
4 precisely the result one should expect from the pro-competition provisions of the
5 Federal Telecommunications Act of 1996.

6 Third, to the extent that the ILEC has regulatory-imposed costs (such as
7 any costs related to universal service or carrier of last resort "obligations") in its
8 rate structure, the ILEC should be required to demonstrate those costs explicitly
9 and the Commission should -- *in a separate proceeding* -- figure out how to deal
10 with them in a competitively neutral manner. Too often, the ILECs simply
11 claim that the difference between the economic costs and the embedded costs is
12 the result of some regulatory-imposed obligation. They typically make this
13 claim without one bit of evidence. To the extent that there are inefficiencies in
14 the ILECs' current embedded cost structure, it is simply wrong to assume that
15 all of the "gap" between economic and embedded costs are recoverable as part
16 of some regulatory-imposed obligation. In short, if the ILECs were to argue that
17 setting prices at economic costs will cause a revenue shortfall, the ILECs should
18 be required to come forward and identify the specific regulatory obligation that
19 was imposed on them and the specific costs associated with that regulatory
20 obligation. This Commission cannot and should not simply hand the ILECs
21 every bit of their embedded costs without some analysis, as the ILECs may want
22 the Commission to do.

1 Again, the 1996 Act calls for competition to replace regulated monopoly
2 whenever market conditions permit: as stated most clearly in Section 257(b):

3 NATIONAL POLICY—In carrying out subsection (a), the
4 Commission shall seek to promote the policies and purposes of
5 this Act favoring diversity of media voices, *vigorous economic*
6 *competition*, technological advancement, and promotion of the
7 public interest, convenience, and necessity. (Emphasis added.)

8
9 Clearly, one could not promote “vigorous” competition if some parties, such as
10 the incumbent LECs, are allowed to operate under a protective regulatory
11 umbrella.

12
13 **TELRIC PRINCIPLES MUST BE REFLECTED IN THE COST MODELS**

14 **ULTIMATELY USED TO SET NETWORK ELEMENT PRICES**

15
16 Q. PLEASE DESCRIBE WHAT THE MODEL SHOULD UTILIZE IN
17 DEVELOPING COST FOR UNBUNDLED NETWORK ELEMENTS.

18 A. The technology assumed in the model must be the least-cost, most-efficient, and
19 reasonable technology for providing the network element that is currently being
20 deployed. The model should utilize the least cost, most efficient technology that
21 is currently being deployed by incumbent LECs, including digital loop carrier
22 systems, digital switching, fiber rings for interoffice transport, and signaling

1 system 7. In those parts of the network in which different technologies may be
2 more efficient in different situations (the feeder portion of the local loop, for
3 example), the model should examine each individual case and chose the
4 technology that is most efficient in each case. The model should contain
5 additional capabilities for such "dynamic modeling."

6 A model must include the incumbent LECs' wire centers as the center of
7 the loop network and the outside plant should terminate at the incumbent LECs'
8 current wire centers. The model should assume the existing locations of the
9 incumbent LECs' wire centers. The location of these switching locations is
10 taken from the latest version of the Local Exchange Routing Guide ("LERG"),
11 which is maintained by Telcordia. The distance between wire centers should be
12 developed using data from the LERG. All loops developed in the model should
13 be engineered to terminate on the existing incumbent LEC wire centers.

14 The loop design incorporated into a forward-looking economic cost
15 study should not impede the provision of advanced services. The model should
16 replace coarse-gauge cable and load coils with T-1 technology. As a result, even
17 the longest loops (those greater than a set length of feet) can fully accommodate
18 advanced services, including ISDN and other high-speed data applications. The
19 model should be able to conduct explicit tests of the outside plant facilities that
20 it models in order to ensure that engineering parameters are not exceeded.

21 Wire center line counts should equal actual incumbent LEC wire center
22 line counts, and the study's or model's average loop length should reflect the

1 incumbent carrier's actual average loop length. Line counts at the wire center
2 level should be estimated by the model based on demographic data, and the
3 state-wide totals for both residence and business lines should be normalized to
4 the totals reported by the incumbent LECs in such databases as ARMIS and the
5 NECA USF Loops filing. The model should have the capability to normalize
6 residence and business line counts at the wire center level, if this data is
7 provided by the incumbent LEC. The model should also be used to develop
8 average loop lengths at the wire center level, so that this information can be
9 validated.

10 Consistent with the TELRIC discussion above, the model should only
11 include long-run forward-looking economic cost. The long run period used must
12 be a period long enough that all costs may be treated as variable and avoidable.
13 The costs must not be the embedded cost of the facilities, functions, or
14 elements. The model should be designed to accurately estimate the costs that an
15 efficient carrier would incur to provide service in the geographic area being
16 studied. In other words, the costs developed by the model should be constrained
17 by the geographic and demographic characteristics of the area being studied, but
18 should not be constrained by the embedded characteristics of the Incumbent
19 LEC's network or operations. In doing so, the model would correctly apply a
20 long run assumption by treating the incumbent LEC's embedded cost structure
21 -- except for the location of wire centers -- as variable and avoidable.

22 The model must be based on the current cost of purchasing facilities and

1 equipment (rather than list prices). The model should identify public sources of
2 information regarding the prices (net of applicable discounts) of network
3 facilities and equipment. All facility and equipment prices used as inputs to the
4 model should be based on discounted, rather than list, prices.

5 The model must estimate the cost of providing service for all businesses
6 and households within a geographic region. This includes the provision of all
7 types of loops both digital and analog used in the provision of multi-line
8 business services, special access, private lines, and multiple residence lines.
9 Such inclusion will permit the cost study or model to reflect the economies of
10 scale associated with the provision of these services. The model should develop
11 costs based on the total demand for network elements, including loops,
12 switching, and interoffice transport. Total demand includes the demand created
13 by residence (first and additional lines), business (single and multi-line), public
14 (coin), digital subscriber lines (xDSL), and special access services. By
15 designing a forward-looking network based on total demand, the model will
16 properly include economies of scale.

17 The model should include a reasonable allocation of joint and common
18 costs which must be assigned to the cost of supported services. This allocation
19 will ensure that the forward-looking economic cost does not include an
20 unreasonable share of the joint and common costs for non-supported services.

21 The model should systematically assign so-called "joint and common" costs to
22 the network elements being studied. Expenses that have traditionally (and

1 incorrectly) been treated as fixed overheads should be directly assigned as
2 variable expenses in proportion to investments or line counts as appropriate.

3

4 Q. PLEASE DESCRIBE THE ISSUE OF PUBLIC ACCESS AND COMPLETE
5 DISCLOSURE THAT SHOULD BE APPLICABLE TO ANY MODEL
6 PRESENTED BY A PARTY.

7 A. This principle of public access and complete disclosure is applied in the
8 following ways:

9 The cost model software, including all inputs necessary to duplicate the
10 results sponsored by a party, should be available. The availability of the model
11 must make it possible for the Commission, Staff, ILECs and CLECs to gain an
12 understanding of how the model works, to review all inputs and assumptions,
13 and to determine which inputs and assumptions have a significant effect on the
14 model outputs.

15 The model should be designed around a user-friendly interface and the
16 documentation must include a complete set of instructions for running the
17 model. For instance a graphical user interface would permit even inexperienced
18 users to run the model, review input values, and conduct sensitivity analysis on
19 a simple "point and click" basis. The user guide should contain complete
20 instructions for loading the model onto a personal computer, conducting runs,
21 and adjusting inputs for sensitivity analysis. The model should permit the user
22 to run and store up different scenarios, allowing complete sensitivity analysis of

1 the model inputs to be conducted.

2 A complete list and detailed description of the inputs and assumptions
3 used in the model should be provided as a part of the model documentation. The
4 model documentation should list the default values for the user definable inputs
5 and assumptions and explain what each value is intended to represent. Such a
6 listing would make review and understanding of the inputs to the model a
7 straight-forward process, and the accompanying explanations should make
8 validation of the inputs possible. The model description should also provide a
9 description of the basis for the default values selected for these inputs.

10 A complete description of the process used by the model to calculate the
11 costs associated with unbundled network elements, including the calculations
12 and algorithms used, should be provided as part of the model documentation. In
13 addition, the documentation should provide additional detail regarding the
14 sources of the input data used, describe the data tables present in the model, and
15 describe and explain the input fields used.

16 The model and all underlying data, formulae, computations, and
17 software associated with the model must be available to all interested parties for
18 review and comment. All underlying data should be verifiable, engineering
19 assumptions reasonable, and outputs plausible. The model should be able to run
20 any sensitivity analyses to determine the impact on the results if inputs or
21 assumptions are changed.

22 The model must include the capability to examine and modify the

1 critical assumptions and engineering principles. These assumptions and
2 principles include, but are not limited to, the cost of capital, depreciation rates,
3 fill factors, input costs, overhead adjustments, retail costs, structure sharing
4 percentages, fiber-copper crossover points, and terrain factors. Each of the types
5 of data listed should be an input to the model that can be reviewed and changed
6 by the user. In addition, each of the model's cells containing formulae should
7 be unlocked, making it possible for the user to make direct changes to both
8 calculations and inputs.

9

10 **NONRECURRING CHARGES AND COSTS SHOULD BE DETERMINED**

11 **CONSISTENT WITH THE TELRIC METHODOLOGY**

12

13 Q. COULD NONRECURRING CHARGES POTENTIALLY POSE A SERIOUS
14 BARRIER-TO-ENTRY?

15 A. Yes. As discussed previously, prices for unbundled network elements that are
16 based on TELRIC promote efficient entry. But, while TELRIC based recurring
17 and non-recurring prices for unbundled network elements are a necessary
18 condition for efficient entry, they are not a sufficient condition. If the incumbent
19 LECs are allowed to impose unreasonably high nonrecurring charges, then
20 efficient carriers can still be prevented from operating viably in local exchange
21 markets. That is, if nonrecurring charges are set above economic cost, then these
22 charges could in effect create a barrier-to-entry that would protect and prolong

1 the incumbent LEC's monopoly position in local markets.

2

3 Q. IN GENERAL, WHAT TYPES OF COSTS SHOULD BE RECOVERED
4 THROUGH RECURRING CHARGES AND WHAT TYPES OF COSTS
5 SHOULD BE RECOVERED THROUGH NONRECURRING CHARGES?

6 A. Consistent with Principle # 5 – that costs should follow cost causation – cost
7 should be recovered in the manner in which they are incurred. This means that
8 in general, recurring costs should be recovered through recurring charges and
9 nonrecurring, one-time, costs should be recovered through nonrecurring charges.

10 Furthermore, with respect to the costs of operational support systems and
11 activities, nonrecurring costs should only be recovered through nonrecurring
12 charges (for a network element) if the costs are a *direct cost* to a specific
13 unbundled network element (for example, an unbundled loop for customer X)
14 that is ordered and provisioned. If the nonrecurring cost is a *common cost* to the
15 ordering and provisioning of *all* network elements, then such costs should be
16 recovered through recurring charges.

17 The rationale here is simple. In general, direct costs associated with the
18 ordering and provisioning of a specific unbundled network element should be
19 recovered from the customer (the CLEC) ordering and using the network
20 element: that is, the costs must be recovered from the cost-causers.

21 Common costs, on the other hand, are not caused by an individual
22 customer (CLEC) but rather by all customers collectively. It is appropriate,

1 therefore, to spread these costs over the total projected output of all network
2 elements (for which these costs were incurred) in the form of recurring charges.
3 This ensures that the totality of the costs are recovered without
4 disproportionately burdening some customers (CLEC) more than others. That
5 is, by including the common costs in recurring charges for unbundled network
6 elements, each customer (CLEC) will pay for a share of the common costs (of
7 ordering and provisioning processes) that is *directly proportional* to the length
8 of time that the unbundled elements are used by that customer.

9
10 Q. IF ILECS ARE PERMITTED TO RECOVER RECURRING COSTS
11 THROUGH NONRECURRING CHARGES, THEN COULD THIS CREATE
12 A BARRIER TO ENTRY AND IMPAIR THE COMPETITIVE PROCESS?

13 A. Yes. CLECs will attempt to enter local markets without an existing customer
14 base. As such, they face nonrecurring charges for every customer they want to
15 serve by means of unbundled network elements. If nonrecurring charges contain
16 front-loaded recurring costs that will periodically be incurred by the ILEC *in the*
17 *future*, then the CLECs' up-front costs for entering local markets may be
18 increased significantly. Given that these nonrecurring charges apply
19 disproportionately to CLECs (relative to the incumbent LECs), they constitute
20 a barrier to entry. The FCC recognized the potentially anti-competitive nature
21 of nonrecurring charges in paragraph 747 of its Local Competition Order:

22 ...we find that *imposing nonrecurring charges for recurring costs*

1 *could pose a barrier to entry* because these charges may be
2 excessive, reflecting costs that may (1) not actually occur; (2) be
3 incurred later than predicted; (3) not be incurred for as long as
4 predicted; (4) be incurred at a level that is lower than predicted; (5)
5 be incurred less frequently than predicted; and (6) be discounted
6 to the present using a cost of capital that is too low. (Emphasis
7 added.)

8

9 Q. ARE THERE INSTANCES IN WHICH DIRECT NONRECURRING COSTS
10 MAY BE RECOVERED THROUGH RECURRING CHARGES?

11 Yes. There are situations in which the LECs can make reasonable predictions
12 as to the average non-recurring costs incurred in the provision of a network
13 element. In such instances, it could make sense to spread those costs out over
14 the economic life of the facilities by recovering them through recurring rather
15 than through nonrecurring charges. As the FCC noted in section 51.507(e) of
16 its Local Competition rules: “State commissions may, where reasonable, require
17 incumbent LECs to recover nonrecurring costs through recurring charges over
18 a reasonable period of time.”

19 This practice is perfectly consistent with the workings of competitive
20 markets. After all, firms in competitive markets often seek to lower the up-front
21 costs to customers by spreading any nonrecurring costs over subsequent
22 recurring charges.

1 Q. SHOULD NONRECURRING CHARGES BE BASED ON TELRIC?

2 A. Yes. All activities and products that are provided to CLECs should be based on
3 TELRIC. As explained previously, TELRIC based prices are compensatory,
4 ensure efficient entry and generally promote the public interest.

5

6 Q. DID THE FCC FIND THAT NONRECURRING CHARGES SHOULD BE
7 BASED ON TELRIC?

8 A. Yes. Section 51.507(e) of the FCC Local Competition Rules states:

9 State commissions may, where reasonable, require incumbent
10 LECs to recover nonrecurring costs through recurring charges
11 over a reasonable period of time. Nonrecurring charges shall
12 be allocated efficiently among requesting telecommunications
13 carriers, and shall not permit an incumbent LEC to recover
14 more than the *total forward-looking economic cost* of
15 providing the applicable element. (Emphasis added.)

16

17 Q. DOES THIS MEAN THAT NONRECURRING CHARGES SHOULD BE
18 BASED ON THE MOST EFFICIENT, FORWARD-LOOKING ELECTRONIC
19 OPERATIONAL SUPPORT SYSTEMS?

20 A. Yes. ILECs often base cost studies for NRCs on inefficient OSS that entail large
21 amounts of labor to complete CLECs' service orders, etc. – this is inappropriate.
22 Particularly, these labor related inefficiencies drive up the costs for NRCs

1 dramatically. Instead, cost studies for NRCs should be on the most efficient
2 electronic systems available. Since labor is often such an expensive component
3 of taking service orders, etc., the OSS should allow to the maximum degree an
4 integration of the CLECs' electronic systems with those of the ILECs. If this is
5 done appropriately, then the costs for NRCs are reduced significantly or they
6 become negligibly small.

7 Further, the Commission should recognize that if it permits the ILECs
8 to set nonrecurring charges based on inefficient systems, that it is rewarding
9 these companies for inefficiencies. That is, since ILECs would be able to recoup
10 the costs associated with inefficient systems, they would never have an incentive
11 to enhance the efficiency of these systems. The incentives for ILECs to
12 implement efficient systems is even further reduced by the fact that it is the
13 CLECs that will be handicapped in their ability to compete by higher
14 nonrecurring charges. Conversely, if prices are set based on the costs of
15 efficient OSS, then ILECs are more likely to actually implement such systems.

16
17 Q. IN APPROVING THE ILECS' NONRECURRING CHARGES, SHOULD THE
18 COMMISSION PAY SPECIAL ATTENTION TO THE POSSIBILITY OF
19 DOUBLE RECOVERY OF COSTS?

20 A. Yes. I have already discussed how nonrecurring charges may derail the
21 development of local competition. In view of this, it is particularly important
22 that the Commission pay special attention that certain types of costs are not

1 included in both the recurring and in the nonrecurring charges. While it is
2 obvious that as a matter of costing methodology this would be inappropriate, in
3 practice, one is likely to find many instances of such double counts if cost
4 studies are patiently and thoroughly scrutinized. In recognition of the potential
5 for double recovery of costs, the FCC stated the following in its local
6 Competition Order:

7 We require, however, that state commissions take steps
8 to ensure that incumbent LECs do not recover
9 nonrecurring costs twice and that nonrecurring charges
10 are imposed equitably among entrants. (Paragraph 750)

11 **COSTS FOR UNEs SHOULD BE DE-AVERAGED TO REFLECT**
12 **GEOGRAPHIC DIFFERENCES**

13
14 Q. SHOULD RATES BE DE-AVERAGED TO REFLECT COST DIFFERENCES
15 ACROSS GEOGRAPHIC AREAS?

16 A. Yes. In order to comply with section 252(d)(1)'s requirement that rates be
17 "based on the cost . . . of providing the . . . network element," rates for
18 unbundled network elements must accurately and fully reflect each of the "cost
19 drivers" that have a direct impact on the costs calculated.

20
21 Q. IS THE NEED TO DETERMINE DE-AVERAGED COSTS PARTICULARLY
22 IMPORTANT WITH RESPECT TO LOOP COST STUDIES?

1 A. Yes. While this mandate pertains to all unbundled network elements, it is
2 particularly important with respect to unbundled loops. First, new entrant's
3 access to loops at efficient, cost-based rates is critical to the development of
4 local competition. The local loop is the most expensive and difficult portion of
5 the local network to replicate on a ubiquitous basis. For this reason, many
6 competitors will be forced to rely, in varying degrees, on being able to use the
7 loop facilities of the incumbent LECs. Second, loop costs, perhaps more than
8 the costs for any other element, vary significantly across geographic regions.

9 The primary cost drivers of loop costs are loop length and customer
10 density; both vary in predictable and demonstrable ways across different
11 geographic areas. All else being equal, longer loops in low density areas are
12 more costly than shorter loops placed in high density areas. As a result, loop
13 costs vary significantly across geographic areas.

14 The development of cost-based rates requires that these significant
15 geographic variations in costs be accurately and fully reflected in the rates for
16 loops. Therefore, only loop rates that are appropriately geographically de-
17 averaged can be found to be cost-based and in compliance with section 252(d)(1)
18 of the Act. In paragraph 764 of the Local Competition order the FCC stated
19 that:

20 de-averaged rates more closely reflect the actual costs of
21 providing interconnection and unbundled elements.

22 Thus, we conclude that rates for interconnection and

1 unbundled elements must be geographically de-averaged.

2
3 In paragraph 765 of the Local Competition order, the FCC further concluded that
4 the Act requires at least three “de-averaged” rate zones.

5 The principle that policy decisions should be based on de-averaged --
6 rather than averaged -- cost information was reconfirmed by the FCC in its
7 Universal Service Order, CC Docket No. 96-45, May 7, 1997. In paragraph 250
8 of this Order, the FCC found that, for USF purposes, “the cost study or model
9 must de-average support calculations to the wire center serving area level at
10 least, and, if feasible, to even smaller areas such as a Census Block Group,
11 Census Block, or grid cell.” Thus, the FCC reconfirmed the consensus among
12 cost analysts that loop costs vary from wire center to wire center and that those
13 cost variations are significant and should not be ignored.

14
15 Q. IF LOOP COSTS ARE NOT DE-AVERAGED, WILL THIS LEAD TO
16 INEFFICIENCIES THAT DIMINISH OVERALL WELFARE IN FLORIDA?

17 A. Yes. If the loop costs, and hence loop prices, are not de-averaged, the pricing
18 scheme will discourage efficient use of existing resources. When deciding to
19 offer service in a given area, new entrants will be making decisions regarding
20 whether to build their own facilities or purchase unbundled loops from the
21 incumbent LEC. In the simplest terms, new entrants may be expected to build
22 their own facilities when they can do so for less than the unbundled loop rates,

1 and will lease an unbundled loop when they cannot. In order for a new entrant
2 to make this analysis on an informed basis, however, it is essential that loop
3 rates accurately reflect an underlying cost that is specific to the geographic area
4 being evaluated.

5 In addition, the incumbent LEC will receive an artificial competitive
6 advantage in those geographic areas in which the actual loop costs are less than
7 the adopted rate for loops, if no de-averaging were ordered. This artificial
8 advantage, gained through the establishment of an inefficient rate structure for
9 elements rather than by virtue of superior efficiency on the incumbent LEC's
10 part, will allow the incumbent to prevent the development of local exchange
11 competition in the more metropolitan areas of the state. That is, an otherwise
12 equally efficient CLEC would have to pay more than the actual economic costs
13 for loops in metropolitan areas with a high density of customers and relatively
14 shorter loop lengths. The incumbent LEC, therefore, has an artificial cost
15 advantage and, in a competitive setting, can underprice the CLEC for
16 competitive retail service and thereby discourage competition. Moreover, the
17 incumbent LEC will also be able to use a portion of its inflated loop rate to
18 subsidize other services and thereby gain a competitive advantage over its
19 competitors. In short, if prices do not reflect cost, then the development of
20 competition will be impaired and the ratepayers of Florida will be deprived of
21 an optimally efficient network at competitive prices.

22

1 **UNBUNDLED NETWORK ELEMENTS SHOULD BE WELL DEFINED**

2

3 Q. IS IT IMPORTANT THAT EACH UNE TO BE STUDIED IS WELL
4 DEFINED?

5 A. Yes. In general, the cost of a UNE, as determined under TELRIC, should not
6 vary with the service or the customer that uses it. For example, with respect to
7 the use of the unbundled local switching element, a minute of use, is a minute
8 of use, is a minute of use, and it should cost the same, irrespective of whether the
9 minute of use is the ILEC's own, or whether it is AT&T's or MCI WorldCom's.
10 This characteristic of TELRIC studies is a direct corollary of the principle
11 (discussed above) that costs are determined over the *total output* of an element,
12 which is based on use of the element by all customers, including the ILEC's
13 own. However, costs will vary depending on *how* a particular unbundled
14 network element is defined.

15 It is critically important, therefore, that cost studies provide detailed
16 descriptions that specify precisely the technical and use characteristics for each
17 network element.

18

19 Q. IS IT ALSO IMPORTANT THAT LOOP COST STUDIES SPECIFY
20 PRECISELY THE TECHNICAL AND USE CHARACTERISTICS FOR THE
21 TYPES OF LOOPS BEING STUDIED?

22 A. Yes. I have already discussed the importance that loop costs be de-averaged to

1 reflect geographic differences in costs. It is also important that cost studies
2 reflect technical and use characteristics of loops. Specifically, when the
3 incumbent LECs provide their loop cost studies, those studies should specify
4 exactly how those loops will be provisioned and what characteristics (length and
5 geographic areas, etc.) are presumed in the cost studies.

6 For example, ILECs tend to deviate from the TELRIC methodology
7 when costing DSL loops. Typically, they propose to base cost studies on a
8 limited set of shorter DSL loops and calculate cost add-ons (such as special
9 construction charges) for instances where loop lengths exceed the lengths on
10 which cost studies are based. These types of approaches are not consistent with
11 TELRIC.

12 The costs for DSL loops, like for all other loops, should be determined
13 based on the assumption that the loops are *newly constructed*, consistent with the
14 previously discussed principles of TELRIC. *Thus -- for purposes of the cost*
15 *studies -- there is no need for "special" construction, since loops have already*
16 *been newly constructed as DSL loops.* Of course, the ILEC's departure from
17 TELRIC can only be detected if the LEC specifies exactly the technical and use
18 characteristic of the DSL loops.

19

20 Q. IF THE ILECS DO NOT SPECIFY THE TECHNICAL AND USE
21 CHARACTERISTICS OF UNES IN THEIR COST STUDIES MAY THIS
22 LEAD TO CONTROVERSY WHEN CLECS ORDER THEIR SERVICES?

1 A. Yes. Issues such as special construction charges have often surfaced only when
2 CLECs started to actually order unbundled elements. That is, even while the
3 rates for unbundled elements may have been approved by a commission, ILECs
4 have imposed special construction charges over and above those tariffed rates,
5 thus bypassing the regulatory process and subverting the commission's authority
6 to set rates. As noted, in many instances, this practice came to light only after
7 the conclusion of certain pricing and costing proceedings, thus requiring some
8 commissions to start new proceedings to deal with issues that should have been
9 resolved in the initial costing and pricing proceedings. It is important that the
10 Florida Commission avoid this mistake, which would only further delay or slow
11 down the development of local competition.

12

13 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

14 A. Yes, it does.

¹ FCC, *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, First report and Order, CC Docket No. 96-98. Henceforth I will refer to this Order as the FCC's Local Competition Order.

² In its Local Competition Order, the FCC defines the term "long run" in TELRIC as: "a period long enough so that all of a firm's costs become variable or avoidable." (Paragraph 677.) The FCC then provides the following quote in a footnote to paragraph 677 to further illustrate that under TELRIC all costs are presumed variable: "all the firm's present contracts will have run out, its present plant and equipment will have been worn out or rendered obsolete and will therefore need replacement." (See footnote 1682, to paragraph 677.)

³ In paragraph 675 of its Local Competition Order, the FCC finds "Incremental costs are forward-looking ... due to changes in input prices and technologies,

incremental costs may differ from embedded costs.”

⁴ In its Local Competition Order, the FCC found that “the increment that forms the basis for a TELRIC study shall be the entire quantity of the network element provided.” (Paragraph 690.)

⁵ For purposes of the TELRIC studies, technologies should be selected so as to achieve an *overall* least cost network.

⁶ Communications Act of 1934, section 1, S. 3285, Public No. 416.

⁷ Checklist items (i) and (ii) require interconnection and nondiscriminatory access to network elements in accordance with section 252(d)(1) of the Act. See 47 U.S.C. §§ 271(c)(2)(B)(i) and (ii).

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I am an economist and consultant, specializing in public utility regulation. In this capacity, I have provided consulting services in the major telecommunications markets of the United States, such as New York, Texas, Illinois, Michigan, Tennessee, Georgia, and in a variety of smaller states. My consulting activities focus mostly on telecommunications regulation. Specifically, I work with corporate clients, such as MCI, AT&T, AT&T Wireless, and smaller clients, such as Brooks Fiber and PCS providers before state and federal regulatory agencies in various proceedings concerning the introduction of competition in telecommunications markets. Recently, these proceedings focus largely on the implementation of the pro-competition provisions of Telecommunications Act of 1996.

Professional experience:

My professional background includes work experiences in private industry, a state regulatory agency, and academia. I have worked for MCI Telecommunications Corporation (MCI) as a senior economist. At MCI, I provided expert witness testimony and conducted economic analyses for internal purposes. Prior to joining MCI in early 1995, I worked for Teleport Communications Group, Inc. (TCG), as a Manager in the Regulatory and External Affairs Division. In this capacity, I testified on behalf of TCG in proceedings concerning local exchange competition issues. From 1986 until early 1994, I was employed as an economist by the Public Utility Commission of Texas (PUCT) where I worked on a variety of electric power and telecommunications issues. During my last year at the PUCT I held the position of chief economist. Prior to joining the PUCT, I taught undergraduate courses in economics as an Assistant Instructor at the University of Texas from 1984 to 1986.

Education:

I received a Ph.D. in Economics from the University of Texas at Austin in 1992, an M.A. in Economics from the University of Texas at Austin in 1987, and a B.A. in Economics from Quincy College, Illinois, in 1982.

PROCEEDINGS IN WHICH DR. ANKUM HAS FILED EXPERT WITNESS TESTIMONY:

New York

Commission Investigation into Resale, Universal Service and Link and Port Pricing, New York Public Service Commission, Case Nos. 95-C-0657, 94-C-0095, and 91-C-1174, July 4, 1996. On behalf of MCI Telecommunications Corporation.

Texas

Petition of The General Counsel for an Evidentiary Proceeding to Determine Market Dominance, PUC of Texas, Docket No. 7790, Direct Testimony, June 1988. On behalf of the Public Utility Commission of Texas.

Application of Southwestern Bell Telephone Company for Revisions to the Customer Specific Pricing Plan Tariff, PUC of Texas, Docket No. 8665, Direct Testimony, July 1989. On behalf of the Public Utility Commission of Texas.

Application of Southwestern Bell Telephone Company to Amend its Existing Customer Specific Pricing Plan Tariff: As it Relates to Local Exchange Access through Integrated Voice/Data Multiplexers, PUC of Texas, Docket No. 8478, Direct Testimony, August 1989. On behalf of the Public Utility Commission of Texas.

Application of Southwestern Bell Telephone Company to Provide Custom Service to Specific Customers, PUC of Texas, Docket No. 8672, Direct Testimony, September 1989. On behalf of the Public Utility Commission of Texas.

Inquiry of the General Counsel into the Reasonableness of the Rates and Services of Southwestern Bell Telephone Company, PUC of Texas, Docket No. 8585, Direct Testimony, November 1989. On behalf of the Public Utility Commission of Texas.

Southwestern Bell Telephone Company Application to Declare the Service Market for CO LAN Service to be Subject to Significant Competition, PUC of Texas, Docket No. 9301, Direct Testimony, June 1990. On behalf of the Public Utility Commission of Texas.

Petition of Southwestern Bell Telephone Company for Authority to Change Rates, PUC of Texas, Docket No. 10382, Direct Testimony, September 1991. On behalf of the Public Utility Commission of Texas.

Application of Southwestern Bell Telephone Company, GTE Southwest, Inc., and Contel of Texas, Inc. For Approval of Flat-rated Local Exchange Resale Tariffs Pursuant to PURA 1995 Section 3.2532, Public Utility Commission of Texas, Docket No. 14658, January 24, 1996. On behalf of

Office of Public Utility Counsel of Texas.

Application of Southwestern Bell Telephone Company, GTE Southwest, Inc., and Contel of Texas, Inc. For Interim Number Portability Pursuant to Section 3.455 of the Public Utility Regulatory Act, Public Utility Commission of Texas, Docket No. 14658, March 22, 1996. On behalf of Office of Public Utility Counsel of Texas.

Application of AT&T Communications for Compulsory Arbitration to Establish an Interconnection Agreement Between AT&T and Southwestern Bell Telephone Company, and Petition of MCI for Arbitration under the FTA96, Public Utility Commission of Texas, Consl. Docket Nos. 16226 and 16285. September 15, 1997. On behalf of AT&T and MCI.

Illinois

Adoption of Rules on Line-Side Interconnection and Reciprocal Interconnection, Illinois Commerce Commission, Docket No. 94-0048. September 30, 1994. On behalf of Teleport Communications Group, Inc.

Proposed Introduction of a Trial of Ameritech's Customer First Plan in Illinois, Illinois Commerce Commission, Docket No. 94-0096. September 30, 1994. On behalf of Teleport Communications Group, Inc.

Addendum to Proposed Introduction of a Trial of Ameritech's Customer First Plan in Illinois, Illinois Commerce Commission, Docket No. 94-0117. September 30, 1994. On behalf of Teleport Communications Group, Inc.

AT&T's Petition for an Investigation and Order Establishing Conditions Necessary to Permit Effective Exchange Competition to the Extent Feasible in Areas Served by Illinois Bell Telephone Company, Illinois Commerce Commission, Docket No. 94-0146. September 30, 1994. On behalf of Teleport Communications Group, Inc.

Proposed Reclassification of Bands B and C Business Usage and Business Operator Assistance/Credit Surcharges to Competitive Status, Illinois Commerce Commission, Docket No. 95-0315, May 19, 1995. On behalf of MCI Telecommunications Corporation.

Investigation Into Amending the Physical Collocation Requirements of 83 Ill. Adm. Code 790, Illinois Commerce Commission, Docket 94-480, July 13, 1995. On behalf of MCI Telecommunications Corporation.

Petition for a Total Local Exchange Wholesale Tariff from Illinois Bell Telephone Company d/b/a Ameritech Illinois and Central Telephone Company Pursuant to Section 13-505.5 of the Illinois

Public Utilities Act, Illinois Commerce Commission, Docket No. 95-0458, December 1995. On behalf of MCI Telecommunications Corporation.

Citation to Investigate Illinois Bell Telephone Company's Rates, Rules and regulations For its Unbundled Network Component Elements, Local Transport Facilities, and End office Integration Services, Illinois Commerce Commission, Docket No. 95-0296, January 4, 1996. On behalf of MCI Telecommunications Corporation.

In the Matter of MCI Telecommunications Corporation Petition for Arbitration Pursuant to Section 252(b) of the Telecommunications Act of 1996 to Establish and Interconnection Agreement with Illinois Bell Telephone Company d/b/a Ameritech Illinois, Illinois Commerce Commission, Docket No. 96-AB-006, October, 1996. On behalf of MCI Telecommunications Corporation.

In the Matter of MCI Telecommunications Corporation Petition for Arbitration Pursuant to Section 252(b) of the Telecommunications Act of 1996 to Establish and Interconnection Agreement with Central Telephone Company of Illinois (Sprint), Illinois Commerce Commission, Docket No. 96-AB-007, January, 1997. On behalf of MCI Telecommunications Corporation.

Investigation into forward looking cost studies and rates of Ameritech Illinois for interconnection, network elements, transport and termination of traffic. Illinois Commerce Commission, Docket No. 96-0486, February, 1997. On behalf of MCI Telecommunications Corporation

Massachusetts

NYNEX/MCI Arbitration, Common Wealth of Massachusetts, Department of Public Utilities, D.P.U. 96-83, October 1996. On behalf of MCI Telecommunications Corporation.

New Mexico

Brooks Fiber Communications of New Mexico, Inc. Petition for Arbitration, New Mexico State Corporation Commission, Docket No. 96-307-TC, December, 1996. On behalf of Brooks Fiber Communications of New Mexico, Inc.

Michigan

In the Matter of the Application of City Signal, Inc. for an Order Establishing and Approving Interconnection Arrangements with Michigan Bell Telephone Company, Michigan Public Service Commission, Case No. U-10647, October 12, 1994. On behalf of Teleport Communications Group,

Inc.

In the Matter, on the Commission's Own Motion, to Establish Permanent Interconnection Arrangements Between Basic Local Exchange Providers, Michigan Public Service Commission, Case No. U-10860, July 24, 1995. On behalf of MCI Telecommunications Corporation.

In the Matter, on the Commission's Own Motion, to consider the total service long run incremental costs and to determine the prices for unbundled network elements, interconnection services, resold services, and basic local exchange services for Ameritech Michigan, Michigan Public Service Commission, Case No. U-11280, March 31, 1997. On behalf of MCI Telecommunications Corporation.

In the matter of the application under Section 310(2) and 204, and the complaint under Section 205(2) and 203, of MCI Telecommunications Corporation against AMERITECH requesting a reduction in intrastate switched access charges, Case No. U-11366. April, 1997. On behalf of MCI Telecommunications Corporation.

Ohio

In the Matter of MCI Telecommunications Corporation Petition for Arbitration Pursuant to Section 252(b) of the Telecommunications Act of 1996 to Establish and Interconnection Agreement with Ameritech Ohio, The Public Utilities Commission of Ohio, Case No. 96-888-TP-ARB, October, 1996. On behalf of MCI Telecommunications Corporation.

In the matter of the review of Ameritech Ohio's economic costs for interconnection, unbundled network elements, and reciprocal compensation for transport and termination of local telecommunications traffic, The Public Utilities Commission of Ohio, Case No. 96-922-TP-UNC, Jan 17, 1997. On behalf of MCI Telecommunications Corporation.

Indiana

In the matter of the Petition of MCI Telecommunications Corporation for the Commission to Modify its Existing Certificate of Public Convenience and Necessity and to Authorize the Petitioner to Provide certain Centrex-like Intra-Exchange Services in the Indianapolis LATA Pursuant to I.C. 8-1-2-88, and to Decline the Exercise in Part of its Jurisdiction over Petitioner's Provision of such Service, Pursuant to I.C. 8-1-2.6., Indiana Regulatory Commission, Cause No. 39948, March 20, 1995. On behalf of MCI Telecommunications Corporation.

In the matter of the Petition of Indiana Bell Telephone company, Inc. For Authorization to Apply a Customer Specific Offering Tariff to Provide the Business Exchange Services Portion of Centrex and PBX Trunking Services and for the Commission to Decline to Exercise in Part Jurisdiction over the

Petitioner's Provision of such Services, Pursuant to I.C. 8-1-2.6, Indiana Regulatory Commission, Cause No. 40178, October 1995. On behalf of MCI Telecommunications Corporation.

MCI Telecommunications Corporation Petition for Arbitration Pursuant to Section 252(b) of the Telecommunications Act of 1996 to Establish and Interconnection Agreement with Indiana Bell Telephone Company d/b/a Ameritech Indiana, Indiana Public Utility Regulatory Commission, Cause No. 40603-INT-01, October 1996. On behalf of MCI Telecommunications Corporation.

In the matter of the Commission Investigation and Generic Proceeding on Ameritech Indiana's Rates for Interconnection Service, Unbundled Elements and Transport and Termination under the Telecommunications Act of 1996 and Related Indiana Statutes, Indiana Public Utility Regulatory Commission, Cause No. 40611. April 18, 1997. On behalf of MCI Telecommunications Corporation.

In the Matter of the Commission Investigation and Generic Proceeding on GTE's Rates for Interconnection, Service, Unbundled Elements, and Transport under the FTA 96 and related Indiana Statutes, Indiana Public Utility Regulatory Commission, Cause No. 40618. October 10, 1997. On behalf of MCI Telecommunication Corporation.

Rhode Island

Comprehensive Review of Intrastate Telecommunications Competition, State of Rhode Island and Providence Plantations Public Utilities Commission, Docket No. 2252, November, 1995. On behalf of MCI Telecommunications Corporation.

Vermont

Investigation into NET's tariff filing re: Open Network Architecture, including the Unbundling of NET's Network, Expanded Interconnection, and Intelligent Networks, Vermont Public Service Board, Docket No. 5713, June 8, 1995. On behalf of MCI Telecommunications Corporation.

Wisconsin

Investigation of the Appropriate Standards to Promote Effective Competition in the Local Exchange Telecommunications Market in Wisconsin, Public Service Commission of Wisconsin, Cause No. 05-TI-138, November, 1995. On behalf of MCI Telecommunications Corporation.

Matters relating to the satisfaction of conditions for offering interLATA services (Wisconsin Bell,

Inc. d/b/a Ameritech Wisconsin) Wisconsin Public Service Commission, 670-TI-120, March 25, 1997. On behalf of MCI Telecommunications Corporation.

In the Matter of MCI Telecommunications Corporation Petition for Arbitration Pursuant to Section 252(b) of the Telecommunications Act of 1996 to Establish an Interconnection Agreement with Wisconsin Bell, Inc. d/b/a Ameritech Wisconsin, Wisconsin Public Service Commission, Docket Nos. 6720-MA-104 and 3258-MA-101. On behalf of MCI Telecommunications Corporation.

Pennsylvania

In Re: Formal Investigation to Examine Updated Universal Service Principles and Policies for telecommunications Services in the Commonwealth Interlocutory order, Initiation of Oral Hearing Phase, Pennsylvania Public Utility Commission, Docket No. I-00940035, February 28, 1996. On behalf of MCI Telecommunications Corporation.

Georgia

AT&T Petition for the Commission to Establish Resale Rules, Rates and terms and Conditions and the Initial Unbundling of Services, Georgia Public Service Commission, Docket No. 6352-U, March 22, 1996. On behalf of MCI Telecommunications Corporation.

Tennessee

Avoidable Costs of Providing Bundled Services for Resale by Local Exchange Telephone Companies, Tennessee Public Service Commission, Docket No. 96-00067, May 31, 1996. On behalf of MCI Telecommunications Corporation.

Commonwealth of Puerto Rico

Petition for Arbitration Pursuant to 47 U.S.C. & (b) and the Puerto Rico Telecommunications Act of 1996, regarding Interconnection Rates Terms and Conditions with Puerto Rico Telephone Company, Puerto Rico Telecommunications Regulatory Board, Docket No. 97-0034-AR, April 15, 1997. On behalf of Cellular Communications of Puerto Rico, Inc.