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December 9, 1997

BY HAND DELIVERY

Ms. Blanca Bayo, Director
Division of Records and Reporting
Room 110, Easley Building
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, Florida 32399-0850

Re: Docket Nos. 960757-TP, 960833-TP, and 960846-TP

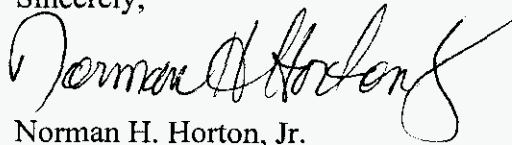
Dear Ms. Bayo:

Enclosed for filing are an original and fifteen copies of Rebuttal Testimony of Dr. Marvin H. Kahn on behalf of American Communications Services of Jacksonville, Inc. in the above-referenced dockets.

Please acknowledge receipt of these documents by stamping the extra copy of this letter "filed" and returning the same to me.

Thank you for your assistance with this filing.

Sincerely,



Norman H. Horton, Jr.

ACK _____

AFA _____

APP _____

GAF _____

CMU _____ NHH:amb

CTR _____ Enclosures

EAG _____ cc: James C. Falvey, Esq.
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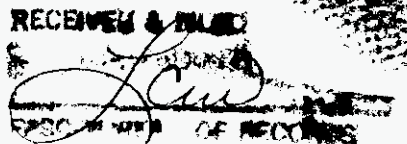
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12577 DEC-96

FPSC-RECORDS/REPORTING

ORIGINAL

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)
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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.)
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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.)
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Docket No. 960846-TP
Filed: December 9, 1997

REBUTTAL TESTIMONY OF

DR. MARVIN H. KAHN

ON BEHALF OF

**AMERICAN COMMUNICATIONS SERVICES, INC.
(ACSI)**

I. INTRODUCTION AND SUMMARY

1 Q. PLEASE STATE YOUR NAME.

2 A. My name is Marvin H. Kahn. I am a Senior Economist and a founding
3 principal of Exeter Associates, Inc. Our offices are located at 12510
4 Prosperity Drive, Silver Spring, Maryland 20904.

5 Q. PLEASE REVIEW YOUR BACKGROUND AND QUALIFICATIONS.

6 A. I am an economist specializing in public utility regulation, energy,
7 communications and antitrust analysis. My primary research interest is in
8 the application of microeconomic principles to public policy issues. Over
9 the last several years, my interests have turned to matters regarding the
10 restructuring of the natural gas pipeline, electric and telephone industries
11 and the regulation of firms operating simultaneously in competitive and
12 non-competitive markets. Particular issues addressed include the
13 unbundling of services, the effects of imposing line of business restrictions
14 on regulated firms, assessments of alternative regulatory structures, and
15 matters regarding cost allocation and rate design.

16 In addition to my consulting experiences, I taught economics or
17 lectured at the University of Tennessee, the University of Missouri in St.
18 Louis, Washington University in St. Louis, at Merrimac College and at
19 The Johns Hopkins University. I served as a senior economist with the
20 Institute of Defense Analysis and the Mitre Corporation, both not-for-
21 profit Federal Contract Research Centers in the Washington, D.C.

1 metropolitan area. I also served as a senior staff economist with an Ad
2 Hoc Committee of the U.S. House Committee on Currency and Banking,
3 focusing on energy and employment issues.

4 I am a graduate of Ohio Northern University and hold a Ph.D. in
5 Economics from Washington University in St. Louis.

6 Q. HAVE YOU TESTIFIED BEFORE REGULATORY AUTHORITIES
7 ON MATTERS DEALING WITH TELECOMMUNICATIONS?

8 A. Yes. I have appeared as an expert witness on matters regarding
9 telecommunications before commissions in over 20 jurisdictions in this
10 country and Canada. I have also undertaken research and prepared reports
11 on regulatory or industry restructuring issues for the U.S. Postal Service,
12 the Federal Communications Commission, the National Regulatory
13 Research Institute and the National Association of State Utility Consumer
14 Advocates. A copy of my resume is attached as Exhibit (MHK-1).

15 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

16 A. I have been asked by ACSI to evaluate the testimony and cost studies filed
17 by BellSouth in this proceeding. My review will focus most specifically
18 on costs and rates for ADSL and HDSL loops, central office cross
19 connects and non-recurring charges. In that context, I have been asked to
20 comment on the BellSouth cost study process and offer recommendations,
21 where appropriate.

1 Q. PLEASE DESCRIBE ACSI'S PREVIOUS PARTICIPATION IN THIS
2 DOCKET?

3 A. ACSI was one of the initial participants in these arbitration proceedings
4 last year. ACSI negotiated an interconnection agreement with BellSouth,
5 signed on July 25, 1996. ACSI and BellSouth, however, were unable to
6 agree upon the pricing of unbundled loops. Accordingly, ACSI filed for
7 arbitration on the specific issue of the pricing of all unbundled loops and
8 cross connects. ACSI also testified in the hearings on this matter before
9 the Commission. Subsequent to those hearings, ACSI reached a
10 settlement with BellSouth on October 17, 1996, reaching agreement on all
11 remaining issues, including the pricing of cross connects and unbundled
12 loops (ADSL, HDSL, as well as POTS loops). The parties agreed to
13 recurring charges based on previous Commission decisions, and non-
14 recurring charges based upon BellSouth's tariffed non-recurring charges to
15 BellSouth's end users. In fact, the non-recurring charges in ACSI's
16 agreement, set at 80 percent of BellSouth's non-recurring charges for the
17 same service, are in the appropriate range that the Commission should
18 consider in this docket.

19 Q. WHAT WAS ACSI'S PURPOSE IN AGREEING TO UNBUNDLED
20 LOOP RATES WITH BELLSOUTH?

21 A. It is my understanding that the rates in ACSI's agreement permitted ACSI
22 to get into business immediately, rather than waiting out the lengthy

1 process of arbitration and further negotiation that other parties have since
2 pursued. ACSI has executed on this strategy by turning up switches in
3 several BellSouth states. ACSI also expected to get relief from the rates
4 agreed to when this Commission, like most of the other BellSouth
5 commissions, established permanent unbundled loop rates in a separate
6 generic proceeding after the stringent deadlines established in the
7 Telecommunications Act for the completion of arbitrations had passed.
8 ACSI expected to participate in generic dockets in each state to establish
9 permanent 2-wire analog unbundled loop rates, for example. This docket
10 represents ACSI's first opportunity to analyze BellSouth cost studies since
11 the arbitrations.

12 Q. GIVEN THIS SETTLEMENT AGREEMENT, WHAT IS THE IMPACT
13 OF THE PRICING ESTABLISHED IN THIS DOCKET ON ACSI?

14 A. There is a twofold impact of the pricing established in this docket on
15 ACSI. First, under certain limited conditions set out in ACSI's unbundled
16 loop amendment, the pricing established in this docket could become
17 effective for ACSI upon a final order of this Commission. Second, at a
18 minimum, when Florida Alternative Local Exchange Carriers ("ALECs")
19 such as ACSI renegotiate their interconnection agreements, the pricing
20 established in this docket will be held up as the standard for the pricing in
21 those agreements. ACSI's current BellSouth interconnection agreement
22 expires on July 24, 1998, and the second round of interconnection

1 negotiations is already upon us. If the pricing established in this
2 proceeding is to be integrated into ACSI's next interconnection agreement,
3 ACSI needs to participate in analyzing the BellSouth cost studies. ACSI
4 has already participated in similar dockets in Alabama, Louisiana, and
5 Georgia, and is therefore familiar with the BellSouth cost studies at issue.

6 Q. WHAT ELEMENTS IS ACSI ADDRESSING IN THIS TESTIMONY?

7 A. Virtually all of the rates arbitrated in this proceeding will apply to ACSI in
8 due course. ACSI is focusing in this proceeding, however, on the cross
9 connect rates established in the BellSouth collocation studies, and on the
10 ADSL and HDSL unbundled loop rates. ADSL and HDSL provide ACSI
11 with the capacity to carry both voice and data traffic over the same
12 circuits, and facilitate advanced voice and data applications. ADSL and
13 HDSL will become increasingly critical to ACSI as the technology
14 continues to evolve. These circuits are particularly important for
15 sophisticated customers with combined voice and data requirements.

16 Q. WHAT RATES ARE INCLUDED IN THE ACSI INTERIM
17 AGREEMENT FOR ADSL AND HDSL?

18 a. The monthly recurring and non-recurring charges for all unbundled loop
19 elements, 2-wire and 4-wire analog as well as 2-wire and 4-wire
20 ADSL/HDSL are identical.

21 The recurring charges are \$17 for 2-wire and \$27.20 for 4-wire
22 loops. The non-recurring charges for all 2-wire and 4-wire elements by

1 agreement are 80 percent of the basic business service connection charge.
2 Currently, the basic business service connecting charge is \$56 and ACSI's
3 NRC is \$44.80.

4 Q. WHAT RELEVANCE ARE THESE RATES TO THIS PROCEEDING?

5 A. During negotiations, a delay in competitive entry was to BellSouth's
6 advantage and to ACSI's disadvantage. These rates should be interpreted
7 in light of the unequal bargaining strength that existed. Hence, absent
8 proof to the contrary, these rates should be approved on a permanent basis.

9 Q. DID YOU FIND BELLSOUTH'S PROPOSAL TO BE CONSISTENT
10 WITH THE REQUIREMENTS OF THE ACT AND ACCEPTED
11 ECONOMIC PRINCIPLES?

12 A. No. Both the Act and economic efficiency recognize that pricing UNEs is
13 critical to the successful emergence of competition in the market for local
14 telephone services. Only an approach to developing rates that is based on
15 a reasonable estimate of forward-looking costs and an allocation of joint
16 and common costs that is similarly forward-looking (market based) will
17 satisfy the objectives of the Act and promote the competitive outcome.
18 Rates based on embedded costs, whether in the form of a residual "adder"
19 to a TSLRIC/TELRIC or in the form of a proposed rate equal to an
20 existing tariff, will not promote the competitive outcome. In addition,
21 rates based on a recent cost study will not promote the competitive

1 outcome if the inputs to that study do not reflect truly forward-looking
2 costs of providing narrow band, voice grade service.

3 In this proceeding, BellSouth presents an incremental cost study,
4 which it describes as TSLRIC. It is our understanding, based on our
5 current involvement in the BellSouth TSLRIC/TELRIC/costing/pricing
6 proceedings in other states, however, that BellSouth does not base its
7 proposed rates on TSLRIC/TELRIC-based costs. Instead, with few
8 exceptions, these studies are ignored, and BellSouth's proposed rates are
9 based on some form of embedded or actual costs. Rates for unbundled
10 elements based on embedded cost do not comply with the requirements of
11 the Act or promote competition and, thus, will not provide the benefits to
12 consumers of increased competition in the local telecommunications
13 market. Additionally, the cost model provided by BellSouth incorporates
14 many assumptions or inputs that are based on the Company's embedded
15 (existing) technology and historical cost relationships, and not on truly
16 forward-looking assumptions associated with a least cost technology.
17 Thus, I recommend that the BellSouth pricing methodology and the
18 TSLRIC/TELRIC results provided by BellSouth be rejected.

19 Q. WOULD YOU PLEASE BRIEFLY EXPLAIN THE UNDERLYING
20 APPROACH TO BELLSOUTH'S PROPOSED RATES?

1 A. BellSouth has consistently proposed rates that are not cost based, are not
2 non-discriminatory and do not reflect a reasonable markup for recovery of
3 common costs.

4 The Bell proposal calls for prices for services to be set above cost
5 to recover joint and common costs. The resulting markups, however, are
6 over 30 percent and are excessive. As I explain later, BellSouth's own
7 practices and that of other ILECs, as well, point to a competitively based
8 markup of about 15 percent.

9 For most elements -- loops and ports -- BellSouth adds an
10 additional markup to recover sunk or embedded costs.

11 Q. WHAT CONCLUSIONS HAVE YOU DRAWN WITH REGARD TO
12 THE BELLSOUTH PROPOSAL FOR RATES FOR ADSL AND HDSL
13 LOOPS?

14 A. The cost estimates for ADSL and HDSL are drawn from the same study
15 BellSouth uses for its 2-wire POTS loop, with extensions unique to ADSL
16 and HDSL. I identify concerns with both the underlying loop study as
17 well as the ADSL and HDSL extensions. The available evidence suggests
18 that the Commission should look closely at the data inputs used in the
19 BellSouth studies. The cost estimates provided by BellSouth should not
20 be accepted.

21 Q. WHAT CONCLUSIONS HAVE YOU DRAWN WITH REGARD TO
22 THE BELLSOUTH NON-RECURRING CHARGE PROPOSALS?

1 Currently in the telephone industry, competition does not prevail. The
2 incumbent local exchange carriers (ILECs), including BellSouth, still hold
3 a monopoly or near monopoly on most of their telecommunications
4 services and elements; thus, regulatory oversight is still required to ensure
5 the competitive outcome. Where competition prevails, market forces can
6 be relied upon to discipline pricing practices and will naturally drive prices
7 toward cost with the result being increased economic efficiency. Increased
8 competition and economic efficiency bring the benefits of lower rates and
9 greater choice to consumers. Hence, a key objective of any pricing policy
10 is to obtain the competitive outcome.

11 Adherence to economic pricing principles is important in achieving
12 the competitive outcome. The methodology used to determine the price
13 ILECs charge for use of their facilities must send the correct price signals,
14 encourage the entry of efficient competitors, and, thus, allow consumers to
15 benefit from an increase in competitive activity including lower retail
16 prices and a diversity of service choices. The ultimate goal of the Act is
17 the creation of these potential consumer benefits. The preamble to the Act
18 articulates this goal:

19 To promote competition and reduce
20 regulation in order to secure lower
21 prices and higher quality service for
22 American telecommunications
23 consumers and encourage the rapid
24 deployment of new technology.

1 To accomplish these goals BellSouth should be required to
2 establish rates for interconnection and unbundled elements pursuant to a
3 forward-looking economic cost pricing methodology. Only a forward-
4 looking methodology will encourage competitive entry and promote
5 competition throughout Florida.

6 Q. WHAT ARE YOUR RECOMMENDATIONS REGARDING THE
7 APPROPRIATE STANDARDS FOR DEVELOPING RATES FOR
8 UNBUNDLED ELEMENTS?

9 A. Embedded or historical costs do not send the correct price signals. Prices
10 in a competitive market are based on *forward-looking*, market-oriented
11 costs. To achieve this competitive market outcome, prices for network
12 elements should be developed based on two criteria.

- 13 • The first is a measure of forward-looking, direct costs. The
14 total service long run incremental cost (TSLRIC) method
15 focusing on network elements is an appropriate standard for
16 achieving the desired results.¹
17
- 18 • The second governs the markup over TSLRIC/TELRIC.
19 The markup should permit recovery of shared and common
20 costs; but to avoid monopoly pricing, the recovery should
21 be restricted to forward-looking shared and common cost
22 for only that portion which would be recovered in a
23 competitive market. As I describe below, this markup
24 cannot be readily determined from the ILECs' accounting
25 records, and I suggest instead a market surrogate based on a

26 ¹ The TSLRIC of a network element has been termed by the FCC as a
27 TSLRIC and TELRIC. TSLRIC and TELRIC are identical
28 methodologies, but focus on different aspects of ILEC operations -
29 network elements and services. The terms can be used interchangeably.

1 markup that ILECs elect by their own activities in
2 competitive markets.
3

4 Q. IS THIS CONSISTENT WITH THE REQUIREMENTS OF THE ACT?

5 A. Yes. This approach is both economically sound and satisfies the pricing
6 standards of the Act. Under the 1996 Act, determinations by a state
7 commission as to whether the rates for interconnection and network
8 elements are just and reasonable are to be based on whether the rate is
9 based on cost (determined without reference to a rate-of-return or other
10 rate-based proceeding) and is non-discriminatory.² This eliminates any
11 reliance on embedded or sunk costs. The rate may include a reasonable
12 profit.³ A TSLRIC/TELRIC-based rate is a cost-based rate which is
13 determined without reference to a rate-of-return or other rate-based
14 proceeding. A markup over direct cost limited to a level determined by
15 competitive market forces in the telecommunications industry permits a
16 reasonable profit, and unlike an embedded cost methodology, will yield
17 rates that are not discriminatory.

18 In addition, this approach is consistent with the FCC's ruling on
19 interconnection interpreting Section 252(d)(1) of the 1996 Act.⁴ Although

20 ² Section 252(d)(1)(A).

21 ³ Section 252(d)(1)(B).

22 ⁴ See *In the Matter of Implementation of the Local Competition Provisions*
23 *in the Telecommunications Act of 1996*, First Report and Order, CC
24 Docket No. 96-98, Released August 8, 1996 (*First Report and Order*).

1 portions of that *First Report and Order* have been vacated by the Eighth
2 Circuit Court of Appeals⁵ on jurisdictional grounds, the costing
3 methodology proposed by the FCC represents the application of sound
4 economic principles.

5 Q. WHY SHOULD THE COMMISSION BE CONCERNED IF
6 EMBEDDED COSTS ARE USED TO ESTABLISH PRICES FOR THE
7 NETWORK ELEMENTS?

8 A. If the consumer benefits of competition are to be realized, the general
9 thesis of pricing unbundled network elements is that they be cost based.
10 Cost in that context is defined as forward-looking/incremental, not
11 historic/actual/embedded. Consequently, if prices are to be cost based,
12 information with regard to embedded costs are irrelevant.

13 The Company's pricing proposal is to set rates in most instances
14 totally irrespective of the underlying cost information. If embedded cost
15 information is to be used as the basis for setting rates, there is absolutely
16 no reason why energy should be devoted to estimating the LRIC, TSLRIC,
17 or TSLRIC/TELRIC associated with that network element. Under the
18 Company's TSLRIC plus "actual" proposal, the resulting price is
19 established irrespective of the underlying costs.

20 **B. MARKUP: SETTING COST-BASED PRICES**

21 ⁵ Iowa Utilities Board, et. al. v. Federal Communications Commission, et.
22 al., Nos. 99-3321, et. al., filed July 18, 1997.

1 Q. HOW SHOULD THE RELEVANT MARKUP OVER COST FOR
2 NETWORK ELEMENTS BE ESTABLISHED?

3 A. Since a competitive environment would limit the markup to a level needed
4 to fully recover only efficiently incurred, forward-looking joint and
5 common costs, it would be reasonable that the markup be limited to an
6 amount no greater than the ratio of efficiently incurred joint and common
7 costs to direct costs. A competitive markup based on this approach would
8 be that realized by the Company on its competitive services. That is, to
9 allow a markup comparable to the markup voluntarily negotiated by
10 BellSouth on its competitive services would replicate the competitive
11 outcome and would be consistent with the "reasonableness" standard of
12 §252(d)(1)(B) of the Act. To do otherwise will allow the ILEC to
13 discriminate and to realize monopoly rents by overpricing these essential,
14 monopoly network elements.

15 Primary issues with regard to the provision of network elements
16 are entry (whether or not to enter the market) and the "make-buy"
17 decision. Many of the potential entrants have the option of either
18 functioning as a reseller (buying unbundled components from the LECs)
19 or, alternatively, becoming a facilities-based provider (using their own
20 network). Setting the markup at other than what would be expected to
21 exist in a competitive market could well provide incorrect price signals
22 and result in inefficient investment (e.g., discourage entry by efficient

1 facilities-based provides). Because the goal is to promote efficient entry
2 through proper pricing policy, restricting that markup to the competitive
3 market norm appears to be an appropriate economic and regulatory policy.

4 Q. IS THIS APPROACH TO THE MARKUP CONSISTENT WITH THE
5 1996 ACT?

6 A. Yes. Section 251(c)(3) requires that incumbent LECs provide "non-
7 discriminatory access to network elements on an unbundled basis . . . on
8 rates, terms and conditions that are just, reasonable and non-
9 discriminatory." Section 252(d)(1)(A) and (B) provides that
10 determinations by a state commission are just and reasonable if those rates
11 are:

- 12 (i) based on the cost (determined without reference to a rate-
13 of-return or other rate-based proceeding) of providing the
14 interconnection or network element (whichever is
15 applicable);
- 16 (ii) non-discriminatory; and
- 17 (iii) may include a reasonable profit.

18
19
20
21 For the reasons stated above, a TSLRIC/TELRIC costing methodology is
22 consistent with Section 252(d)(1)(A). The Act limited the markup to a
23 "reasonable level." The markup proposed in my testimony, which would
24 be limited to the markup accepted by the ILEC on its most competitive
25 services, is consistent with Section 252(d)(1)(B). A markup limit over
26 TSLRIC/TELRIC defined as the voluntarily accepted return on a

1 competitive service is consistent with the criteria which limits the
2 allocation of common costs to that which is reasonable.

3 Q. HOW WOULD THE MARKUP ON COMPETITIVE SERVICES BE
4 DETERMINED OR MEASURED?

5 A. The purpose of the markup is to capture the competitive outcome in the
6 pricing of network elements. By markup, I mean the difference between
7 the rate charged for an element (or service) and the TSLRIC/TELRIC of
8 the element (or service). The determination of a markup should be based
9 on comparable, competitive transactions and it must recognize that the
10 tariff rate is not always the relevant figure to use.

11 The intent here is to identify a markup consistent with an actively
12 competitive market. Consequently, the focus should be on those elements
13 or services provided by BellSouth that are subject to more competition,
14 rather than an average of all services provided. Additionally, the intent is
15 not to identify the lowest markup that BellSouth will accept, but rather one
16 that is representative of its actions in a truly competitive market. Services
17 subject to a this type of competition include, for example, ESSX and 800
18 service.

19 Further, it must be recognized that rates established historically
20 have been designed to allow the ILEC to fully recover its revenue
21 requirement. The specific rate design established in this fashion may have
22 accomplished other social goals as well. Using an average of these

1 markups, therefore, would not represent a competitive outcome.
2 Consequently, in the interest of capturing a competitively inspired markup,
3 it is inappropriate to take the average of all services, or to rely on historical
4 cost allocations or "actual" costs. Instead the focus should be on
5 competitive market operations and the market pricing of BellSouth's more
6 competitive activities, *i.e.*, on the net revenues realized under specific
7 market-type contracts voluntarily negotiated by BellSouth. Only these
8 will represent competitive (market-based) recoveries of common costs.

9 Q. IS THERE ANY EVIDENCE ON THE EXTENT OF THE MARKUP
10 NECESSARY TO RECOVER EFFICIENTLY INCURRED SHARED
11 AND COMMON COSTS?

12 A. Yes. While none has been presented by BellSouth in this proceeding, data
13 on various ILEC operations, including on BellSouth operations, and
14 available rulings related to markup point to the use of a markup equal to
15 approximately 15 percent.

16 Q. WHAT ARE THESE DATA?

17 A. The available data include research undertaken by our firm, as well as
18 commission orders.

19 I have reviewed competitive service contract pricing by BellSouth
20 in Alabama. That review, undertaken as part of Docket No. 25625,
21 indicated a range of markups over cost also averaging less than 15

1 percent.⁶ The examination focused on the Company's ESSX operations,
2 including the provision of ESSX add-on services, such as ISDN, as well as
3 various private line, digital and other dedicated services. BellSouth filed
4 contract data and cost data with the Alabama PSC. The markup selected
5 by the LEC for its competitive operations was approximately 15 percent.

6 I have also examined service contracts entered into by GTE and
7 Pacific Bell in California. GTE California and Pacific Bell have flexible
8 pricing authority which permits them to negotiate contracts for a number
9 of services on an individual customer basis. Both companies have to file
10 contracts and cost support with the California PUC. Cost information can
11 be based on company-wide costs or customer specific costs, at the LEC's
12 choosing. The vast majority of the contracts were for Centrex services,
13 though other services were often also included in the contract. While a
14 range of markups was found, the median markup for Pacific Bell was
15 below 15 percent. That is, over half the contracts had a markup of less
16 than 15 percent. The markups obtained by GTE were generally lower
17 than those obtained by Pacific.⁷

18 ⁶ Alabama Public Service Commission, Docket No. 25625. See
19 BellSouth's Responses to ACSI's First Set of Data Requests, Item 21;
20 Docket No. 26029, Direct Testimony of Dr. Marvin H. Kahn.

21 ⁷ R.93-04-003, I.93-04-002, *Rebuttal Testimony of Dr. Marvin H. Kahn*
22 (Revised), July 25, 1996, Tables III and IV.

1 GTE Southwest Inc., data were also reviewed. These data
2 indicated that GTE expected a range of markups over cost on individual
3 contracts. The data indicated a preferred outcome and a lower end
4 suggesting a minimal acceptable markup.⁸ A proposed markup of 15
5 percent would certainly be consistent with this information provided by
6 GTE Southwest.

7 A recent recommended order in a multi-party arbitration in
8 Arizona authorized a markup of 15 percent as an appropriate reflection of
9 overhead expenses and adequate for recovery of "attributed, joint and
10 common costs." BellSouth, the ILEC, had proposed a markup of 27
11 percent to 32 percent.⁹ An Arbitration Award covering multiple
12 consolidated petitions in Texas recommended a range of 10.0 - 15.5
13 percent as reasonable to recover common costs.¹⁰

14 In addition, the Delaware Public Service Commission and the
15 Pennsylvania Public Utility Commission recently authorized markups over
16 TSLRIC/TELRIC cost in setting permanent UNE rates for Bell Atlantic in

18 ⁸ *Response by GTE Southwest to ACSI-1-12, ACSI's First Request for*
19 *Information to GTE Southwest, Texas Public Utilities Commission,*
20 *Docket No. 16473.*

21 ⁹ *Recommended Opinion and Order, Re: Petition of ACSI, et al., Docket*
22 *No. U-3021-96-448, et al., pp. 11, 12. June 13, 1977.*

23 ¹⁰ *Texas Public Utilities Commission Docket Nos. 16189, 16196, 16226,*
24 *16285 and 16290, FTA 96 § 252 Arbitration Panel, Arbitration Award,*
25 *¶72.*

1 their respective states. The Delaware PSC authorized a markup of 10
2 percent for recovery of common overheads.¹¹ The Pennsylvania PUC
3 authorized a markup of less than 10 percent, although the exact figure is
4 treated as proprietary.¹² The recent decision by the Maryland Commission
5 in the permanent pricing docket also supports my recommendation. In
6 that Order, the Commission did not adopt a single percent markup; but
7 ordered participants to reestimate rates using a range in which my
8 recommendation would fall at the high end of the range.¹³

9 All of the above-mentioned developments point to 15 percent as
10 representative of the markup over direct costs used by LECs, including
11 BellSouth, in competitive circumstances. This serves as the basis of my
12 recommendation.

13 Q. WHAT CONCLUSIONS DO YOU DRAW FROM THESE DATA?

14 A. There is ample data supporting the use of 15 percent as an estimate of the
15 shared and common costs actually recovered by LECs in competitive
16 circumstances. Other evidence also suggests 15 percent is reasonable in
17 comparison to the markups allowed in TSLRIC/TELRIC proceedings.

19 ¹¹ Findings, Opinion & Order No. 4542, PSC Docket No. 96-324, July 8,
20 1997; paragraph 36.

21 ¹² Application of MFS Telenet, et al. (MFS III), Docket No. A-
22 310203F002, et al.

23 ¹³ Order No. 73707, Case No. 8731, Phase II, Issued: September 22, 1997.
24 The upper end of the range is defined by a proprietary number. The lower
25 end is defined at 8 percent.

1 These estimates of the efficiently incurred, forward-looking joint and
2 common costs indicate that 15 percent is a reasonable allocation as applied
3 to BellSouth as well.

4 As I noted, competitive markets allow the recovery of joint and
5 common costs. These markets restrict that recovery to only those joint and
6 common costs that are forward-looking and efficiently incurred. A
7 competitive market surrogate provides a reasonable indication of the
8 extent to which prices should be set above direct cost to allow the recovery
9 of joint and common costs in a manner and to a degree consistent with a
10 competitive market outcome. The data available all suggest that 15
11 percent is a reasonable estimate of that markup in local exchange
12 telephone company operations.

13 Q. IS THERE ANY DIFFERENCE BETWEEN THE EMBEDDED COST
14 RECOVERY PROPOSAL AND COMMON COST RECOVERY?

15 A. No. Bell proposes to establish rates at the embedded cost or revenue
16 requirement level. This is accomplished primarily by adding an additional
17 markup, equal to the difference between embedded cost and incremental
18 cost, to the incremental cost (TSLRIC/TELRIC) level. In fact, embedded
19 cost recovery should be viewed no differently than common cost recovery.
20 Including the embedded cost “adder” is no different than increasing the
21 common costs allocated to or intended to be recovered by network
22 elements. With this procedure, differences in embedded costs and the

1 least cost, forward-looking technology (and the associated cost levels) or
2 other differences leading to reductions in forward-looking operating
3 expenses (lower TSLRIC/TELRIC costs) are ignored in favor of a method
4 which assures no immediate reduction in revenue requirements. As a
5 result, entry will not be driven by an efficient, market-based price, and the
6 competitive market outcome is neither assured or encouraged.

7 Q. WHY IS EMBEDDED COST RECOVERY NO DIFFERENT THAN
8 COMMON COST RECOVERY IN THIS CONTEXT?

9 A. It is widely recognized that incremental costs are an estimate of the
10 “actual” costs expected to be incurred on a forward going basis for some
11 activity, such as providing an unbundled network element. Being forward
12 looking in nature, these are the costs that actually affect corporate decision
13 making. Incremental costs are costs that are recognized as directly
14 attributable to the product or element in question.

15 Embedded costs differ from incremental costs in a number of very
16 important ways. One specific way is with regard to attribution.
17 Embedded costs are not attributable to specific activities, such as services
18 or unbundled network elements, as incremental costs are. The embedded
19 costs that BellSouth is attempting to recover are not attributable to any
20 service or element; instead they have characteristics not very different than
21 common costs. It is BellSouth’s position that these are “actual” costs and
22 that they are appropriately recovered in rates for unbundled network

1 elements, even though they are not directly attributable to any unbundled
2 network element. If the Company were to increase or decrease its level of
3 operations, the level of these embedded costs, just like the level of
4 common costs, would be unaffected. Hence, if the Commission should
5 choose to allow BellSouth to recover any embedded cost through the
6 pricing of unbundled elements, the appropriate mechanism should be the
7 same allocation mechanism used to determine the reasonable allocation of
8 common costs.

9 Q. WHAT IS THE BASIS OF YOUR STATEMENT THAT THE
10 BELLSOUTH RATE PROPOSAL RESULTS IN DISCRIMINATORY
11 PRICING?

12 A. In a competitive market, the firm can be expected to recover the
13 competitive or forward-looking amount of all efficiently incurred costs
14 and expenses, including common costs. There are exceptions where the
15 firm's revenues may well exceed these amounts. For example, revenues
16 may be high relative to cost if the firm is especially efficient relative to
17 other providers. That is, its forward-looking costs are below those of most
18 other current industry participants. In that case, the firm could price at
19 approximately the same level as others suppliers, but realize higher
20 returns.¹⁴

21 ¹⁴ Or, the firm could decide to reduce its rates in an attempt to gain market
22 share, which would be more likely if the firm has excess capacity.

1 Another circumstance would be where the product has a
2 particularly unique market value. These are typically either low volume
3 specialty items or higher volume relatively inexpensive items where the
4 extent of the margin over cost really has no significant market impact. A
5 fur coat or diamond brooch may be an example of the former, whereas
6 TouchTone or call forwarding telephone services may be an example of
7 latter.

8 Finally, larger margins between cost and prices may be expected
9 where the market does not have sufficient disciplinary power and the firm
10 is able to exercise monopoly power. In this circumstance, we are dealing
11 with monopoly a product.

12 Consequently, there is no basis to conclude that the market would,
13 or that BellSouth should, be able to establish a price above forward-
14 looking costs because of some relevant market efficiency. The products in
15 question, unbundled network elements, are neither high priced unique (or
16 specialty) items nor very low priced high value items. Absent any other
17 circumstance, the pricing policy proposed by BellSouth can only be
18 expected to succeed if it is consistent with the existence of market power.
19 That is, the Company is able to establish a price above its forward looking
20 cost levels, including a competitively determined allocation of common
21 costs, only if it has the monopoly power to permit it to do so. It is not
22 surprising in that regard that the Company's add-on proposal focuses on

1 the unbundled loop, the network element where the greatest degree of
2 monopoly power is likely to exist.

3 Q. USING THE PROPOSED EMBEDDED COST STANDARD WILL
4 ALLOW THE ILEC DISCRETION IN SETTING THE MARKUP OVER
5 DIRECT COST FOR UNBUNDLED NETWORK ELEMENTS. IS
6 SUCH DISCRETION APPROPRIATE?

7 A. No. Where firms have the discretion to set markups, it is expected that
8 markups will be set based on what the market itself will allow. This is the
9 case not only with regard to ILECs, but also of all firms. This is not a
10 matter of concern where there is free entry into and exit from a market
11 (that is, where firms can react to competitively determined price signals).
12 It is only a matter of concern where barriers to entry exist and the
13 incumbent firms have monopoly control in some or all of the markets
14 served. In those circumstances where firms have substantial market
15 power, high prices due to embedded cost pricing policies will not result in
16 efficient entry and the diminution of monopoly power, monopoly prices
17 and monopoly control of output.

18 The FCC proposal of an equal markup to all network elements for
19 the recovery of shared and common cost was designed to prevent this very
20 type of monopoly abuse. My proposal of establishing an equal markup,
21 but using appropriate competitive market data to determine the size of the

1 markup, is consistent with market realities and the competitive market
2 outcome sought in the Act.

3 Q. DO YOU HAVE ANY OTHER COMMENTS RELATED TO THE
4 ISSUE OF DISCRIMINATION?

5 A. Yes. The BellSouth strategy has been to apply the embedded cost adder
6 only to loops or to loops and ports as I indicated above, and not to other
7 unbundled elements. The Company has defended this by arguing that
8 these are the areas with the greatest discrepancy between actual and future
9 cost.¹⁵ However, it is not a coincidence that the adder is applied only to
10 products where BellSouth maintains greater market power over monopoly
11 elements such as loops. This is simply a matter of pricing according to the
12 differentials in the degree of competition, i.e., extracting a much higher
13 markup on services that are not competitive. The purpose is to assure that
14 the Company realizes its embedded cost revenue requirement without
15 having to impose a comparable non-market based markup on its services
16 and elements that are subject to the forces of market competition. These
17 are the very concerns addressed by the non-discrimination provisions of
18 the Act.¹⁶

19 ¹⁵ See, for example, Georgia: Direct Testimony of Mr. Scheye, p. 49, lines
20 12-13.

21 ¹⁶ I am including the prohibitions against subsidization of competitive
22 services by non-competitive services in this category.

1 **III. ADSL AND HDSL COSTS AND RATES**

2 **1. ADSL and HDSL Recurring Charges**

3 Q. WHAT ARE ADSL AND HDSL?

4 A. Advanced Digital Subscriber Loop (ADSL) and high bit rate digital
5 subscriber loop (HDSL) loops are loops capable of providing high speed
6 data transmission over copper cables. ADSL service is an ISDN-like
7 service, in that it allows a high speed data and a voice path over a single
8 wire pair. HDSL allows multiple data paths, voice paths or both over a
9 single wire pair. Both services require conditioned loops, and because
10 there can be no load coils on these loops, there is a limit to their length: 18
11 kft. for ADSL and 9 kft. for HDSL.

12 Q. HAVE YOU REVIEWED THE BELL SOUTH STUDIES FOR HDSL
13 AND ADSL?

14 A. Yes. I reviewed these and other studies to ensure my understanding of the
15 general structure and method.

16 Q. ARE THESE STUDIES OPEN AND ACCESSIBLE?

17 A. Relative to the BellSouth cost studies which have been provided in the
18 past in various arbitration and costing proceedings, BellSouth's current
19 cost studies are more "open."¹⁷

20 ¹⁷ These proceedings include arbitration and/or costing proceedings in
21 Louisiana and Florida as well as other jurisdictions.

1 Heretofore, BellSouth has been reluctant to provide its cost study
2 models (the computer models themselves) to intervenors, claiming that
3 they were proprietary. As a result, the study process was largely closed to
4 parties to the proceeding and to the state commissions. It was difficult to
5 gain a complete understanding of exactly how those models functioned.
6 Verification and independent testing was all but impossible. BellSouth
7 has now made large parts of the model available to intervenors on CD-
8 ROM. This allows the analyst greater facility in tracing data through the
9 model and modifying data inputs and model calculations. In that regard, I
10 believe that the authors of the Hatfield Model deserve a great deal of
11 credit. The sponsors and creators of the Hatfield Model pushed forth the
12 concept of an open model, arguing and demonstrating that a reasonable
13 approximation of telephone costs could be obtained from other than a
14 closed system.

15 In addition, much of the information that BellSouth has
16 traditionally claimed to be proprietary is now provided as part of the open
17 record. This necessarily provides an independent analyst greater ability to
18 verify the reasonableness of the data inputs, the calculations and the results
19 drawn. However, it is significant to note that the concept of open and
20 available data as used in the BellSouth study procedure differs markedly
21 from the concept of openness of data as applied to Hatfield and as required
22 by the FCC.

1 Access to most of this data can be obtained only from BellSouth,
2 not from a publicly available source. In this manner, BellSouth is able to
3 impose restrictions on the extent to which the data used are available to
4 test the reasonableness of the assumptions. Hatfield, on the other hand,
5 draws information only from publicly available sources. In that regard,
6 the sponsors of Hatfield retain no control over the data that are used. The
7 FCC imposed similar requirements on data to be used in determining total
8 factor productivity in its recent LEC price cap performance review¹⁸ and
9 universal service investigation.¹⁹ In each of these, the FCC requires that
10 the models be open, but also that the data used be in the public domain,
11 with access to these data being beyond the control of the LEC and that the
12 data are available for public review and scrutiny.

13 An example may help illustrate the significance of this difference.
14 BellSouth used data from a sample of loops drawn from two customer
15 classes -- residential and small business -- as the primary input of
16 information on loop configuration in its loop cost studies. While
17 BellSouth has provided, on a non-proprietary basis, the detailed data on
18 this sample of loops, it has not provided similar data regarding the loops
19 for other customer classes (e.g., ESSX), data which should be equally non-
20 proprietary. That is, BellSouth has provided no information on the

21 ¹⁸ Fourth Report and Order, LEC Price Cap Review, CC Docket No. 94-1.

22 ¹⁹ Report and Order, CC Docket No. 96-45, Released May 8, 1997, ¶250.

1 universe of data from which the sample was taken. Access to that data, of
2 course, requires the cooperation of BellSouth. That information rests
3 uniquely with BellSouth. As I indicated, the FCC, for instance, took pains
4 to restrict its total factor productivity analysis to data which is available on
5 the public record.

6 It is important to note that in all likelihood BellSouth has not made
7 these changes to its costing procedure simply because it thought it was a
8 good idea. More and more, states are imposing openness requirements in
9 their study proceedings. BellSouth's current approach should, therefore,
10 be viewed as the Company's "competitive" response to other cost studies.
11 That is, it found that it was necessary to adopt a more open, more
12 approachable cost study procedure based more completely on publicly
13 available information than before. I would hope that this Commission and
14 others would see to it that the Company is unable to back track, but instead
15 continues to move forward and improve upon the progress already made.

16 Q. PLEASE EXPLAIN THE STRUCTURE OF THE BELLSOUTH COST
17 STUDY PROCESS AS APPLIED TO ADSL AND HDSL FACILITIES.

18 A. The BellSouth study procedure begins by identifying the characteristics of
19 its loop plant. This is accomplished by first drawing a loop sample
20 comprised of about 175 residential loops and a similar number of business
21 loops. Data on loop length, loop composition (aerial, buried and
22 underground) and cable size are developed from this sample. Seventy-

1 four residence and 105 business loops from this sample were included in
2 the ADSL study, and 27 residence and 51 business loops were included in
3 the HDSL study. The Company has provided diagrams of each of the
4 loops included in the sample from which these data are derived.
5 Unfortunately, the Company has not provided information that would
6 allow a sensitivity analysis to be undertaken to determine the significance
7 of including other factors in the analysis, such as data on loops serving
8 other customer classes.

9 The next step in the process is what I have termed the loop model.
10 This is a spreadsheet-based model where the loop characteristics
11 developed in the first step are merged with data on engineering and
12 installation costs to provide a total first cost (i.e., investment) estimate on
13 an engineered, furnished and installed basis. The process examines and
14 prepares investment requirements for each of the customer classes
15 separately. That is, average loop length is determined as well as the
16 composition of the average loop as between aerial, buried and
17 underground cable. Material, labor, and other costs are then incorporated
18 and average investment requirements by account code are established.
19 The information for residence and business loops is then averaged, and a
20 single set of investment figures is prepared.

21 Third, a series of capital cost, expense, and loading factors is
22 developed. These factors are developed for each individual plant account,

1 recognizing the differences in service lives and maintenance requirements.

2 Finally, the factors are applied to the investments to estimate the
3 costs on a per loop basis to be included in the TSLRIC/TELRIC. It is the
4 sum of these costs and expenses that provides the direct cost estimate.
5 Shared and common costs are also calculated and added, which results in
6 the TSLRIC/TELRIC estimates.

7 Q. HAVE YOU DRAWN ANY CONCLUSION REGARDING THE
8 BELLSOUTH STUDIES FOR ADSL AND HDSL LOOPS?

9 A. Yes. I have identified a number of problem areas related to the structure
10 of the data selected and assumptions made in the BellSouth models. Many
11 of these result from the cost estimates obtained being highly sensitive to
12 particular data or assumptions, yet there is insufficient explanation or basis
13 for the action taken; others result from testing the consistency of
14 assumptions or data inputs, and yet others result from simply applying a
15 common sense test to the approach taken.

16 The problem areas include: capital costs, plant utilization rates,
17 loop sample and the markup applied.

18 Q. BELLSOUTH ASSERTS THE NEED FOR HIGHER DEPRECIATION
19 RATES AND COST OF MONEY TO BE APPLIED TO UNBUNDLED
20 NETWORK ELEMENTS. WHAT IS THE BASIS OF THIS POSITION?

21 A. The traditional methods of identifying an appropriate return on assets or
22 service lives for an ILEC are not the only methods available. BellSouth

1 asserts that different conditions exist once unbundling is required and
2 competition exists, yet points to very traditional methods to justify its
3 capital cost claims. BellSouth provides as the basis for the service lives
4 and depreciation rates used, its earlier depreciation prescription filing
5 before the FCC. As the basis for the cost of money used, it points to the
6 FCC's 1990 and 1994 findings in the LEC Price Cap Review proceeding
7 (CC Docket 94-1) as referenced in the FCC First Report and Order in the
8 Local Competition Docket (CC Docket 96-98).

9 Q. ARE THESE SERVICE LIVES AND DEPRECIATION RATES
10 APPROPRIATE FOR UNBUNDLED NETWORK ELEMENTS?

11 A. No. BellSouth has continually described its cost studies as forward-
12 looking, not reflecting its current operations, its current network or its
13 current booked costs. This would imply, however, that its studies are
14 premised on a network developed to provide narrow band voice grade
15 service. Unfortunately, that is not the case. Nevertheless, the depreciation
16 rates used by BellSouth are not consistent with the narrow band, voice
17 grade network that BellSouth asserts is the subject of its TSLRIC/TELRIC
18 analysis. Instead, BellSouth's depreciation rates are based upon its current
19 operations and its current network which, of course, are intended to
20 provide many services in addition to narrow band services. In fact, the
21 service lives which are the basis of the depreciation rates used for financial
22 reporting purposes are based upon a presumption that much of the narrow

1 band network will be replaced over the course of the next few years to
2 allow BellSouth to provide cable TV and broadband capability. Hence,
3 the depreciation rates used in financial reporting are simply much higher
4 than those appropriate for estimating TSLRICs/TELRICs.

5 According to the BellSouth TSLRIC/TELRIC model, on a
6 forward-looking basis, loop facilities will be totally copper, except in
7 those instances where loop length requires the deployment of fiber
8 facilities. In addition, for study purposes, BellSouth assumes that it is
9 deploying on average about three copper loops per household, to meet
10 ultimate demand. However, in its depreciation represcription filing with
11 the FCC, BellSouth describes a rather aggressive fiber optic deployment
12 placement program in both its distribution and feeder facilities.²⁰ In that
13 study, BellSouth projects that virtually all feeder facilities and 40-50
14 percent of its distribution facilities will be fiber in the next seven or eight
15 years.²¹ To achieve these penetration levels, an obviously aggressive fiber
16 deployment must begin immediately. In fact, on a forward-looking basis,
17 virtually all deployment would have to be fiber, and not copper.

18 Q. WHAT SERVICE DEMANDS DOES BELLSOUTH CLAIM WILL
19 REQUIRE THE PLACEMENT OF FIBER FACILITIES?

20 ²⁰ While the FCC invited BellSouth to seek a depreciation represcription in
21 1996, the Company chose not to.

22 ²¹ BellSouth Depreciation Study, January 29, 1996, General Cable Section.

1 A. BellSouth indicates that the reasons for fiber deployment include
2 maintenance savings to some degree, but also the potential for revenues
3 from broadband and other advanced services. For instance, BellSouth
4 notes:²²

5 without Fiber in the Feeder (FITF), meeting this
6 anticipated customer demand for greater bandwidth
7 or competing with alternative providers on an
8 economic basis will not be possible.
9

10 First, cost and operational maintenance savings are
11 the key economic factors today. By the late 1990s,
12 revenues from advanced services, customer
13 demands for greater bandwidth, and increased
14 reliability will be considerations as well.
15

16 The architecture and technology of the Feeder
17 Network must meet current and future telephony
18 demands. (emphasis added)
19

20 As it applies to distribution facilities, the Company states that it will not
21 be able to compete effectively in the business or residential markets
22 without fiber in the distribution systems.²³

23 Q. WHAT CONCLUSIONS DO YOU DRAW FROM THIS ANALYSIS?

24 A. The depreciation rates used for financial reporting purposes, which are
25 used by BellSouth in its cost studies, can be interpreted as BellSouth's
26 estimate of depreciation that is appropriate for facilities that are currently
27 in place, given BellSouth's view of its current and future technology

28 ²² Ibid., p. 5.

29 ²³ Ibid., p. 8.

1 requirements. These technology requirements will be dependent upon the
2 total portfolio of services provided. These depreciation rates are obviously
3 very different from those which would be appropriate for a network
4 designed to focus primarily on narrow band, voice grade services. The
5 costs appropriate for unbundled network elements should be those based
6 upon the cost of providing narrow band, voice grade services. Thus,
7 depreciation rates used for financial reporting purposes are inappropriate
8 for use in cost studies for unbundled network elements.

9 Q. IS THERE ANY OTHER ASPECT OF BELLSOUTH'S OPERATIONS
10 THAT MAY AFFECT THE ECONOMIC LIFE AND ECONOMIC
11 VALUE OF ITS PLANT AND EQUIPMENT?

12 A. Yes, there is no dispute that the nature of BellSouth's operations is subject
13 to material changes. However, these changes are not restricted to the
14 (potential) transformation of the market for local services from one of
15 monopoly control to one of competition. The Act, which provides the
16 blueprint for opening this market, also calls for changes in the structure of
17 other communications markets as well. BellSouth can now enter Cable
18 TV, long distance and other markets previously closed to it. These
19 markets will be served by the same facilities that are now dedicated to the
20 provision of local service. Hence, the opening of these other markets may
21 lead to increases in BellSouth revenues, increased valuation of its plant
22 and longer service lives. In short, the changes in industry structure will

1 not necessarily lead to decreases in the economic value and shorter useful
2 economic lives of the ILECs' plant and equipment.

3 Q. WHAT COST OF MONEY DID BELL SOUTH USE IN ITS COST
4 STUDIES?

5 A. BellSouth used an 11.25 percent overall cost of money. In conjunction
6 with this, it utilized a capital structure made up of 60 percent equity and 40
7 percent debt, debt costs of 8 percent and imputed equity costs of 13.42
8 percent. This is the overall cost of money approved by the FCC in 1990
9 and 1994 in its LEC Price Cap Review, CC Docket 94-1. In its Local
10 Competition Order, the FCC suggested that this rate or one approved by
11 the state commission be used as the default in any TSLRIC/TELRIC
12 analysis, pending further examinations by individual commissions.

13 Q. IS THIS RATE REASONABLE FOR USE AS A BASIS OF
14 IDENTIFYING COSTS OF UNBUNDLED NETWORK ELEMENTS?

15 A. No. There are at least two problems with this cost of money figure. First,
16 as I noted, it was approved by the FCC in 1994. Assuming it was valid at
17 that time, which BellSouth obviously believes, does it remain valid today?
18 That is, what changes have occurred or have not occurred that might affect
19 this cost? Obviously, reduced rates of inflation and of interest rates and
20 increases in equity values all point to improved capital market conditions.
21 Further, BellSouth's economic performance, as reported in its financial
22 statements, has kept pace with the overall economy. BellSouth has

1 provided no data or analysis supporting the continued validity of this cost
2 estimate in spite of these changes in capital market conditions.

3 Second, as noted, the structure of the telecommunications industry
4 is (hopefully) changing. BellSouth will be allowed to enter a wider array
5 of markets that may allow it to increase the utilization of its plant and
6 equipment. Whether this will increase or decrease the risks faced by
7 BellSouth or its cost of capital are empirical questions. BellSouth has
8 asserted its view, not studied it.

9 It does not follow that the BellSouth capital costs to be used in
10 identifying the cost of unbundled network elements are higher than those
11 realized today. BellSouth's proposed cost of money should not be relied
12 upon.

13 Q. WHAT IMPACT DO FACILITY UTILIZATION RATES HAVE ON
14 TELEPHONE COST STUDIES?

15 A. As with other industries, full or 100 percent utilization of capacity (or a
16 100 percent fill) is typically not considered optimal and rarely occurs.
17 Excess or spare capacity can be a cost effective way of dealing with
18 unexpected, temporary or even future expected increases in demand,
19 and/or unexpected or future expected maintenance requirements. For
20 instance, it is fully expected that a certain fraction of the loop plant in
21 place will become defective. With spare capacity, additional facilities need
22 not be deployed to allow service to continue with minimum interruptions.

1 There are also circumstances where it is less costly to inventory capacity
2 in place than in a warehouse. It is very costly to deploy additional buried
3 cable to meet each additional increment in demand for telephone service
4 or for unbundled loops. Instead, a telephone company operating
5 efficiently would deploy capacity in sufficient quantities to meet demand
6 growth expectations over a number of years.

7 Q. HOW DO FILL FACTORS OR CAPACITY UTILIZATION RATES
8 AFFECT COST CALCULATIONS IN A TSLRIC OR TELRIC STUDY?

9 A. Fill factors are used in TSLRIC/TELRIC analysis to determine the total
10 investment requirements of an unbundled network element. The fill
11 factors are used to adjust the cost of the network element upward to reflect
12 the total investments (and other related costs) needed for efficient
13 operations. That is, to determine a total cost which includes the efficient
14 level of additional or spare capacity. For instance, if a facility is expected
15 to have a 66.7 percent fill factor on a cost minimized, forward-looking
16 basis, it will be two-thirds utilized and one-third unutilized. If the
17 investment requirement for each unit of the facility is one dollar, the
18 investment figure would be adjusted upward to a \$1.50 to account for
19 efficiently incurred spare capacity.

20 Q. WHAT FILL FACTORS ARE USED IN BELLSOUTH'S UNBUNDLED
21 LOOP MODEL?

1 A. BellSouth used fill factors based on historic, not forward-looking, network
2 configurations. The fill factors used by BellSouth are based on the
3 network currently in place and the service demands placed on that
4 network. The factors used were not based on forward-looking estimates of
5 facility costs, least cost technology, demand levels or best engineering
6 practices. Thus, BellSouth's use of historic fill factors is not consistent
7 with the underlying premise of the TSLRIC/TELRIC cost model.

8 BellSouth describes the fill factors used in its TSLRIC/TELRIC as
9 being based on "projected actual" utilization values. Both the copper
10 feeder and distribution utilization estimates are actual fill factors as
11 measured in either 1995 or 1996. Hence, the utilization rates included in
12 the TSLRIC/TELRIC study are based on actual utilization rates as of
13 specific dates within the last couple of years; this means they are tied to
14 today's network, today's technology and today's service demand
15 expectations.

16 Q. WHAT ARE YOUR CONCERNS WITH USING THESE FILL
17 FACTORS?

18 A. There are several interrelated concerns. In general, the factors used are
19 inconsistent with other study assumptions -- most specifically depreciation
20 rates -- and are not supported by any data or analysis. First, embedded
21 factors are designed to recover revenue requirements (i.e., embedded
22 costs) associated with historic investments, not the forward-looking costs

1 of a forward-looking network. Second, given that these factors are based
2 upon plant currently in place, they reflect the plant and technology that has
3 been deployed to meet future anticipated or strategic requirements, rather
4 than simply the demands of a voice grade, narrow band network.
5 Inventorying facilities in place to meet these requirements will necessarily
6 depress fill factors and increase reported costs.

7 Third, BellSouth reports that it is deploying additional lines at a
8 record pace. For instance, the Company recently reported:²⁴

9 BellSouth is driving revenue and
10 profit growth by aggressively
11 marketing additional telephone lines
12 to our customers. Additional lines
13 are key to satisfying the expanding
14 consumer demand for connections to
15 the Internet, Home fax machines,
16 children's phones, telecommuting
17 tools and home office phones. With
18 1.3 million additional lines,
19 BellSouth has the most of any
20 telephone company in the U.S. Our
21 additional lines increased 21 percent
22 in 1995, and accounted for nearly
23 half of all new residential
24 connections.

25
26 If anything, this suggests greater utilization of plant in place on a forward-
27 looking basis than has occurred historically.

28 Fourth, the movement into a competitive environment will likely
29 change the cost-benefit ratio associated with facility deployment and

30 ²⁴ [http://www.bellsouthcorp.com/investor/annualreport95/docs/](http://www.bellsouthcorp.com/investor/annualreport95/docs/southeast.htm)
31 [southeast.htm](http://www.bellsouthcorp.com/investor/annualreport95/docs/southeast.htm)

1 facility utilization. Moving out of a cost plus world will provide the
2 Company with incentives to utilize these facilities more efficiently.
3 Among other things, higher utilization rates should be expected. Fifth, the
4 Company's assumptions with regard to fill factors and service lives are
5 wholly inconsistent. Spare capacity is simply the inventorying of
6 additional facilities in place. Obviously, the willingness to do so will
7 depend upon the life of the facilities. If the Company is going to rip out
8 its copper facilities over the next five to seven years, as its depreciation
9 proposal suggests, it is most unlikely that it will deploy facilities well in
10 excess of those required over the near term. In other words, fill factors
11 should depend upon the life of the facility (the number of years the facility
12 will be inventoried in place). The longer the service life, the lower the fill
13 factor; the shorter the service life, the higher the fill factor.

14 Q. WHAT CONCLUSIONS DO YOU DRAW FROM THIS ANALYSIS?

15 A. The utilization rates proposed are not supported by any empirical data or
16 analysis. In fact, the utilization rates proposed suggest an unnecessary
17 overbuilding of network facilities.

18 Q. YOU NOTED A CONCERN REGARDING THE LOOP SAMPLING
19 TECHNIQUE USED BY BELLSOUTH. WOULD YOU PLEASE
20 ELABORATE ON THAT CONCERN?

21 A. Yes. BellSouth bases its loop cost calculations on information drawn from
22 a sample of loops, rather than on the entire population of loops. As it

1 applies to ADSL and HDSL, there is a two-step process. First, BellSouth
2 gathered information on loops used in conjunction with various classes of
3 service, including residence, small business, business (PBX) trunks, public
4 and semi-public coin, COCOTs and ESSX. The Company, however, did
5 not retain the information on all these service classifications for purposes
6 of estimating cost in its loop model. Instead, the sample used for cost
7 estimation purposes was restricted to residence loops and what the
8 Company refers to as small business loops. It should be noted that the
9 small business loop classification includes all loops provided in
10 conjunction with the single line -- as opposed to multi-line -- business
11 services. Another way to describe the classification is that it includes only
12 a portion of business loops and excludes PBX trunks, COCOT lines and
13 other public lines. BellSouth used this sample of residence and business
14 in its 2-wire loop cost studies. In the ADSL and HDSL study, it extracted
15 from this sample those residence and business loops that met the loop
16 length limitations of these services, 18 kft. and 9 kft., respectively.

17 My concern with the analysis is that the sample drawn is not
18 representative of the relevant customer population. Often, customers
19 taking multi-line services such as PBX trunks and ESSX tend to be located
20 in office buildings or in downtown locations where, on average, there is
21 greater loop density and loops are shorter. In fact, in a large fraction of
22 instances, these business customers have virtually no distribution facilities

1 and no drop facilities associated with the loop plant used to provide
2 service. Consequently, by focusing strictly on residence and single line
3 business service loops, the Company has excluded a sizable proportion of
4 the low-cost loops from the loop sample. As a result, the loop estimates
5 obtained may be upward biased.

6 Q. WHAT IS THE BASIS RELIED ON BY THE COMPANY FOR
7 EXCLUDING THESE LOOPS FROM ITS SAMPLE?

8 A. Ms. Caldwell testified in Louisiana and Georgia that BellSouth excluded
9 these loops from consideration because in its view it would not be
10 economical for a CLEC to serve an ESSX or PBX customer using
11 unbundled loops. Instead, the CLEC, according to Ms. Caldwell, would
12 serve this customer either through reselling the BellSouth service or
13 providing service on a digital loop such as a DS-1.²⁵

14 Q. DO YOU AGREE THAT THIS IS A REASONABLE BASIS FOR
15 EXCLUDING THE LOW COST LOOPS FROM THE BELLSOUTH
16 SAMPLE?

17 A. No. First, BellSouth's view of how a CLEC should provide service to its
18 customers is wholly irrelevant to the issue of the cost of unbundled loops.
19 If the TSLRIC, or TELRIC, is to capture the entire category of service,
20 then the UNE should capture the costs of all loops provided by BellSouth,

21 ²⁵ Rebuttal Testimony of D. Daonne Caldwell, filed January 2, 1997,
22 Louisiana PSC Docket Nos. U-22022 and U-22093, pages 4-6.

1 not some non-representative subset. Recognize also that by excluding
2 these low cost loops from the sample, the cost of an unbundled loop is
3 necessarily increased. Allowing BellSouth to determine what subset of
4 loops should be included or excluded is not only self-serving, but
5 potentially anti-competitive.

6 The BellSouth reasoning should be rejected because it also focuses
7 on the service provided, not the unbundled loop provided. Loops are not
8 dedicated to specific services. There is a probability that a loop used to
9 provide PBX trunk or ESSX service today will be used to provide a single
10 line business service at some other time. The following illustration may
11 be helpful.

12 Consider the circumstance of a business customer taking ESSX
13 service and occupying a space with 15 stations. The 15 loops serving this
14 customer would be excluded from the BellSouth sample. Assume that
15 customer's lease is up and the customer moves to another location and this
16 space now becomes occupied by 15 different individual offices, each
17 taking single line service. According to the BellSouth logic, those same
18 15 loops should now be included in the sample, but are not. What this
19 point demonstrates rather simply is that the BellSouth technique
20 determines whether loops should be included in the sample, not based on
21 any physical characteristic, but based only on the service offered. Since
22 the issue at hand is not costing out an individual service, but rather costing

1 out loops, the service taken should be irrelevant and have no bearing on
2 whether the loop is included in the sample.

3 Q. HOW DO OTHER RBOCS DEAL WITH THE FACT THAT THERE
4 ARE VARIOUS CLASSES OF SERVICE FOR PURPOSES OF
5 CALCULATING UNBUNDLED LOOP COSTS?

6 A. Exeter has recently completed reviews of the TSLRICs/TELRICs prepared
7 by Bell Atlantic and BellSouth. Neither of these companies makes the
8 distinctions that BellSouth claims to be relevant.

9 Bell Atlantic, for instance, includes all loops, not just a sample, in
10 its analysis. The Bell Atlantic model, the Ultimate Allocation Area
11 Analysis Model (AAA), provides the user with a choice as to which
12 classes of service to include in the analysis. The Company's default,
13 however, includes residence, business, Centrex, PBX, and others.

14 The U S WEST model, coined the Regional Loop Cost Analysis
15 Program (RLCAP), develops a typical or design loop configuration by
16 type of switching center. RLCAP identifies central office classifications
17 by switch size (loop count) and density (loops per square mile). All loops
18 are included in these counts. Hence, this model does not distinguish
19 between single line, ESSX/Centrex or PBX, as does the BellSouth model.

1 In addition, there are also the cost proxy models: Hatfield and the
2 Benchmark Cost Model.²⁶ In developing TSLRIC/TELRIC estimates, each
3 of these formulations counts all loops, making no distinction by class of
4 service.

5 Q. DOES MR. SMITH ADDRESS THE SAMPLING ISSUE ON BEHALF
6 OF BELLSOUTH?

7 A. No. Mr. Smith's testimony deals with the efficiency of the sample of
8 residence and business loops that BellSouth drew and utilized in preparing
9 its loop cost estimates.

10 Q. DOES MR. SMITH ADDRESS ANY OF THE ISSUES WITH REGARD
11 TO THE LOOP SAMPLE IN GENERAL OR AS IT APPLIES TO
12 ESTIMATING COSTS FOR ADSL AND HDSL THAT YOU RAISED
13 IN YOUR TESTIMONY?

14 A. No, he does not. The difficulty that I am addressing is that the Company
15 focused only on loops that were currently serving residential and single
16 line business services. It failed to include ESSX loops, business trunks
17 and coin loops, among others. In fact, it appears that the Company
18 excluded at least 285,000 loops or almost 25 percent of its switched
19 business loops from consideration. Mr. Smith does not address this issue.

20 ²⁶ The sponsors of BCM2 and its update, the Benchmark Cost Proxy
21 Model or BCPM, claim that neither model generates TSLRIC/TELRIC
22 estimates.

1 Instead his testimony is restricted to a discussion of the properties of the
2 sample that the Company did draw.

3 Q. DO YOU HAVE ANY REASON TO EXPECT THAT THE EXCLUDED
4 LOOPS HAVE A LOWER COST THAN THOSE INCLUDED?

5 A. Yes. The Hatfield Model results indicate that the costs of short loops are
6 lower in more densely populated areas. This holds whether the focus is on
7 loops that are less than 18 kft., 12 kft., or 9 kft. It is my experience that
8 ESSX loops, trunks and COCOTs are concentrated in more densely
9 populated areas. As a result, these costs can be expected to be lower than
10 those for residential or other business lines of the same length.

11 Q. WHAT CONCLUSIONS DO YOU DRAW?

12 A. The BellSouth procedure misstates loop costs. The data necessary to rerun
13 the analysis is not available. The Commission should order BellSouth to
14 rerun its cost studies, including a sample drawn from the entire population
15 of loops provided.

16 **2. ADSL and HDSL Non-Recurring Charges**

17 Q. HOW SHOULD THE NON-RECURRING COSTS ASSOCIATED
18 WITH ADSL AND HDSL BE ESTABLISHED?

19 A. The NRCs which BellSouth is allowed to charge a competitor should be
20 cost-based and non-discriminatory, with a ceiling that does not exceed the
21 charges which would apply if BellSouth were establishing service for its
22 own end use customer which it serves directly, less the wholesale

1 discount. The Act requires that all unbundled elements and
2 interconnection charges be cost-based and non-discriminatory. This
3 ceiling provides a check on the reasonableness of the cost estimates.
4 Moreover, the NRCs assessed should be limited to only the charges
5 applicable to those activities specifically required by the competitor. That
6 is, any functions or marketing activities which the CLEC does not require
7 should be excluded.

8 In addition, the stated goal of the Telecommunications Act is to
9 promote competition in order to secure lower prices and higher quality
10 telecommunications services for consumers.²⁷ This goal is only promoted
11 if the approach is competitively neutral. Competitive neutrality implies
12 not only that rates be cost-based, but that the rates not negatively affect the
13 ability of CLECs to compete with the ILEC or other carriers. A rate
14 charged which is not based on economic cost, or which exceeds that rate
15 an ILEC would charge its own customer for the same service will, by
16 definition, discourage efficient entry.

17 Q. ILECS HAVE ASSERTED THAT IT IS LESS COSTLY TO PROVIDE
18 SERVICE TO THEMSELVES THAN TO PROVIDE SERVICE TO
19 COMPETITORS. SHOULD THAT BE CONSIDERED WHEN
20 ESTABLISHING NON-RECURRING CHARGES?

21 ²⁷ Preamble, Telecommunications Act of 1996.

1 A. No. There are both efficiency and equity considerations that suggest that
2 the costs, net of ILEC retail marketing activities, of performing a non-
3 recurring activity should be considered the same, whether it was
4 undertaken on behalf of the ILEC or a CLEC.

5 First, the costing exercise is to be a TSLRIC/TELRIC.
6 TSLRIC/TELRIC is the per unit incremental cost, net of ILEC retail
7 marketing activities, of providing the entire volume of service. A single
8 TSLRIC/TELRIC is established for unbundled loops or ports, for instance,
9 irrespective of whether the element is to be used by the ILEC or by a
10 CLEC, or whether the end user is a residence or business customer.
11 Similarly, the TSLRIC/TELRIC for a non-recurring activity should be the
12 same irrespective of the service provider or of the end user.

13 Second, and somewhat related, is that a properly structured
14 TSLRIC/TELRIC presumes that the ILEC is separated into two operating
15 divisions, a wholesale element provider and a retail service provider. The
16 non-recurring charge is that which would be levied by the wholesale
17 element provider to the retail service provider, again, irrespective of
18 whether that retail service provider were the ILEC or a CLEC. Again, the
19 same costs and the same cost based rates should apply.

20 Third, even if one accepts arguendo that the cost of the ILEC
21 providing service to itself is less than that from providing service to a
22 CLEC, allowing the ILEC to take advantage of its monopoly position in

1 establishing costs and rates clearly is inconsistent with the competitive
2 goal established by the Telecommunications Act. The result would be an
3 unwarranted competitive advantage realized by the ILEC, thwarting the
4 non-discriminatory, pro-competitive goals of the Act.

5 In short, there are both efficiency and equity considerations which
6 argue strongly for comparability in establishing non-recurring costs
7 associated with ILEC and CLEC activities.

8 Q. DOES THIS COMPARABILITY SUGGEST THAT THE CHARGE TO
9 THE CLEC SHOULD BE THE SAME AS THAT WHICH THE ILEC
10 CHARGES ITS END USERS?

11 A. No, it should not. The provision of non-recurring costs includes both
12 "wholesale" and "retail" functions. In this instance, loops, be they 2-wire
13 POTS loops or ADSL or HDSL, are being provided on a wholesale basis.
14 Many of the more costly end user related activities will be undertaken by
15 the CLEC, not the ILEC. Consequently, the NRC to the CLEC should be
16 less than the corresponding NRC that BellSouth charges its end users.

17 Q. HAVE YOU ANY OTHER CONCERNS WITH REGARD TO THE
18 ESTABLISHMENT OF NON-RECURRING CHARGES?

19 A. Yes. It must be recognized that rates for non-recurring charges can act as
20 a barrier to entry. In fact, the proposed NRCs for ADSL and HDSL
21 suggest that this just may be the case. Obviously, a non-recurring charge
22 must be recovered by the CLEC over the time that the service is expected

1 to remain in place. According to data provided by BellSouth, it has
2 prepared its NRCs on the basis of a 24- to 28-month term for each
3 customer. If an NRC is approximately \$500, such as is proposed by
4 BellSouth for ADSL and HDSL, this translates into an additional cost per
5 line of over \$20 per month. This represents a significant disadvantage to
6 any potential entrant and can create a barrier to entry. In addition,
7 BellSouth has included in its estimate of costs for these non-recurring
8 activities both those costs associated with initiating the service, as well as
9 the costs associated with terminating it. I do not dispute the
10 appropriateness of BellSouth being able to recover any costs associated
11 with service termination. However, it would be more reasonable for these
12 costs to be charged to the CLEC upon such termination of service, rather
13 than in advance. Recovering these charges up front simply provides the
14 potential of yet an additional barrier to entry.

15 **IV. CROSS CONNECTS: COSTING AND PRICING**

16 Q. WHAT ARE YOUR CONCERNS WITH REGARD TO PRICING FOR
17 CROSS CONNECTS?

18 A. The cross connect is a wire running from the main distribution frame
19 (MDF) on the loop side of the ILEC's switch to the CLEC's collocation
20 equipment. The cross connect charge is levied whenever a customer
21 subscribes to service from a CLEC.

1 The concern with cross connect pricing is that if not properly
2 structured, it can result in a barrier to entry. The cross connect charge is
3 levied on CLECs, but not on the ILEC. Consequently, scrutiny is
4 necessary to ensure that the rate charged for this activity is truly cost
5 based, and the cost estimate is, itself, reasonable and accurate.

6 Q. CAN YOU PROVIDE AN EXAMPLE OF THE TYPES OF CONCERNS
7 WITH REGARD TO THE ILEC COST STUDY?

8 A. Yes. As I understand it, a cross connect is provided with highly reusable
9 equipment, such as cable, metal racks and frames. Generally, these
10 facilities are not terribly "high tech." Further, the activity itself is new, in
11 that prior to competition the ILEC had no reason to engage in this activity.
12 These factors suggest that the service life and depreciation rates that are
13 appropriate for materials used to provide the cross connect function are not
14 the same as those as one would expect to find applied to a technology
15 sensitive account. Moreover, since the activity is new, the appropriate
16 depreciation rate at this time should correspond to the projected life of the
17 facility, not the remaining average life of an existing account.
18 Nevertheless, based on its cost studies, BellSouth has assigned the
19 facilities used in conjunction with a cross connect the service life and
20 depreciation rates that it attributes to the highly technologically sensitive
21 digital circuit equipment account. The necessary result is improperly

1 shortened service lives and improperly increased depreciation rates for
2 cost study purposes.

3 A second example deals with the land and building factor included
4 by BellSouth in its analyses. As a general practice, BellSouth includes a
5 land and building factor to all elements that reside within a central office.
6 That is, the cost study assigns to these network elements a cost to recover
7 the building in which the element is housed and the land upon which the
8 building resides. As a general proposition, that may not be unreasonable.
9 However, it's necessary to recognize that central office buildings, like
10 poles and conduit space, are shared with other service providers.
11 Specifically, CLECs using physical collocation pay rent on the space
12 occupied by their collocation equipment. As such, there should be no land
13 and building included in the determination of cross connect to physical
14 collocation spaces. Further, there should be a credit for rents received
15 from physical collocators when determining the land and building factor
16 applicable to virtual collocation cross connect. The Company's studies
17 appear to do neither of these.

18 Q. WHAT RECOMMENDATIONS DO YOU OFFER IN THIS REGARD?

19 A. Obviously, it is necessary to closely scrutinize the BellSouth cost studies
20 for collocation, as well as its other unbundled network elements. In
21 addition, it is ACSI's position that it should have the ability to provide its
22 own facilities needed for the cross connect, and be charged by BellSouth

1 only for the labor involved. In this manner, issues such as service lives
2 and depreciation -- as well as potential issues over the price of the
3 equipment itself --- will be eliminated. As a practical matter, since the
4 facilities in question appear not to be high-tech, allowing self provisioning
5 with BellSouth labor doing the installation should pose no difficulties.

6 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

7 A. Yes, it does.

RESUME OF
DR. MARVIN H. KAHN

MARVIN H. KAHN

Dr. Kahn is a principal at Exeter Associates, Inc. He is an economist specializing in public utility regulation, antitrust and energy analysis.

Dr. Kahn has extensive experience in cost, rate, and regulatory matters pertaining to postal service, broadcast, energy utilities, and telephone companies. He has been retained by private and public clients in various jurisdictions in the U.S. and Canada. The clients served include private intervenors, state and city attorneys, consumer counsels, state utility commissions, the FCC, and the NRRI. He has prepared studies and reports on competition in the regulated sector; state and national regulatory policy; energy supply, demand, and conservation; alternative electric generation technologies; and labor market analysis. He has given expert testimony on telephone utility, energy utility, and postal matters in 21 regulatory jurisdictions in this country and Canada, and before committees of federal and state legislatures.

Education:

B.A. Business Administration, 1965
Ohio Northern University

Ph.D. Economics, 1974
Washington University

Previous Employment:

1977-1980 - Senior Economist, J.W. Wilson & Associates,
Inc., Washington, D.C.

1975-1977 - Economist, MITRE Corporation, McLean, Virginia,
Department of Energy Planning and Analysis.

1975 - Economist, Institute for Defense Analysis,
Arlington, Virginia, Program Analysis and
Evaluation, Cost Analysis Group.

1974 - Staff Economist, Ad Hoc Committee on the Domestic and International
Monetary Effect of Energy and Natural Resource Pricing, U.S. House of
Representatives, Committee on Banking and Currency, Washington, DC.

1969-1974 - Assistant Professor, Economics, University of Tennessee, Knoxville, Tennessee.

Professional Work:

At J.W. Wilson & Associates, Inc., Dr. Kahn had the principal responsibility of developing and managing the firm's work dealing with analysis of the telecommunications industry. His efforts included basic and applied economic research into the cost of providing telecommunications services and market demand characteristics. He had lead responsibility in the firm's work involving cost of service, rate design, competition, and regulatory policy in telephony.

At the MITRE Corporation, Dr. Kahn directed much of the economic analysis into energy related issues. He was engaged in energy supply and demand analysis examining economic, life style, and growth implications of energy policies and issues; energy facilities siting issues; cost benefit analysis; and utility pricing policies. Particular efforts included econometric investigations of electricity demand, examinations of foreign peak load pricing experience, assessing the economic potential and effect of federal regulations on coal, nuclear and advanced electricity generation technologies, and examining the impact of energy conservation on electric utility growth, load factors and finances.

While at the Institute for Defense Analysis, Dr. Kahn was engaged in economic and cost analysis for the Office of Program Analysis and Evaluation, Office of Assistant Secretary of Defense. He developed an econometric model of manpower supply to naval and private shipyards.

At the Ad Hoc Committee, Dr. Kahn directed and assisted in preparation of committee studies on domestic and international effects of higher energy prices and analysis of energy legislation and policies. He served as the principal investigator in the study of energy price effects on domestic employment, production and price levels.

While serving on the faculty of the University of Tennessee, Dr. Kahn taught a variety of courses in economics including microeconomic, macroeconomic and labor market theory.

Other Professional Activities:

- | | | |
|------------|---|--|
| Chairman | - | Workshop on Long Run Energy Demands, sponsored by National Science Foundation, 1976. |
| Consultant | - | National Republican Senatorial Committee |
| | - | OAO Corporation |
| | - | ABT Associates |

Selected Publications and Reports:

An Economic and Rate-making Assessment of Issues Regarding IntraLATA Competition for Telecommunications Services, Exeter Associates, Inc., September 1993.

The Pennsylvania Telecommunications Infrastructure, Exeter Associates, Inc., March 24, 1992, (Co-author).

Report on the Status of Intrastate Incentive Regulation in the United States, Exeter Associates, Inc., March 1992, (Co-author).

Market and Regulatory Effects of the Elimination of the Manufacturing Restriction on the Bell Operating Companies, Exeter Associates, Inc., November 1989, (Co-author).

Assessment of Issues Related to the MFJ Information Services Restrictions, Exeter Associates, Inc., November 1989, (Co-author).

An Analysis of the Open Network Architecture (ONA) Costing and Tariff Plans Filed by the Regional Bell Holding Companies, National Regulatory Research Institute, October 1988, (Co-author).

A Review and Evaluation of the Load Forecasts of Houston Light & Power Company and Central Power & Light Company: Past and Present, Exeter Associates, Inc., 1985, (Co-author).

Study of the Pricing Precedents in Public Utility Industries, Exeter Associates, Inc., November 1983, (Co-author).

Competition, Contribution and Cross Subsidy: An Examination of AT&T Costing and Pricing Procedures, Exeter Associates, Inc., August 1981.

Product and Market Diversification of Regulated Utilities: An Assessment of Competitive, Market and Regulatory Implications, Exeter Associates, Inc., May 1981.

A Study of Jurisdictional Separations to Compare AT&T's Interstate Settlements Information Systems with the Separations Manual and Division of Revenues Process, J.W. Wilson & Associates, Inc., September 1980, (Co-author).

Competition and Growth: An Economic Analysis of the Domestic Market for Private Branch Exchanges, J.W. Wilson & Associates, Inc., September 1978, (Co-author).

"Separations Analysis of New Jersey Bell Telephone Company," J.W. Wilson & Associates, Inc., July 1978.

"Conservation and Utility Pricing Policies," paper presented at Engineering Foundation Conference on Economic Impacts of Energy Conservation, sponsored by Committee on Science and Technology, U.S. House of Representatives, July 1978.

"An Economic Assessment of Market Potential for Advanced Intermediate and Peaking Electric Generating Technologies," MITRE Corporation, 1978, (Co-author).

Public Policy and Power Plant Siting, MITRE Corporation, March 1977.

Commercialization Case Study: The Light Water Reactor, MITRE Corporation, December 1976.

Fuel Choice vs. Fuel Use: An Economic Analysis of Residential Electricity Demand, MITRE Technical Report, 1976. Paper presented at NSF Workshop on Long Run Energy Demands, June 1976.

Long Run Energy Demands, MITRE Technical Report, 1976.

Electric Utility Financial Problems and Potential Solutions, MITRE Technical Report, April 1976.

Implications of Ownership Patterns on Financing and Development of Western Coal Resources, MITRE Technical Report, May 1976.

"Some Short Run Dynamics of Residential Electricity Consumption," presented at the NSF Workshop on Electric Utility Financial Problems and Potential Solutions, August 1975.

Energy Security and the Domestic Economy: Impact on Prices, Employment and Consumption, Ad Hoc Committee on the Domestic and International Monetary Effect of Energy and Natural Resource Pricing, 93rd Congress, 2nd Session, 1974.

"Layoff Behavior in Manufacturing Industries," (unpublished dissertation), Washington University, St. Louis, Missouri, 1974.

"The Homestead Provision: Its Costs and Those of Some Alternatives," unpublished working paper, Haney for Governor Committee, 1974.

"Extending the Tennessee Sales Tax: Estimates of its Revenue Potential, Distributional Effects, and Cyclical Sensitivity," unpublished working paper, Haney for Governor Committee, 1974.

Expert Testimony

Presented by Marvin H. Kahn

Before State Commissions:

Alabama Public Service Commission, Docket No. 17743; testified on separations and affiliated relations.

Alabama Public Service Commission, Docket No. 19983, testified on price cap regulation, local competition and universal service.

Alabama Public Service Commission, Docket No. 25625; testified on the application of TSLRIC/TELRIC principles in the pricing of unbundled network elements.

Alabama Public Service Commission, Docket No. 26029, testified on TELRIC estimates and pricing of unbundled network elements.

Alaska Public Utility Commission, Docket U-78-65; testified on cost of service and rate design of competitive service.

Arizona Corporation Commission, Docket No. E101-91-004; testified on telephone rate design.

Arizona Corporation Commission, Docket Nos. U-3021-96-448, U-3245-96-448, E-1051-96-448; testified on the application of TSLRIC/TELRIC principles in the pricing of unbundled network elements.

Arkansas Public Utility Commission, Docket 83-045-U; testified on access charges, impact of divestiture on revenue requirements and revenue sources, and rate design.

California Public Utilities Commission, Case No. 10001; testified on cost of service and rate design for Centrex service.

California Public Utilities Commission, Docket No. 93-04-003; testified on costing and pricing principles for unbundled network elements.

California Public Utilities Commission, Docket No. R.95-01-020; testified on discrimination and shared and common cost identification, and Universal Service Fund mechanics.

California Public Utilities Commission, Docket No. R.95-04-043; testified on pricing flexibility and local competition rules.

California Public Utilities Commission, Application No. 96-03-007; testified on regulatory policy for certification of a separate subsidiary under Section 272 of the Telecommunications Act of 1996.

Colorado Public Utilities Commission, I&S Docket No. 1720; testified on utility rate design.

Delaware Public Service Commission, Docket No. 89-24T; testified on customer specific pricing of communication services.

Delaware Public Service Commission, Docket No. 91-35T; testified on pricing of Centrex services.

Delaware Public Service Commission, Docket No. 93-47; testified on Rate Design.

Public Service Commission of the District of Columbia, Formal Case No. 777; testified on telephone utility costs of service and rate design.

Public Service Commission of the District of Columbia, Formal Case No. 814, Phase III; competitive status of various services and cost support for pricing competitive services.

Public Service Commission of the District of Columbia, Formal Case No. 827; testified on rate design.

Public Service Commission of the District of Columbia, Formal Case No. 828; testified on regulatory principles and structure regarding competitive services.

Public Service Commission of the District of Columbia, Formal Case No. 828-II; testified on regulatory principles and structure regarding competitive services.

Public Service Commission of the District of Columbia, Formal Case No. 926; rate design.

Florida Public Service Commission, Docket No. 860984-TP; testified on market for interexchange services, pricing of access services and cost methodologies.

Florida Public Service Commission, Docket No. 880069-TL; testified on regulatory policy and depreciation practices.

Florida Public Service Commission, Docket No. 960916-TP; testified on the application of TSLRIC/TELRIC principles in the pricing of unbundled network elements.

Florida Public Service Commission, Docket No. 961537-TP; testified on local competition, unbundling network elements, TELRIC/TSLRIC, pricing.

Georgia Public Service Commission, Docket No. 3765-U; testified on Centrex Costs and Pricing Policies.

Georgia Public Service Commission, Docket No. 3882-U; testified on Alternative Regulatory Structures.

Georgia Public Service Commission, Docket No. 3893-U; testified on Depreciation Policy.

Georgia Public Service Commission, Docket No. 3905-U; testified on incentive regulation.

Georgia Public Service Commission, Docket No. 3914-U; testified on EAS.

Georgia Public Service Commission, Docket No. 4018-U; testified on design and structure of an ONA policy.

Georgia Public Service Commission, Docket No. 4232-U; testified on N11 Service arrangements.

Georgia Public Service Commission, Docket No. 7061-U; testified on costs of unbundled network elements, competitive based markups.

Indiana Public Service Commission, Cause No. 35181; testified on telephone utility rate structures, unbundling of services and implications of FCC Registration Program.

Indiana Public Service Commission, Cause No. 36732; testified on telecommunication cost of services and rate design.

Illinois Commerce Commission, Docket No. 89-0033; testified on regulatory structure and policy and cost study methodology for competitive services.

Illinois Commerce Commission, Docket No. 92-0448; testified on regulatory structure and policy.

Illinois Commerce Commission, Docket No. 93-0319, testified on comparable service requirements to promote gas supply competition.

Kentucky Public Service Commission, Case No. 285; testified on LMS policy.

Kentucky Public Service Commission, Case No. 90-256; testified on telephone rate design.

Kentucky Public Service Commission, Case No. 10109; testified on regulatory policy, telephone productivity growth and price caps.

Kentucky Public Service Commission, Administrative Case No. 323; testified on intraLATA toll competition.

Kentucky Public Service Commission, Case No. 92-297; testified on competitive and ratemaking implications of an extended area service policy.

Kentucky Public Service Commission, Case No. 94-121; testified on appropriate method of regulation.

Kentucky Public Service Commission, Case No. 355; testified on local competition rules.

Kentucky Public Service Commission, Case No. 96-467; testified on the application of TSLRIC/TELRIC principles in the pricing of unbundled network elements.

Kentucky Public Service Commission, Case No. 97-074; testified on rate restructuring implications of rebundling network elements.

Louisiana Public Service Commission Docket No. U-17949-(A); testified on negative attrition and alternative regulatory structures.

Louisiana Public Service Commission, Docket No. U-17949-(B); testified on toll competition issues.

Louisiana Public Service Commission, Docket No. U-17949-(D); testified on alternative regulatory structures.

Louisiana Public Service Commission, Docket No. U-17949-(E); testified on total factor productivity, economic depreciation, and an economic analysis of construction programs.

Louisiana Public Service Commission, Docket No. U-17957; testified on AOS policy.

Louisiana Public Service Commission, Docket No. U-18976; testified on cellular service.

Louisiana Public Service Commission, Docket No. U-20710; testified on competitive service pricing.

Louisiana Public Service Commission, Docket No. U-20925; testified on alternative regulatory structures.

Louisiana Public Service Commission, Docket No. U-22020; testified on avoided cost discounts.

Louisiana Public Service Commission, Docket No. U-22022, 22093; testified on costs of unbundled network elements, competitive based markups.

Maine Public Utilities Commission, Docket No. 92-345, Phase I; testified on regulatory policy and structure, and incentive regulation.

Maine Public Utilities Commission, Docket No. 92-345, Phase II; testified on Staff Plan for alternative regulation for Central Maine Power.

Maryland Public Service Commission, Case No. 7435; testified on affiliated relations and utility rate design.

Maryland Public Service Commission, Case No. 7467; testified on jurisdictional separations.

Maryland Public Service Commission, Case No. 7788; testified on the regulatory principles and structure regarding interexchange communications carriers.

Maryland Public Service Commission, Case No. 7851; testified on telephone utility rate design.

Maryland Public Service Commission, Case No. 7902; testified on category cost of service study methodologies.

Massachusetts Department of Public Utilities, DPU No. 19843; testified on affiliated relations, Western Electric pricing.

Michigan Public Service Commission, Case No. U-5197, et al.; testified on Western Electric costs and pricing.

Michigan Public Service Commission, Case No. U-6002; testified on separations.

Nevada Public Service Commission, Docket No. 91-7026; testified on rate design.

New Mexico Public Service Commission, Case No. 96-307-TC; testified on the application of TSLRIC/TELRIC principles in the pricing of unbundled network elements.

New York Public Service Commission, Case No. 27710/27995; testified on costs and rates of local coin service.

New York Public Service Commission, Case No. 27995; testified on category costs of service utility rate design and deregulation.

New York Public Service Commission, Case No. 28264; testified on category costs of service, costs of local service, and design and structure of local exchange rates.

New York Public Service Commission, Case No. 29469; testified on competition and regulation of cellular services.

Ohio Public Utilities Commission, Case No. 79-1184-TP-AIR; testified on rate design and rate structure.

Ohio Public Utilities Commission, Case No. 83-300-TP-AIR; testified on rate design and rate structure.

Ohio Public Utilities Commission, Case No. 83-464-TP-COI; testified on regulatory structure and access charges.

Ohio Public Utilities Commission, Case No. 84-435-TP-AIR; prepared analysis of rate design.

Pennsylvania Public Utility Commission, R.I.D. No. 289, et al.; testified on utility cost of service methodologies and rate design for competitive telecommunications service offerings.

Pennsylvania Public Utility Commission, Docket R-811512; provided telephone utility cost of service study, testified on rate design.

Pennsylvania Public Utility Commission, Docket R-811819; testified on telephone utility cost of service and rate structure.

Pennsylvania Public Utility Commission, Docket R-832316; testified on access charges, impact of divestiture on revenue requirements and revenue sources, and rate design.

Pennsylvania Public Utility Commission, Docket No. P-830452; testified on the impacts of divestiture on operating company operations and carrier access charges.

Pennsylvania Public Utility Commission, Docket No. R-842779; testified on telephone rate design and stand alone costing procedures.

Pennsylvania Public Utility Commission, Docket No. R-850044; testified on telephone rate design.

Pennsylvania Public Utility Commission, Docket No. R-850170; testified on policy issues regarding public, semipublic and privately owned coin stations and services.

Pennsylvania Public Utility Commission, Docket No. R-850229; testified on rate design.

Pennsylvania Public Utility Commission, Docket No. 860923; rate design and depreciation practices.

Pennsylvania Public Utility Commission, Docket No. R-930715; testified on regulatory structure, productivity growth and utility costs.

Pennsylvania Public Utility Commission, Docket No. 940587; testified on total service long run costs and revenue-cost comparisons of competitive services.

Pennsylvania Public Utility Commission, Docket No. 951005; testified on alternative regulatory structures for small telephone companies.

Pennsylvania Public Utility Commission, Docket No. 963556; testified on rate design for services and network elements.

Pennsylvania Public Utility Commission, Docket No. R-00951005; testified on alternative regulatory structures, total factor productivity, price cap plans.

Pennsylvania Public Utility Commission, Docket No. R-00963534; testified on rate rebalancing in the context of a price cap plan.

Pennsylvania Public Utility Commission, Docket No. A-310203F0002(III), et al.; testified on local competition, TELRIC/TSLRIC pricing of unbundled network elements.

Pennsylvania Public Utility Commission, Docket No. I-00960066; testified on issues related to access charge rate structure and universal service policies.

Rhode Island Public Utilities Commission, Docket No. 1475; testified on rate design and rate structure.

Rhode Island Public Utilities Commission, Docket 1631 (Phase I); testified on revenue requirements and merits of company cost of service studies.

Rhode Island Public Utilities Commission, Docket 1631 (Phase II); provided telephone utility cost of service study.

Rhode Island Utilities Commission, Dockets 1560R, 1631, and 1654; testified on utility cost of service and rate design.

Rhode Island Public Utilities Commission, Docket 1687; testified on rate design and structure of local and toll rates.

Rhode Island Public Utilities Commission, Docket 1698; testified on rate design.

Rhode Island Public Utilities Commission, Docket 1878; testified on rate design.

South Carolina Public Service Commission, Docket 79-305-C; testified on cost of service, rate design, separations and affiliated relationships.

South Carolina Public Service Commission, Docket 82-291-C; testified on telephone utility cost of service methodologies and rate structure.

Tennessee Regulatory Authority, Docket No. 96-01331; testified on avoided cost discount.

Texas Public Utility Commission, Docket No. 8585; testified on cost study methodology and the pricing of competitive services.

Texas Public Utility Commission, Docket Nos. 16189, 16196, 16226, 16285, 16290; testified on the application of TSLRIC/TELRIC principles in the pricing of unbundled network elements.

Texas Public Utility Commission, Docket No. 16473; testified on local competition, unbundling network elements, TELRIC/TSLRIC, pricing.

Virginia Corporation Commission, Docket PUC 920029; testified on incentive regulation, utility productivity, utility construction programs.

Virginia Corporation Commission, Docket PUC 930039; testified on productivity growth, construction programs and incentive regulatory plans.

Washington Utilities and Transportation Commission, Case No. U-75-54; testified on cost of service methodologies for competitive telecommunications service offerings.

Washington Utilities and Transportation Commission, Cause Nos. U-86-34, *et al.*; testified on the establishment of rules and procedures regarding the detariffing of utility products and services.

West Virginia Public Service Commission, Case No. 84-747-T-42T; testified on rate design, access charge structures and affiliated relationships.

West Virginia Public Service Commission, Case No. 85-282-T-GI; testified on the policy of interexchangeable competition.

West Virginia Public Service Commission, Case Nos. 85-490-T-P, *et al.*; testified on access charge structures.

West Virginia Public Service Commission, Case Nos. 86-038-T-C, *et al.* testified in complaint case regarding independent telephone company earnings.

West Virginia Public Service Commission, Case No. 86-364-T-GI; testified on access charge structures.

West Virginia Public Service Commission; Case No. 89-206-T-42T; Telephone Rate Design and Local Calling Plans.

West Virginia Public Service Commission; Case No. 90-522-T-42T; Telephone Rate Design and Local Calling Plans.

West Virginia Public Service Commission, Case No. 94-1103-T-GI; testified on total service long run incremental costs and local service competition.

Wisconsin Public Service Commission, Docket No. 6720-TI-103; testified on cost standards for competitive services and compensatory pricing of Centrex service.

Wisconsin Public Service Commission, Docket No. 6720-TI-102; testified on productivity and rate implications of rate moratorium.

Wisconsin Public Service Commission, Docket No. 6720-TR-104; testified on incentive regulation proposals.

Before the Federal Energy Regulatory Commission (FERC):

Natural Gas Pipeline Company of America, Docket No. 87-141; filed testimony on the GIC.

Tennessee Gas Pipeline Company, Docket No. RP-88-228-000 et. al.; filed testimony on comparable service.

Before Canadian Commissions:

Prince Edward Island Public Utilities Commission, complaint case; testified on cost of service and rate design for PBX equipment, and the economic implications of interconnection.

Before U.S. Postal Commission:

Docket MC79-3; testified on cost of service and rate design for second-class mail.

Before Legislatures:

Committee on Commerce, U.S. Senate, Subcommittee on Communications; expert witness testifying for Subcommittee Staff on U.S. Department of Transportation Study on Impacts of Daylight Savings Time Act.

Committee on Banking and Currency, U.S. House of Representatives, Ad Hoc Committee on the Domestic and International Monetary Effect of Energy and Natural Resource Pricing; appeared as Staff witness on inflationary and unemployment effects of the oil embargo, and on utility pricing policy proposals.

Committee on Consumer Affairs, Pennsylvania House of Representatives, appeared on behalf of the Office of Consumer Advocate, testified on regulatory policy regarding telecommunications.

Other:

District Court of Lancaster County, Nebraska, in Re: Norstan Communications vs. State of Nebraska, Docket No. 355; testified on the market for telecommunications services and the effect of emerging competition.

U.S. District Court for the District of Columbia, in RE: US. vs. AT&T et. al., C.A. No. 74-1698; testified on Western Electric PBX Pricing.

U.S. District Court for the Southern District of Florida, in Re: Eugene Steele d/b/a Yacht Buyers Group vs. Morgan Yacht, et al., Case No. 82-2757-CIU-JE; testified on economic estimate of damages.

U.S. District Court for the District of Maryland, in Re: Fred Menke's Car Store, Inc. and Fred R. Menke, Sr. vs. Volvo North America Corporation, C.A. No. H86-1150; testified on economic estimate of damages.

U.S. District Court for the Eastern District of Pennsylvania, in Re: Design Sales Associates, Inc. vs. Pittcon Industries, Inc., C.A. No. 87-0805; testified on economic estimate of damages.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that true and correct copies of Rebuttal Testimony of Dr. Marvin H. Kahn on behalf of American Communications Services of Jacksonville, Inc. in Docket Nos. 960757-TP, 960833-TP, and 960846-TP have been served upon the following parties by Hand Delivery (*) and/or U. S. Mail this 9th day of December, 1997.

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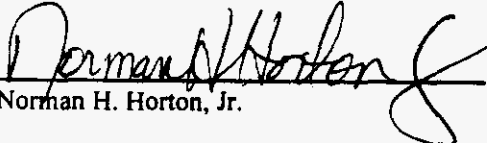
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