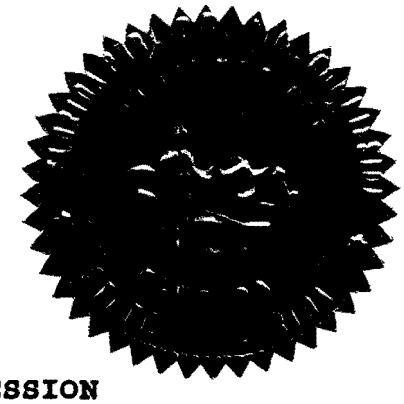
BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of	DOCKET NO. 961230-TP
Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996.	



FIRST DAY - MID MORNING SESSION

VOLUME 2

Pages 154 through 312

PROCEEDINGS:	HEARING
BEFORE:	CHAIRMAN SUSAN F. CLARK COMMISSIONER J. TERRY DEASON COMMISSIONER JULIA L. JOHNSON COMMISSIONER DIANE K. KIESLING COMMISSIONER JOE GARCIA
DATE:	Wednesday, December 18, 1996
TIME:	Commenced at 9:30 a.m.
PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	ROWENA NASH HACKNEY Official Commission Reporter (904) 413-6736

APPEARANCES:

(As heretofore noted.)

WITNESSES - VOLUME 2

EXHIBITS - VOLUME 2

PROCEEDINGS

(Hearing convened at 9:30 a.m.)

CHAIRMAN CLARK: Back on the record. Go ahead, Mr. Melson.

MR. MELSON: MCI calls Dr. Richard Cabe.

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DR. RICHARD CABE

was called as a witness on behalf of MCI and MCImetro and, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. MELSON:

Q Dr. Cabe, would you state your name and business address, please?

A I'm Richard Cabe. My business address is Department of Economics, New Mexico State University, Las Cruces, New Mexico 88003.

Q And what's your occupation or profession?

A I am an economist. I teach at New Mexico State.

Q And on whose behalf were you testifying in this proceeding?

A I'm sorry, I couldn't hear you.

Q I'm sorry. On whose behalf are you testifying in this proceeding?

A On behalf of MCImetro.

Q And have you prefiled direct testimony in this docket dated October 11th consisting of 48 pages and rebuttal testimony dated November 19th consisting of four pages?

A Yes, I have.

Q And are there any portions of the direct testimony that you are withdrawing?

A Yes. I would like to withdraw Page 14, Line 12, through Page 19, Line 16. And Page 46, Line 13, to Page 48, Line 5.

Q And that last line number is different from what you've got on the handout. We've left in the question and answer. Does that conclude your testimony?

Are there any portions of the rebuttal testimony that you are withdrawing, Dr. Cabe?

A Yes, Page 1, Line 18, through Page 2, Line 10.

Q Do you have changes or corrections to the remaining portions of your testimony that have not been withdrawn?

A No, I don't.

Q And if I were to ask you the same questions today that are in the remaining portions of that testimony, would your answers be the same?

A Yes, they would.

MR. MELSON: Chairman Clark, I would ask that Dr. Cabe's direct and rebuttal testimony as revised be inserted in the record as though read.

COMMISSIONER KIESLING: The direct and rebuttal testimony as revised will be inserted in the record as though read.

Q (By Mr. Melson) And, Dr. Cabe, did you have one exhibit attached to your direct testimony, RC-1, which is your professional resume?

A Yes.

Q Do you have any changes or corrections to that document?

A No, I don't.

Q And is the information in that resume true and correct to the best of your knowledge and belief?

A Yes, it is.

MR. MELSON: Madam Chairman, I would ask that RC-1 be marked for identification as Exhibit 9.

CHAIRMAN CLARK: It will be marked for identification as Exhibit 9.

(Exhibit 9 marked for identification.)

DIRECT TESTIMONY OF RICHARD CABE

ON BEHALF OF MCI

MCI - UNITED/CENTEL ARBITRATION

OCTOBER 11, 1996

I. PERSONAL BACKGROUND

Q. PLEASE STATE YOUR NAME AND ADDRESS.

My name is Richard Cabe and my business address is Box 3CQ, New Mexico State University, Las Cruces, New Mexico 88003-0001.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL QUALIFICATIONS.

A. I am presently employed as Associate Professor of Economics and International Business at New Mexico State University. I teach graduate and undergraduate economics courses and I arrange the telecommunications curriculum for conferences sponsored by the Center for Public Utilities. Over the last few years I have offered graduate courses in Industrial Organization, Microeconomic theory, Antitrust and Monopoly Power, Game Theory, Public Utilities Regulation, and Managerial Economics for MBA students. Any opinions that I express are my own and do not represent the views of New Mexico State University or the Center for Public Utilities.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND AND EXPERIENCE.

A. My exposure to the telecommunications industry began with course work at the University of Wyoming in 1980 concerning economic regulation of public utilities.

After completing all but the dissertation requirement for the Ph.D. Degree in economics at the University of Wyoming, I accepted a position at the Washington Utilities and Transportation Commission (WUTC) as a Utilities Rate Research Specialist. At the WUTC I analyzed a variety of telecommunications issues, presented testimony to the Commission and the State Legislature, served on state staff for a federal/state joint board, and participated in the team charged with implementation of the State of Washington's recent telecommunications legislation. When I left the WUTC to resume work toward the Ph.D. I was the acting Telecommunications Regulatory Flexibility Manager and my job was to lead the staff effort in implementing the State's regulatory flexibility statute.

After leaving the WUTC, completing my Ph.D. and entering academia I have followed events in the telecommunications industry as an academic, making a variety of presentations related to the industry and organizing programs of the Center for Public Utilities at New Mexico State University. I have also consulted from time to time with public and private clients on public policy issues in the industry. In addition to this direct experience with the telecommunications industry I often find that my understanding of issues in the industry is enhanced by the experience and training I received during 4 years in the US Coast Guard as an electronics technician. During this period I was involved in installing, repairing and performing routine maintenance on a variety of electronic equipment, mostly related to communications of one sort or another. Dates and other details of this experience, as well as academic publications and other activities are described in the attached resume.

Q. HAVE YOU PUBLISHED ANY PAPERS ON TELECOMMUNICATIONS?

A. Yes.

"Network Differentiation and the Prospects for Competition in Local Telecommunications", in *Sixth Annual Current Issues Challenging the Regulatory Process*, The Center for Public Utilities, New Mexico State University, 1990

"Prospects for Competition in the Local Exchange Telecommunications Industry", in *Telecommunications Regulation in Washington State*, Washington Utilities and Transportation Commission, January 29, 1989

Annual Report to the Legislature on the Status of the Washington Telecommunications Industry, principal author for the Washington Utilities and Transportation Commission, January, 1987

Recent Presentations: Various presentations at the Basics of Regulation and the Rate-Making Process, Albuquerque, NM, and Baltimore, MD, every Fall and Spring respectively, including:

"Orientation to the Telecommunications Industry;

"Telecommunications: The Role of Economic Efficiency in Pricing;

""Mr. Rogers Visits the Economics of Pricing in Regulated Industries" with Doug Gegax; "Policy Issues of Local Competition", with Joseph Gillan;

Q. HAVE YOU TESTIFIED BEFORE?

A. Yes.

Q. WHAT IS THE BASIS OF YOUR TESTIMONY?

A. MCI assembled a group of seven economists to evaluate the economic issues that need to be addressed by state regulators during the arbitrations under the Telecommunications Act of 1996 ("the 1996 Act"). The seven economists are Gus Ankum, Steven R. Brenner, Nina Cornell, myself, Sarah Goodfriend, A. Daniel Kelley, and Terry L. Murray. These economists produced a jointly authored white paper. The testimony that follows is the same as that white paper, except that it has been converted into question-and-answer format.

II. ECONOMIC PRINCIPLES

Q. HOW HAS THE 1996 ACT CHANGED THE WAY TELECOMMUNICATIONS IS TO BE REGULATED IN THE UNITED STATES?

A. The 1996 Act calls for competition to replace regulated monopoly whenever market conditions permit. This is stated most clearly in Section 257(b), which reads:

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

Subsection (a) calls for the Federal Communications Commission ("FCC") to complete a proceeding within 15 months of enactment of the 1996 Act to identify and eliminate market barriers to entry.

Q. WHAT ARE THE CURRENT TELECOMMUNICATIONS MARKETS IN WHICH THE INCUMBENT LOCAL EXCHANGE CARRIERS STILL HAVE MARKET POWER OR EVEN A MONOPOLY?

A. Incumbent local exchange carriers (LECs) possess market power, and often monopoly positions, in many local exchange service markets. The First Report and Order issued by the Federal Communications Commission ("FCC") in CC Docket No. 96-98, In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 ("Order") is intended to begin eliminating market barriers to entry, and to establish rules to govern opening entry into local exchange markets.

Q. HAS THE FCC DECIDED ALL OF THE ISSUES THAT NEED TO BE DECIDED BEFORE ENTRY CAN BECOME EFFECTIVE COMPETITION IN LOCAL EXCHANGE MARKETS?

A. No. In that Order, the FCC has decided a number of major issues, but has left others to the states to decide. The issues left to the states are sufficient that the intent of Congress could be thwarted if consistent principles are not used to decide them.

Q. WHAT ARE THE PRINCIPLES THAT THE FCC RELIED ON IN MAKING THE DECISIONS IT MADE?

A. In terms of its economic underpinnings, the FCC's Order rests on six basic premises.

Q. WHAT IS THE FIRST OF THE FCC'S SIX BASIC ECONOMIC PREMISES?

A. The first basic economic premise of the FCC establishes as the fundamental requirement for achieving the goals of the 1996 Act that the incumbent local exchange companies

must share with entrants their economies of density, connectivity, and scale. As the FCC said:

> The incumbent LECs have economies of density, connectivity, and scale; traditionally, these have been viewed as creating a natural monopoly. As we pointed out in our NPRM, the local competition provisions of the Act require that these economies be shared with entrants. We believe they should be shared in a way that permits the incumbent LECs to maintain operating efficiency to further fair competition, and to enable the entrants to share the economic benefits of that efficiency in the form of cost-based prices. (Paragraph 11, footnote omitted)

Q. WHAT IS THE SECOND OF THE FCC'S BASIC ECONOMIC PREMISES?

A. The second basic economic premise of the FCC is that nondiscrimination means that the incumbent LECs must not discriminate between an entrant and itself, or between different entrants based on any criterion other than cost differences. As the FCC noted:

> We believe that the term "nondiscriminatory," as used throughout section 251, applies to the terms and conditions an incumbent LEC imposes on third parties as well as on itself. (Paragraph 218)
>
> Also, incumbent LECs may not discriminate against parties based upon the identity of the carrier (*i.e.*, whether the carrier is a CMRS provider, a CAP, or a competitive LEC). (Paragraph 218)
>
> Thus, we conclude it would be insufficient to define the

> obligation of incumbent LECs to provide "nondiscriminatory access" to mean that the quality of the access and unbundled elements LECs provide to all requesting carriers is the same. As discussed above with respect to interconnection, an incumbent LEC could potentially act in a nondiscriminatory manner in providing access or elements to all requesting carriers, while providing preferential access or elements to itself. (Paragraph 312, footnote omitted)
>
> On the other hand, price differences based not on cost differences but on such considerations as competitive relationships, the technology used by the requesting carrier, the nature of the service the requesting carrier provides, or other factors not reflecting costs, the requirements of the Act, or applicable rules, would be discriminatory and not permissible under the new standard. (Paragraph 861)

Q. WHAT IS THE THIRD BASIC ECONOMIC PREMISE OF THE FCC?

A. The third basic economic premise of the FCC is that telecommunications is an industry with a great deal of technological change, and that its rules should not interfere with the pace or pattern of that change. As the FCC stated:

> The rapid pace and ever changing nature of technological advancement in the telecommunications industry makes it essential that we retain the ability to revise our rules as circumstances change. Otherwise, our rules might impede technological change and frustrate the 1996 Act's overriding

goal of bringing the benefits of competition to consumers of local phone services. (Paragraph 246, footnote omitted)

Q. WHAT IS THE FOURTH BASIC ECONOMIC PREMISE OF THE FCC?

A. The fourth basic economic premise of the FCC is that forward-looking economic costs, not embedded costs, should be the basis for pricing interconnection and unbundled elements. As the FCC stated:

> In the following sections, we first set forth generally, based on the current record, a cost-based pricing methodology based on forward-looking economic costs, which we conclude is the approach for setting prices that best furthers the goals of the 1996 Act. In dynamic competitive markets, firms take action based not on embedded costs, but on the relationship between market-determined prices and forward-looking economic costs. (Paragraph 620)
>
> The substantial weight of economic commentary in the record suggests that an "embedded cost"-based pricing methodology would be pro-competitor -- in this case the incumbent LEC -- rather than pro-competition. (Paragraph 705, footnote omitted)

Q. WHAT IS THE FIFTH BASIC ECONOMIC PREMISE OF THE FCC?

A. The fifth basic economic premise of the FCC is that rates must recover costs in a manner that reflects the way they are incurred. This takes on special significance because rate structures that do not consistently reflect the way forward-looking economic costs are incurred, for example, by imposing nonrecurring charges for

recurring costs, may become vehicles for over-recovery of costs, and thus, act as a barrier to entry. The FCC applies this principle, for example, to shared facilities to equitably match, insofar as practical, costs and payments for benefits in time. As the FCC stated:

> ...we find that imposing nonrecurring charges for recurring costs could pose a barrier to entry because these charges may be excessive, reflecting costs that may (1) not actually occur; (2) be incurred later than predicted; (3) not be incurred for as long as predicted; (4) be incurred at a level that is lower than predicted; (5) be incurred less frequently than predicted; and (6) be discounted to the present using a cost of capital that is too low. (Paragraph 747)
>
> We require, however, that state commissions take steps to ensure that incumbent LECs do not recover nonrecurring costs twice and that nonrecurring charges are imposed equitably among entrants. (Paragraph 750)
>
> A state commission may, for example, decide to permit incumbent LECs to charge the initial entrants the full amount of costs incurred for shared facilities for physical collocation service, even if future entrants may benefit. A state commission may, however, require subsequent entrants, who take physical collocation service in the same central office and receive benefits as a result of costs for shared facilities, to pay the incumbent LEC for their proportionate share of those costs, less depreciation (if an asset is involved). Under this approach,

> the state commission could require the incumbent LEC to provide the initial entrants *pro rata* refunds, reflecting the full amount of the charges collected from the subsequent entrants. Alternatively, a state commission may decide to permit incumbent LECs to charge initial entrants a proportionate fraction of the costs incurred, based on a reasonable estimate of the total demand by entrants for the particular interconnection service or unbundled rate elements. (Paragraph 750)

Q. WHAT IS THE SIXTH BASIC ECONOMIC PREMISE OF THE FCC?

A. The sixth basic economic premise of the FCC is that the incumbent LECs have virtually no incentives to voluntarily provide the various unbundled network elements and interconnection needed by entrants at prices or under the terms and conditions that would make effective competition a reality. Instead, incumbent LECs have both the incentive and the ability—absent regulatory intervention—to force entrants to accept prices, terms, and conditions that would be insufficient to bring consumers the benefits the 1996 Act sought to convey. As the FCC stated:

> Because an incumbent LEC currently serves virtually all subscribers in its local serving area, an incumbent LEC has little economic incentive to assist new entrants in their efforts to secure a greater share of that market. An incumbent LEC also has the ability to act on its incentive to discourage entry and robust competition by not interconnecting its network with the new entrant's network or by insisting on supracompetitive prices or other unreasonable conditions for terminating calls

from the entrant's customers to the incumbent LEC's subscribers. (Paragraph 10, footnote omitted)

Congress recognized that, because of the incumbent LEC's incentives and superior bargaining power, its negotiations with new entrants over the terms of such agreements would be quite different from typical commercial negotiations. As distinct from bilateral commercial negotiation, the new entrant comes to the table with little or nothing the incumbent LEC needs or wants. The statute addresses this problem by creating an arbitration proceeding in which the new entrant may assert certain rights, including that the incumbent's prices for unbundled network elements must be "just, reasonable and nondiscriminatory." (Paragraph 15, footnote omitted)

We find that incumbent LECs have no economic incentive, independent of the incentives set forth in sections 271 and 274 of the 1996 Act, to provide potential competitors with opportunities to interconnect with and make use of the incumbent LEC's network and services. Negotiations between incumbent LECs and new entrants are not analogous to traditional commercial negotiations in which each party owns or controls something the other party desires. Under section 251, monopoly providers are required to make available their facilities and services to requesting carriers that intend to compete directly with the incumbent LEC for its customers and its control of the local market. Therefore, although the 1996

Act requires incumbent LECs, for example, to provide interconnection and access to unbundled elements on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, incumbent LECs have strong incentives to resist such obligations. The inequality of bargaining power between incumbents and new entrants militates in favor of rules that have the effect equalizing bargaining power in part because many new entrants seek to enter national or regional markets. (Paragraph 56)

In particular, a new entrant that has already constructed facilities may have a relatively weak bargaining position because it may be forced to choose either to accept transport and termination rates not in accord with these rules or to delay its commencement of service until the conclusion of the arbitration and state approval process. (Paragraph 1065)

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide an economic analysis of how state regulators should take these same six basic premises into account in addressing the issues that are reserved to state regulators to decide under the FCC's Order. This paper applies these six premises to eight issues: (1) the need for additional unbundled network elements, (2) the need to prevent discriminatory non-price terms and conditions for acquiring unbundled network elements, (3) the need to identify the costs and cost structures of unbundled elements and efficient unbundling, (4) the recurring rates to be charged for unbundled elements, (5) the non-recurring rates to be charged for unbundled network

elements, including, in particular, the costs of unbundling that the incumbent LECs should be allowed to charge entrants, (6) the costs and cost structure of transport and termination of local exchange traffic, (7) the compensation rates for transport and termination, and (8) the desirability of initiating state access reform now.

III. UNBUNDLED NETWORK ELEMENTS

Q. WHAT ARE THE ISSUES THAT STATE REGULATORS MUST DECIDE WITH RESPECT TO UNBUNDLED NETWORK ELEMENTS?

A. There are five issues that state regulators must decide with regard to unbundled elements. The first is whether to order the incumbent LECs to unbundle any elements in addition to the minimum list ordered unbundled by the FCC. The second is to prevent discriminatory nonprice terms and conditions for acquiring unbundled network elements. The third is to identify the costs and cost structures of the unbundled elements themselves and the costs associated with efficient unbundling of a wholesale LEC network. The fourth is to set recurring rates for the unbundled elements, both those on the FCC's list of elements to be unbundled and any additional elements. The fifth is to set the non-recurring rates for ordering unbundled network elements. Both recurring and non- recurring rates must be set to comply with the forward-looking economic costing methodology known as TELRIC (Total Element Long Run Incremental Cost). Both recurring and non-recurring rates must be structured to reflect how costs are incurred.

Q. DO INCUMBENT LOCAL EXCHANGE CARRIERS WANT TO PROVIDE UNBUNDLED NETWORK ELEMENTS IN A MANNER THAT FACILITATES LOCAL EXCHANGE COMPETITION?

A. No. As the FCC stated:

> As discussed above at sections II.A, II.B and V.B, we believe that incumbent LECs have little incentive to facilitate the ability of new entrants, including small entities, to compete against them and, thus have little incentive to provision unbundled elements in a manner that would provide efficient competitors with a meaningful opportunity to compete. (Paragraph 307)

Therefore, refusing to provide additional unbundled elements and setting rates above efficient economic costs both can prevent efficient competitors from having "a meaningful opportunity to compete."

A. Additional Unbundled Network Elements: Loop Distribution Plant

Q. THE FCC HAS ORDERED THAT A MINIMUM LIST OF UNBUNDLED NETWORK ELEMENTS BE PROVIDED. CAN STATE REGULATORS ADD TO THIS LIST?

A. Yes. The FCC has determined that state regulators can order the incumbent LECs to unbundle more network elements than those on the FCC's minimal list.

Q. SHOULD STATE REGULATORS ADD TO THE FCC'S MINIMUM LIST OF UNBUNDLED NETWORK ELEMENTS?

A. Yes. One additional network element should be added to the list: unbundled distribution, which is a loop subelement. The network implementation white paper accompanying this white paper explains why this additional network element is needed, how it would be used, why it is technically feasible to unbundle, and why, for some period of time, it cannot be provided at an equal or lower cost or in as timely a fashion

by (at least) MCImetro as by the incumbent LEC.

Q. WHY SHOULD ANOTHER UNBUNDLED NETWORK ELEMENT BE ADDED TO THE FCC'S MINIMUM LIST?

A. Forcing an entrant to purchase the whole loop even though it has facilities that could be used for a portion of the loop exemplifies an incumbent LEC practice, that, if it were to be sanctioned by a regulator, surely undermines the entrant's "meaningful opportunity to compete" using an architecture which rivals the incumbent's. The FCC provided clear instruction. The FCC identified a "technically feasible" standard and an "impairment" standard to which incumbent LECs should be held when states evaluate unbundling requests beyond the minimal FCC list.

Q. WHAT ARE THE "TECHNICALLY FEASIBLE" AND "IMPAIRMENT" STANDARDS OF THE FCC?

A. The 1996 Act gives entrants the right to have the incumbent LECs unbundle any network element that it is technically feasible to unbundle. According to the FCC:

> We conclude that the term "technically feasible" refers solely to technical or operational concerns, rather than economic, space, or site considerations. We further conclude that the obligations imposed by sections 251(c)(2) and 251(c)(3) include modifications to incumbent LEC facilities to the extent necessary to accommodate interconnection or access to network elements. Specific, significant, and demonstrable network reliability concerns associated with providing interconnection or access at a particular point, however, will be regarded as

> relevant evidence that interconnection or access at that point is technically infeasible. . . . Finally, we conclude that incumbent LECs must prove to the appropriate state commission that a particular interconnection or access point is not technically feasibile [sic]. (Paragraph 198)

The incumbent LECs should be ordered to provide this additional unbundled network element because it is needed to minimize the cost to entrants of competing on a broad scale with the incumbent LECs for local exchange service. In the section of its Order discussing access to unbundled (proprietary) network elements, the FCC provided an economic and competitive interpretation to define the "impairment standard" to which incumbent LECs should be held when states evaluate requests for unbundling beyond the FCC's minimal list. According to the FCC:

> We believe, generally, that an entrant's ability to offer a telecommunications service is "diminished in value" if the quality of the service the entrant can offer, absent access to the requested element, declines and/or the cost of providing the service rises. . . . Accordingly, we interpret the "impairment" standard as requiring the Commission and the states, when evaluating unbundling requirements beyond those identified in our minimum list, to consider whether the failure of an incumbent to provide access to a network element would decrease the quality, or increase the financial or administrative cost or the service a requesting carrier seeks to offer, compared with providing that service over other unbundled elements in the incumbent LEC's network. (Paragraph 285, footnotes

omitted)

As the accompanying Network Implementation white paper explains, it is both technically feasible and economically necessary under the standards adopted by the FCC to require incumbent LECs to unbundle Loop Distribution plant.

Q. DID THE FCC ELABORATE ON ITS IMPAIRMENT STANDARD?

A. Yes. The FCC elaborated on its meaning of the impairment standard when it explained further that:

> The interpretation advanced by most of the BOCs and GTE, described above, means that, if a requesting carrier could obtain an element from a source other than the incumbent, then the incumbent need not provide the element. We agree with the reasoning advanced by some of the commenters that this interpretation would nullify section 251(c)(3) [of the 1996 Act] because, in theory, any new entrant could provide all of the elements in the incumbent' networks. Congress made it possible for competitors to enter local markets through the purchase of unbundled elements because it recognized that duplication of an incumbent's network could delay entry, and could be inefficient and unnecessary. (Paragraph 287, footnote omitted)

For me, the significance of the rejection of the incumbents' proposed standard is very clear: Under the Act, no regulator may permit a refusal to unbundle, where technically feasible, to result in the imposition of inefficiencies and unnecessary costs on entrants. Such acquiescence is permission to undermine competition.

B. Discriminatory Practices: Terms and Conditions of Interconnection

Q. IS THE IMPAIRMENT STANDARD THE ONLY STANDARD OR SAFEGUARD CREATED TO PRESERVE EMERGING COMPETITION?

A. No. The impairment standard is one of a number of standards or safeguards created to preserve emerging competition to its fullest potential. In paragraphs 217 and 218 of its Order, the FCC found that Congress intended a more stringent legal standard of nondiscrimination to apply under the 1996 Act section 251(c)(2) than under section 202(a) of the original Act. On this legal basis and considering the procompetitive purpose of the 1996 Act, the FCC recognized, again, that "... the [incumbent] LEC has the incentive to discriminate against its competitors by providing them less favorable terms and conditions of interconnection than it provides itself..." finding that "by providing interconnection to a competitor in a manner *less efficient* (emphasis added) than an incumbent LEC provides itself, the incumbent LEC violates the duty to be 'just' and 'reasonable' under Section 251(c)(2)(D)...."

Q. WHAT ARE OTHER WAYS THAT INCUMBENT LECS CAN UNDERMINE THE PROCOMPETITIVE ASPECTS OF NETWORK UNBUNDLING?

A. Refusals to unbundle and improper pricing of unbundled elements, the main topics of this section, are but two ways incumbent LECs may undermine the procompetitive aspects of network unbundling. The Network Implementation white paper discusses cross-connect points. Cross-connection facilities include the house cabling and jumper cables that make it possible for an entrant's unbundled loop to be connected to its collocation equipment. This "glue" that holds the network together and connects unbundled elements must be priced properly. The pricing of house cabling and jumper

cables can be every bit as important in limiting the incumbent's ability to discriminate in the provision of unbundled elements as is the pricing of the unbundled elements themselves. The FCC pointedly addressed the example of cross-connect facilities to unbundled loops, including the house cabling and jumper cables necessary to allow a competitor to connect an unbundled loop to its collocated equipment, noting that several entrants had alleged that incumbent LECs had required unreasonable rates, terms and conditions for such cross-connection facilities in the past. (See Paragraph 386)

The Operations Support Systems Implementation white paper discusses the various databases to which entrants must have access, and describes the various functions -- pre-ordering, ordering, provisioning, maintenance and repair, and billing -- for which access to operations support systems are necessary. Refusal to provide access to databases efficiently is an expression of discrimination. Terms and conditions of access can become instruments for the creation of barriers to competition.

Similarly, the Ancillary Arrangements And Services Requirements white paper describes seven specific ancillary arrangements or services, and, for each, recommends specific state action needed to reduce barriers to competition.

B. Recurring Rates for Unbundled Network Elements

Q. WHAT IS THE BASIS ON WHICH RECURRING RATES FOR UNBUNDLED NETWORK ELEMENTS ARE TO BE SET?

A. The FCC has adopted a costing and pricing methodology based on forward-looking, economic costs, finding that such a methodology best replicates the conditions of a competitive market and reduces the ability of an incumbent LEC to engage in anticompetitive behavior. (See, for example, paragraph 679). The FCC has said that

prices for unbundled network elements (and for interconnection) should "be based on the TSLRIC (Total Service Long Run Incremental Cost) of the network element[s], which we will call Total Element Long Run Incremental Costs (TELRIC)." (Paragraph 672) The prescribed TELRIC costing methodology is provided in Part 1 of Title 47 of the C.F.R. as Subpart F - Pricing of Elements, and applies to the costing and pricing of network elements, interconnection, and methods of obtaining access to unbundled elements, including physical collocation and virtual collocation. In the following discussion, I use the term "element" to refer to items covered by Subpart F. 1. Requirements for Conformity With the TELRIC Methodology

Q. WHAT IS REQUIRED FOR A STUDY TO CONFORM TO THE TELRIC METHODOLOGY ORDERED BY THE FCC?

A. The cost study methodology ordered by the FCC essentially requires the study to be conducted as though the local exchange carrier was split into two virtually separate subsidiaries: a wholesale subsidiary and a retail subsidiary. The sole purpose of the wholesale subsidiary is to run the network and provide unbundled elements not only to entrants, but also to the retail subsidiary of the incumbent LEC. The methodology also requires that the costs be studied as though only the retail subsidiary puts network elements together to form services sold at retail to end users. According to the FCC:

> Common costs also include costs incurred by a firm's operations as a whole, that are common to all services and elements (e.g., salaries of executives involved overseeing all activities of the business), although for the purpose of pricing interconnection and access to unbundled elements, which are intermediate products offered to competing carriers, the relevant

common costs do not include billing, marketing and other costs attributable to the provision of retail service...(Paragraph 694) We further conclude that, for the aggregate of all unbundled network elements, incumbent LECs must be given a reasonable opportunity to recover their forward-looking common costs attributable to operating the wholesale network.... (Paragraph 698)

2. States Must Examine Cost Studies to Set Element Prices

Q. WILL STATE REGULATORS HAVE TO EXAMINE COST STUDIES TO SET RECURRING RATES FOR UNBUNDLED NETWORK ELEMENTS?

A. Yes. I urge state regulators to begin to examine TELRIC cost studies now, recognizing that the sooner states act to set prices in accordance with required cost studies, the greater certainty all market participants will have. While the default proxies established by the FCC provide some bounds for entry decisions, even use of these proxies will require states to identify the appropriate translation of local loop proxy ceilings into geographically-deaveraged rates. State regulators will have to examine cost studies proposed for this purpose.

If the state regulator adopts a proxy for arbitration purposes, the proxy must be superseded once the state regulator completes its review of cost studies and finds compliance with the FCC rules. Thus, regardless of the way in which the state commission resolves its immediate need to identify prices for interconnection, collocation and unbundled elements, ultimately the commission will be required to

closely examine cost studies for compliance with the definitions and procedures set forth in sections 51.505 and 51.511 of the FCC rules.

3. Incumbent LEC Cost Studies

Q. CAN STATE REGULATORS USE EXISTING INCUMBENT LEC COST STUDIES FOR THIS PURPOSE?

A. No. The historical "just trust us" approach of incumbent LECs to cost studies is no longer allowed. The FCC has called for all parties to be able to review cost information and for state regulators to give "full and fair effect to the costing methodology" it adopts. (Paragraph 619) Moreover, the states must take into account that the incumbent LECs have an "asymmetric access to cost data." (Paragraph 680) This gives the incumbent LEC unequal power. Historically the inequality has been between those who would critically evaluate LEC cost studies -- such as the commission staffs and others -- and the incumbent LECs. In paragraph 680, the FCC explains that, because of this asymmetry of power over information, the FCC will require the incumbent LEC to "... prove to the state commission that the rates for each element it offers do not exceed the forward-looking economic cost per unit of providing the element." (Section 51.505(e))

For an economist, this standard of "proof" can be met only if critical analysis of the results of the cost study or model is possible in order to evaluate its reasonableness. In turn, this requires examination so that judgments may be formed about the reasonableness of inputs, outputs and the relationships used to translate inputs into outputs, namely, the foundations and relationships of the "model" itself. In the

following section, I provide an example of a dramatic difference in cost claimed for remote call forwarding. The magnitude of difference makes abundantly clear the necessity of evaluating a model for reasonableness to obtain confidence in the results.

Moreover, from the analyst's perspective, the results and summary of methodology of a cost study are, in a sense, only the tip of the iceberg: behind each cost study are a multitude of workpapers, and behind the workpapers are data sources and assumptions. All of these need to be reasonably explained and subject to examination to be able to determine whether a given cost study accurately reflects the appropriate methodology and accurately estimates costs. Sufficient information must be available so that informed analysis and evaluation is possible.

Historically, LEC cost studies have been "black box" models.By "black box" I mean that the relationships used to translate from inputs to outputs are unavailable to those who would bring engineering and economic judgments to bear and engage in an open dialogue about the proper way to characterize and express cost-causation relationships and the meaning and application of best practice operations and processes in a model.

The lack of openness of incumbent LEC cost studies goes beyond the absence of visible formulas and publicly-available documentation. It extends to issues of what data are used as model or study "inputs." Historically, it has been difficult to assess the reasonableness of LEC input data because it has not been easy or even possible to compare the inputs from one LEC's studies to those used in the studies of another LEC. Thus, apart from certain requirements for reporting uniformity, such as ARMIS filings in compliance with the Uniform System of Accounts, it is not easy to bring together

data from different LECs in a form that facilitates comparisons. Extensive use of non-disclosure requirements tends to protect rather than expose atypical or idiosyncratic data and individual states do not typically require LECs to show how their data inputs compare to data inputs used by other incumbent LECs.

The FCC has ruled that incumbent LEC cost studies must comply with the requirements for forward-looking economic cost studies. It is now time for state commissions to pry the lid, once and for all, from the LEC "black box" and expose the inner workings of all proffered cost models to the light of open debate.

4. The Hatfield Model Complies With the Requirements for Cost Studies

Q. YOU HAVE SAID THAT THE COMMISSION CANNOT USE THE COST STUDIES OF THE INCUMBENT LEC TO SET THE RECURRING RATES FOR UNBUNDLED NETWORK ELEMENTS. IS THERE A COST STUDY THEY CAN USE FOR THIS PURPOSE?

A. Yes. In contrast to the prevailing LEC practice of secrecy is the Hatfield Model, a telecommunications costing model developed by Hatfield Associates, Inc. of Boulder, Colorado at the request of AT&T and MCI. The Hatfield Model (Version 2.2, Release 2) is a model of the costs that an efficient local exchange carrier would incur to provide basic exchange service and unbundled network functions.

The Hatfield Model is a publicly available model that allows users to examine all the model's inputs, algorithms and results to evaluate whether the model produces reasonable estimates of element cost. Some of the inputs the user can directly specify;

others are incorporated into the model itself, but both are readily visible to the user. The inner workings of the model are captured by a set of Excel spreadsheets, which can be studied to see exactly how inputs are transformed into outputs, stage-by-stage. Documentation of the model includes descriptions of the model algorithms, inputs and assumptions. The model is open for inspection and analysis. A user may run the model to his or her heart's content to test the sensitivities of the model to changes in inputs. These characteristics of the model make it appropriate to use as a basis for evidentiary findings about the nature and magnitude of forward-looking economic cost. The Hatfield Model (Version 2, Release 2.2) is the current evolution in a series of models which, finally, have broken the incumbent LEC stranglehold on information necessary to actually engage in the debate required for reasoned decisionmaking in this area.

Q. YOU NOTE THAT THE HATFIELD MODEL IS OPEN FOR INSPECTION AND ANALYSIS. DOES IT MEET THE CRITERIA THE FCC HAS RULED MUST BE MET FOR A TELRIC COST STUDY?

A. Based on a careful reading of the FCC's order and my understanding of the Hatfield Model and its methodology, I believe that the model captures the costs that the FCC requires to be included in the prices of unbundled network elements and interconnection services. I also believe the Hatfield Model conforms more closely to the FCC costing principles than the cost studies of the incumbent LECs with which I am familiar. One way in which most incumbent LEC cost studies do not conform is that they have not followed a TELRIC methodology. The Hatfield Model attempts to identify all of the forward-looking costs that an efficient wholesale-only LEC would incur to produce the entire range of network elements that the FCC's Order requires to be unbundled.

The Hatfield Model estimates cost of individual network elements by first determining the capital requirements for each network element and then adding both the capital-related and non-capital-related expenses for each element. Where plant is used by only a single element, the Hatfield model assigns those costs to that individual element, consistent with the requirements of the FCC's TELRIC methodology that the capital costs and expenses be attributed directly to individual network elements "to the greatest extent possible." (Paragraph 694) Where two or more network elements use the same plant, the Hatfield Model attributes costs to each of the network elements that use that plant so that the sum of the capital costs for each of the network elements equals the total capital costs for providing all the network elements together. This approach conforms with the FCC's requirement that the prices for network elements reflect the economies of scale, scope and density that the incumbent LECs enjoy. (Paragraph 11) Moreover, the model attributes costs common to a particular group of elements to only those network elements using reasonable, nondiscriminatory factors (such as apportioning the costs of shared plant according to the ratio of the costs of the plant that is not shared between network elements). Therefore, it is consistent with the FCC's requirement that the incumbent LECs not be allowed to recover costs of shared plant disproportionately from network elements that would be especially hard for new entrants to build themselves or acquire from another source at this time. (Paragraph 696)

To these estimates of capital and network operations costs that are either part of the TELRIC of an individual element or that element's share of costs common to more than one network element, the Model adds a 10% markup, as an estimate of forward-looking overhead costs. This 10% markup reflects the level of "general and administrative"

costs that a firm operating in a competitive environment would incur to provide a total level of output equivalent to the total quantity of each network element. It includes a share of the expenses for corporate managers' salaries, support operations such as the legal and human resources department, and the like.

The FCC's rules require that such overhead costs be included to the extent that they vary with the output of particular network elements (despite their accounting classification), and thus are part of the TELRIC of those elements. The FCC also requires, to the extent that there are any such overhead costs that are common to several wholesale elements, or to wholesale and other functions, that the prices of network elements include "a reasonable share of common costs." The procedure of estimating the overhead costs of a wholesale-only carrier, which is what Hatfield does by adding the 10% markup, satisfies the FCC requirements. While statistical evidence and a growing literature on activity-based accounting systems suggest that many of the costs that have traditionally been considered "overhead" costs should actually be considered service-specific or element-specific costs, the Hatfield Model method for treating overhead costs renders any precise distinction between element-specific and "common" overhead costs unnecessary. Insofar as the 10% markup captures all of the relevant overhead costs, it includes any element-specific costs and a reasonable share of any "common" overhead costs. This approach ensures that each network element recovers at least its "reasonable" share of such common costs, to the extent that they exist. Moreover, if regulators set prices for network elements equal to the costs that the Hatfield Model reports for each element, these prices would allow a firm that is engaged solely in providing network elements on a wholesale basis (with no retail functions) to recover all of its economic costs of doing business, including a reasonable profit, but no more. From this vantage point also, the Hatfield approach lies well

within the bounds of reasonableness. I therefore urge regulators to adopt the Hatfield Model costs as the prices for unbundled network elements and interconnection services.

C. Non-Recurring Rates And Costs of Unbundling Elements

Q. DO STATE REGULATORS HAVE TO USE THE SAME PRINCIPLES IN SETTING NON-RECURRING RATES FOR UNBUNDLED NETWORK ELEMENTS?

A. Yes. Incumbent LECs do not only charge recurring rates for the use of their networks, they also charge non-recurring rates to recover the costs of ordering and any initial non-recurring costs of making the service or element available. These rates must also be set by state regulators. Granting incumbent LECs the discretion to set non-recurring rates without regard to economic costs would allow them to act on their incentive to impede or prevent entry just as much as granting them discretion to set recurring rates without regard to economic costs. In particular, excessive non-recurring upfront costs can function as a financial barrier to entry. (See, Paragraph 749 of the Order) Thus, all of the same considerations that the FCC has laid out for determining proper recurring costs should be applied to non-recurring costs.

One of the most important requirements a state commission can insist upon is that charges for non-recurring costs reflect the forward-looking economic costing principle required by the FCC. To do otherwise is to allow the incumbent LECs to impose unduly high non-recurring costs on entrants not because they represent the efficient costs of providing those unbundled elements but in order to impede or prevent entrants from entering by using unbundled network elements. This requirement needs to apply to two forms of non-recurring costs: the costs of ordering service, and the determination

of the costs of unbundling.

This is not merely a hypothetical concern. The experience that has occurred in several states with the ordering charges for Remote Call Forwarding (RCF) as an interim local number portability solution offers a clear example of how non-recurring charges can be used to prevent use of an element or function of an incumbent LEC's network. Although the functions are performed in networks that use very similar facilities, the prices to be charged to order RCF differed between Texas and Illinois by an enormous amount.

In paragraph 6 of a stipulation and agreement in the Texas Public Utility Commission Docket No. 14940, signed by SWBT and a number of other parties, such as Texas PUC and Time Warner Communications, SWBT commits to the following:

> The Settling parties agree that SWBT will charge a Secondary Service Order charge of $16.95 per telephone number ported. As an alternative to the $16.95 charge per telephone number ported, to recognize the efficiencies associated with large volumes of service orders, SWBT agrees to allow the LSPs to utilize a mechanized system to make bulk transfers of service orders by using a similar system to that currently allowed in Section 10 of SWBT's General Exchange tariff relating to Call Management Services. Specifically, after payment of a one time charge of $4,100.00 for the initial programming, SWBT will accept number changes via magnetic tape, or other agreed medium, at a rate of $10.00 per program run and $1.00 per telephone number ported. Any LSP or bill aggregator, (i.e., a clearing house type entity) who submits orders on tape pursuant to these provisions may submit orders on behalf of other LSPs without

payment of additional programming fees or additional programming runs.

These provisions mean that if competitors collectively order 50,000 ported numbers over the course of 50 orders of 1000 numbers per tape (possibly one tape per month) then the effective service ordering charge is $1.092 per number ported.

By contrast, in Ill. C.C. Docket 95-0296, Ameritech Illinois proposed Standard Business Service ordering Charges of $34.50. (ILL.C.C. No. 5, Part 2 - Section 28, 2nd Revised Page 5, Effective October 3, 1995.) Ameritech revised both the costs studies and the service ordering charge a number of times; the proposed charges, however, are never below $30.00 per number ported. Also, I understand that the cost studies supporting these charges, though proprietary, show costs greatly in excess of the $34.50, which caused Ameritech to claim that their rates were really very reasonable. These costs were based, however, on ordering costs in a retail environment, not a wholesale one.

In general, state regulators should require that the ordering systems whose costs form the basis of part of any non-recurring charges should reflect electronic ordering, ordering in bulk, and all other applicable efficiencies that can exist in a wholesale, rather than a retail, market.

Q. YOUR LAST EXAMPLE DISCUSSED NON-RECURRING RATES TO RECOVER THE COSTS OF ORDERING. DO NON-RECURRING RATES ALSO RECOVER THE COST OF UNBUNDLING?

A. Yes. Just as with non-recurring costs for ordering a service, state regulators should

also insist that the costs recovered by the incumbent LECs for unbundling network elements be calculated based on efficient unbundling. This is another area in which the incumbent LECs can act forcibly on their incentives to impede or block competition. It is also an area in which few of the other safeguards such as an insistence on strict nondiscrimination can blunt the ability to act on those incentives. Therefore, state regulators need to be particularly vigilant in examining with a critical eye claims about the costs of unbundling.

In most cases, the costs of unbundling will be non-recurring costs. In this regard, state regulators must take strongly into account the principle that costs be recovered only once, and be recovered equitably. The FCC's example of how to treat shared facilities for physical collocation service that will benefit future entrants matches costs and payments for benefits in time when facilities are shared between or among entrants. (See, Paragraph 750) This principle should be generalized, insofar as practical, to all elements shared in time. Said differently, if the first entrant pays the efficient costs that an incumbent LEC would incur to be able to provide a particular unbundled network element, later users of the same unbundled network element should share equitably in the recovery of that cost. The logic should apply to any non-recurring cost that later entrants benefit from that an original requester pays.

Another way in which the FCC's example should be generalized is to include the incumbent LEC as one of the possible beneficiaries through time. In effect, some requests for unbundled network elements may be filled by the incumbent LEC by upgrading the facility in a manner that will be valuable to the LEC in the future, while charging the entrants for all of the costs of the upgrade. To the extent the incumbent

LEC will benefit from the upgrade because it regains use of the facility in the future, through customer churn or some other event, the effect of such a charge would be to force the entrant to bear the cost of the incumbent LEC's network upgrades that are intended to make it easier for the incumbent to compete in the future. In this case, the requirement that the charge be imposed equitably needs to be expanded to take into account the future benefits to the incumbent LEC from activities taken to unbundle a network element for an entrant that may only be used for a fixed period of time before it reverts to the incumbent LEC to reuse.

An example of such a situation would arise if an entrant requests unbundled loops, and to provide them the incumbent LEC has to condition them. If the entrant later relinquishes the loop—perhaps because the customer has decided to return to the incumbent LEC or because the customer moved and the new occupant chose the incumbent LEC—the incumbent LEC benefits from the conditioning performed on the loop.

Extending the principle of an equitable matching of costs and payments for benefits in time to include the incumbent LEC's future use of facilities is particularly important. The incumbent LEC has the incentive and the ability to force the entrants to pay for unnecessary work (from the entrant's perspective) on unbundled network elements in order to impede competitive entry. It is a double blow to competition to have the entrant not only pay for unnecessary work, but to have that work position the incumbent LEC to be in a better position to compete.

IV. COMPENSATION FOR THE TRANSPORT AND TERMINATION OF LOCAL TRAFFIC

Q. WHY IS THERE A NEED FOR COMPENSATION FOR THE TRANSPORT AND TERMINATION OF LOCAL TRAFFIC?

A. Local networks must be interconnected if the public is to have any chance to gain the benefits of local exchange competition. Consumers demand the ability to reach all customers in the local calling area, and to do so without having to pay elevated prices to reach customers that subscribe to a different local carrier. If local networks are not interconnected, an entrant cannot provide this ubiquity of reach, and the incumbent can use its absence to convince customers not to shift to the services of the entrant. Thus, interconnection of local networks is absolutely essential if consumers are to have any chance of getting the benefits of local exchange competition. Interconnection opens up the question of what the compensation will be for terminating local exchange traffic.

Q. HOW HAS THE FCC RULED THAT COMPENSATION SHALL BE PROVIDED FOR THE TRANSPORT AND TERMINATION OF LOCAL EXCHANGE TRAFFIC?

A. The FCC has established a framework to govern interconnection and compensation for terminating local exchange traffic. Interconnection is the physical linking together of two networks, and the FCC has set rules that govern interconnection. The FCC has separated compensation into transport and termination. The FCC has ruled that termination of a local call by the incumbent LEC as used in the 1996 Act means the act of switching the call to the intended recipient at the end office switch that serves that subscriber. The FCC has also ruled that the 1996 Act separately discusses transport of

that call to the end office when an entrant does not interconnect at that end office directly. As the FCC noted:

> We define "transport," for purposes of section 251(b)(5), as the transmission of terminating traffic that is subject to section 251(b)(5) from the interconnection point between the two carriers to the terminating carrier's end office switch that directly serves the called party (or equivalent facility provided by a non-incumbent carrier.) (Paragraph 1039)
>
> We define "termination," for purposes of section 251(b)(5), as the switching of traffic that is subject to section 251(b)(5) at the terminating carrier's end office switch (or equivalent facility) and delivery of that traffic from that switch to the called party's premises.

Both of these functions are included in the FCC's rules governing compensation due the incumbent LEC for completing local calls that originate on another carrier's network. Within the framework of its rules, however, there are a number of vital issues that state regulators must still decide. In particular, state regulators must determine the actual compensation to be paid the incumbent LEC and the compensation the incumbent LEC shall pay the entrant.

A. Compensation to the Incumbent

Q. WHAT HAS THE FCC RULED SHALL BE THE APPROACH TO COMPENSATION TO THE INCUMBENT?

A. The FCC rules governing compensation to the incumbent LEC for completing local calls have several components. The FCC has ruled that the compensation for transport and termination of local calls will be based on economic cost. To achieve this, the FCC ruled:

> States have three options for establishing transport and termination rate levels. A state commission may conduct a thorough review of economic cost studies prepared using the TELRIC-based methodology outlined above in the section of the pricing of interconnection and unbundled elements. Alternatively, the state may adopt a default price pursuant to the default proxies outlined below. If the state adopts a default price, it must either commence review of a TELRIC-based economic cost study, request that this Commission review such a study, or subsequently modify the default price in accordance with any revised proxies we may adopt. As previously noted, we intend to commence a future rulemaking on developing proxies using a generic cost model, and to complete such proceeding in the first quarter of 1997. As a third, alternative, in some circumstances states may order a "bill and keep" arrangement, as discussed below. (Paragraph 1055, footnote omitted)

If a state selects the first option, after performing the thorough review of the economic cost studies both for conformance with the TELRIC principles the FCC has given and for accuracy of results, it must set the rates to recover only what the FCC has defined

as economic costs. As the FCC stated:

> Consistent with our conclusions about the pricing of interconnection and unbundled network elements, we conclude that states that elect to set rates through a cost study must use the forward-looking economic cost-based methodology, which is described in greater detail above, in establishing rates for reciprocal transport and termination when arbitrating interconnection arrangements. (Paragraph 1056, footnote omitted)

The FCC has ruled that the structure of compensation paid to incumbent LECs for transport and termination should follow the switched access model of separate rate elements for different functions (although the level of those rate elements is not to be based on switched access charges). Thus, it has ruled that incumbent LECs shall be paid for tandem switching, for transport between the tandem and the end office, and for end office switching if any of these elements are used by an entrant. It has required, however, that these payments must be based on the TELRIC costs of supplying them, plus a reasonable share of forward-looking common costs, but no more. It has also ruled on when and how bill-and-keep can be used.

Q. WHAT SHOULD STATE REGULATORS USE TO SET TELRIC-BASED RATES FOR COMPENSATION?

A. I urge that the state regulators use the Hatfield Model to establish prices in conformance with TELRIC principles, under the presumption of symmetry in rates (unless the entrant proves it is entitled to be paid a higher rate). As was discussed in the section above on unbundled network elements, the Hatfield model produces reasonable estimates of TELRIC costs, and estimates more consistent with the FCC's required TELRIC

methodology than cost estimates derived from incumbent LEC cost studies with which I am familiar.

Q. HOW SHOULD LOCAL EXCHANGE TERMINATING TRAFFIC BE MEASURED?

A. I urge that only the most efficient measurement and billing procedures be used to implement compensation, and that the incumbent LECs be allowed to recover in any rates charged to compensate for transport and termination only the forward-looking costs of the most efficient measurement and billing procedures. Specifically, I urge that auditable Percent Local Usage reports be used to determine the portion of traffic for which local interconnection compensation is due, rather than new measurement systems married to the billing system for switched access that would have to be developed and implemented at substantial cost. To do otherwise would prevent consumers from gaining the benefits sought from the 1996 Act.

Q. WHY DO YOU RECOMMEND THE USE OF A PERCENT LOCAL USAGE FACTOR, RATHER THAN THE DEVELOPMENT OF A NEW SYSTEM FOR MEASUREMENT AND BILLING OF TERMINATING LOCAL EXCHANGE TRAFFIC?

A. Just as the incumbents have the incentive and the ability to try to prevent genuine competition using unbundled network elements by imposing excessively high non-recurring costs, the incumbents have the same incentives and ability to try to thwart the development of effective competition by imposing excessive and disproportionate costs for measurement and billing on entrants.

Many incumbent local exchange carriers do not now have a means to determine whether

terminating traffic is local or intraLATA without imposing inefficiencies on the carrier delivering that traffic by requiring them to send it on separate trunk groups, which forces them to lose some of the economies of scale available in trunking. Developing and implementing a new system to do this will be costly. While it is the case that incumbent local exchange carriers can and do measure and bill for at least some of their local exchange traffic, the systems they use for that purpose exist mainly in the originating switch and cannot be used to determine whether a terminating call is a local or intraLATA toll call. Moreover, the measurement system that does exist for measuring some terminating traffic, switched access, cannot handle calls that are not preceded by a "1." Thus, any arrangement for terminating local exchange traffic that would have a charge per minute could force incumbents and entrants to develop new systems to sort out different kinds of traffic. Costs associated with the creation of systems for measuring and billing terminating local exchange calls will fall disproportionately on new entrants.

Q. IS THIS JUST A THEORETICAL CONCERN?

A. No. The development of measurement and billing systems for switched access shows that this concern is not an idle one. AT&T prior to divestiture wanted a new measurement and billing system for interconnection for what were then called Other Common Carriers—the first ones being MCI and Sprint—in order to be able to charge them for all of the so-called non-conversation time: the time spent setting up calls that occurs in addition to the time when conversations actually occur. Until the advent of the Other Common Carriers, all that the switches were designed to measure was conversation time, as that was all that was billed to end users. AT&T knew the average non-conversation time of a call, and could have factored the costs of that into

rates based on conversation time, but it chose not to take that approach. Because switched access was to be measured and billed differently from how end user calls were measured and billed, the incumbent LECs needed new measurement and billing systems. The new systems turned out to be much more costly than the systems used for end user measurement and billing. According to data supplied in Massachusetts in 1995, it costs NYNEX only $0.000007 per message to bill a local exchange call, but $0.000215 per minute to bill a carrier access call. (Attachment 3 to the testimony of Ms. Paula Brown, in D.P.U. 94-185) According to Page 2 of 9 of Ms. Brown's Attachment 3, the average duration of a call is 3.16 minutes. Multiplying that times her carrier access billing cost shows a cost almost 100 times greater to bill a single call using the billing system for carrier access than the cost to bill an end user. The incumbent local exchange carriers are indeed working on developing a new system to measure terminating local exchange traffic coming from other carriers that uses Signaling System 7 (SS7) data. If implemented, this would have several bad effects on entrants. First, it is going to add significant costs to the cost of terminating local exchange traffic. I understand that, based on data provided under proprietary agreements in at least two U S West states, Washington and Oregon, developing such a measurement and billing system could more than double the forward-looking economic cost of the end office switching function for terminating traffic from the cost without measurement and billing. This is a significant cost burden to add to local exchange service. Second, it will penalize entrants because they will not be able to use it for all of the traffic that incumbent LECs terminate to them, as not all LEC switches are yet equipped to use SS7. Thus, although all of the traffic going from an entrant to an incumbent could be sorted and measured in this manner, the converse would not be true.

Moreover, I understand that the same cost data showed that the measurement function would be even more costly than the measurement function now performed for switched access. U S West proposed to use the same billing system it uses for interexchange carriers, with billing costs that are higher than the costs to bill measured local exchange traffic. In summary, the proposal is a way to increase the already inefficiently high costs of measuring and billing regular switched access, and impose those costs on entrants.

In order to be able to participate in a measured approach to compensation, the entrants would also have to incur the costs to install measurement equipment in their networks. The entrants cannot opt out of this requirement because to do so would put them at an even bigger disadvantage than if they installed the equipment. If compensation were to be on a measured use basis and the entrants did not install measurement equipment, they would not only pay the incumbent to terminate their traffic, but would also pay to terminate the incumbent's traffic. Thus, they would be forced to install measurement equipment themselves. As noted above, however, not all traffic from incumbent LECs uses SS7 signaling.

Additionally, based on the experiences to date with the billing for carrier access charges, the use of a bad measurement and billing system will pose additional costs in the form of auditing and verification costs. Carrier access bills have been sufficiently in error that it has been cost effective for interexchange carriers to hire people full time to audit and try to get corrections made in these bills. These auditing costs have not been one-time costs, but continue to be incurred today. The costs to the interexchange carriers are less than the savings from what they otherwise would have been required

to pay, but these additional expenditures on auditing due to the use of a bad measurement and billing system bring with them no social benefits whatsoever. In other words, these additional costs are a total dead weight loss to society.

Increases in these costs would fall disproportionately on entrants. The incumbent LEC would experience at least some of the same costs for each minute or message delivered to an entrant for termination, but those minutes -- while most likely equal to the number received from the entrants -- would constitute a much smaller percentage of the incumbent LEC's total traffic, at least for some time to come. The result is that the impact is much less on the incumbent than on the entrants of being faced with unnecessary and, from the point of view of society, wasteful costs than it is on the entrants.

Q. IS THERE ANY EVIDENCE THAT THE INCUMBENT LECS WANT TO IMPOSE DISPROPORTIONATE COSTS FOR MEASUREMENT AND BILLING ON ENTRANTS?

A. Yes. That incumbent LECs see an opportunity to impose disproportionate costs on entrants is supported by the nature of the agreement that Sprint negotiated with entrants. The Sprint agreement requires both the incumbent and the entrant to measure traffic. There are a number of fixed costs incurred for measurement and billing even if measurement and billing is based on exchanging Percent Local Usage information. The entrant must spread the fixed costs of installation and use over a much smaller total base of operations. The result is that average cost per unit of traffic is raised more for the entrant than for the incumbent.

That the average cost per unit of traffic is raised more for the entrant than for the incumbent is a feature of the interplay between the cost structure of the billing system and the vastly different proportions of total traffic that is interconnected for the incumbent and the entrant. It has been argued that measurement costs nonetheless may be worth incurring so that, among other reasons, the payments a carrier receives for terminating interconnected traffic can vary with the volume of that traffic. The usual claim is that this is particularly important because of the possibility that the flow of traffic between two carriers might be substantially unbalanced.

The billing and measuring system required by the Sprint agreement, however, would not serve this function. It would not allow a carrier to receive larger net payments if it terminated substantially more interconnected traffic than it originated because the agreement requires that bill-and-keep take over if traffic is *out* of balance by more than 105 percent. Thus bill-and-keep is used when traffic is out of balance and explicit payment is used when traffic is roughly in balance -- the exact opposite of the FCC requirement for use of bill-and-keep. It is difficult to make much sense of this arrangement, but it is easy to see that it does ensure that entrants' costs of serving a customer will be disproportionately increased by the requirement that they install measurement equipment that may not even be used.

Q. WHAT SHOULD STATE REGULATORS ORDER FOR DETERMINING THE AMOUNT OF LOCAL EXCHANGE TRAFFIC PASSING FROM ONE NETWORK TO ANOTHER?

A. To avoid the imposition of disparate and inefficient administrative costs, state regulators should require all carriers—incumbents and entrants alike—to report a percentage local

traffic amount subject to an auditing requirement as the basis for compensation payments for transport and termination. This would mirror the current practice for jurisdictional reporting of terminating switched access.

Carriers can count minutes of use coming into their switches over a trunk group. Taking that count, plus the percentage of local traffic would enable the receiving carrier to bill for transport and termination without having to invent a whole new measurement and billing system. This would be far more efficient than allowing the incumbent LECs to act on their incentives to impose unnecessary and disparate cost burdens on entrants in an attempt to impede the development of local exchange competition.

B. Compensation to the Entrant

Q. WHAT ARE THE REQUIREMENTS GOVERNING COMPENSATION TO THE ENTRANT FOR TERMINATING LOCAL EXCHANGE TRAFFIC?

A. The 1996 Act addresses compensation to be paid to entrants when they complete local calls that originate on the network of the incumbent. The 1996 Act calls for such compensation to be reciprocal.

Q. WHAT HAS THE FCC RULED CONSTITUTES RECIPROCAL COMPENSATION?

A. The FCC has ruled that reciprocal compensation should be symmetrical compensation, unless an entrant can prove through the use of economic cost studies that the entrant should be paid a higher rate. As the FCC stated:

> Symmetrical compensation arrangements are those in which the rate paid by an incumbent LEC to another telecommunications

> carrier for transport and termination of traffic originated by the incumbent LEC is the same as the rate the incumbent LEC charges to transport and terminate traffic originated by the other telecommunications carrier. (Paragraph 1069)
>
> Given the advantages of symmetrical rates, we direct states to establish presumptive symmetrical rates based on the incumbent LEC's costs for transport and terminating of traffic when arbitrating disputes under section 252(d)(2) and in reviewing BOC statements of generally available terms and conditions. If a competing local service provider believes that its cost will be greater than that of the incumbent LEC for transport and termination, then it must submit a forward-looking economic cost study to rebut this presumptive symmetrical rate. (Paragraph 1089)

In considering how entrants should be compensated, the FCC specifically addressed tandem switching functionality. The C.F.R. in section 51.709(a)(3) states:

> Where the switch of a carrier other than an incumbent LEC serves a geographic area comparable to the area served by the incumbent LEC's tandem switch, the appropriate rate for the carrier other than an incumbent LEC is the incumbent LEC's tandem interconnection rate.

In the text of its Order, the FCC made clear that by the use of the "tandem interconnection rate," the FCC meant the sum of the tandem charge, the transport

charge, and the end office termination charge. As the FCC stated:

> We, therefore, conclude that states may establish transport and termination rates in the arbitration process that vary according to whether the traffic is routed through a tandem switch or directly to the end-office switch. In such event, states shall also consider whether new technologies (*e.g.*, fiber ring or wireless networks) perform functions similar to those performed by an incumbent LEC's tandem switch and thus, whether some or all calls terminating on the new entrant's network should be priced the same as the sum of transport and termination via the incumbent LEC's tandem switch. (Paragraph 1090)

The network implementation white paper describes the ways in which the physical networks can be interconnected for traffic delivery between the entrant and incumbent LEC networks. It describes the charges that apply based on the rules the FCC has prescribed.

C. Why the FCC Rules Reduce the Benefits From Bill-and-Keep

Q. YOU SAID THE FCC RULES PREVENT BILL-AND-KEEP FROM BRINGING ITS GREATEST BENEFITS TO CONSUMERS. WHY?

A. The FCC provides for three approaches to compensation. One of these is bill-and-keep, which could in principle be implemented without an examination of cost studies. A careful reading of the Order, however, suggests that the FCC intends to limit bill-and-keep to apply only to termination, not transport. Although section 51.701(e)

includes both transport and termination in its definition of reciprocal compensation arrangements, succeeding sections narrow the applicability of bill-and-keep. Section 51.713, in particular, limits the definition of bill-and-keep arrangements for reciprocal compensation to "those in which neither of the two interconnecting carriers charges the other for the termination of local telecommunications traffic that originates on the other carrier's network."

As a result, the FCC approach would not end the need to measure terminating traffic, one of the important benefits of bill-and-keep. Measurement would still be needed for transport. The failure of the FCC to include transport in a bill-and-keep approach makes it less beneficial for competition than it would otherwise be.

V. INTRASTATE ACCESS CHARGE REFORM

Q. WHY ARE YOU ADDRESSING SWITCHED ACCESS CHARGES IN THIS ARBITRATION?

A. With every decision prying open local exchange markets to competition, the need to eliminate above cost prices for access becomes more immediate. New entrants are making decisions affecting local competition which are distorted whenever prices for access exceed cost. (Even the temporary "surcharge" placed by the FCC on unbundled local switching can be expected to distort decisionmaking.) For this period of arbitrations, while business decisions about whether, how, and which local markets to enter are being made at a rapid pace, it is vitally important that any state that has not already done so initiate intrastate access reform. Otherwise, emerging competition will be damaged, new competitors will gravitate toward more favorable procompetitive

environments, and competition will be plagued by inefficient choices that raise interexchange carriers costs and so limit price reductions in intrastate toll charges.

This arbitration proceeding provides the state commission with the opportunity to price intrastate access charges at economic cost. The Hatfield Model provides the means to identify the appropriate cost and prices. I urge the state commission to initiate intrastate access reform now.

Q. ARE THERE SPECIFIC EVENTS DRIVING THE NEED TO INITIATE ACCESS CHARGE REFORM NOW?

A. Yes. Two events drive the need to initiate access charge reform now: (1) the announcement in the Order that the FCC will be addressing access charge reform concurrent with its adoption of a competitively-neutral universal service mechanism, and (2) the section 271 public interest test that requires elimination of the artificial advantage conferred on BOCs by above-cost access charges. In the first case, alignment of intrastate access rates to cost must occur in tandem with the federal reforms to ensure that ratepayers are not paying twice for universal service support. In the second case, above-cost access confers an ability to discriminate that distorts and disrupts the competitiveness of both the local and long distance markets. In at least MCI's view, until access charges, both interstate and intrastate, are reduced to forward looking, economic cost, regulators may not legally allow BOC entry into in-region long distance under the 1996 Act.

I urge each state to initiate a proceeding now, if it has not already done so, in which the requisite record can be developed to eliminate completely prices for access that

exceed forward-looking economic cost. Taking charge of intrastate access reform now not only gives the state control over the date when the temporary "surcharge" on the unbundled local switching element introduced by the FCC is eliminated but also allows the state to coordinate its access charge reform with its creation of a competitively-neutral universal service support mechanism.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

REBUTTAL TESTIMONY OF RICHARD CABE

ON BEHALF OF MCI

DOCKET NO. 961230-TP

NOVEMBER 19, 1996

Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is Richard Cabe and my business address is Box 3CQ, New Mexico State University, Las Cruces, New Mexico 88003-0001.

Q. HAVE YOU PREVIOUSLY FILED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of this testimony is to respond to testimony presented by Mr. Hunsucker, Mr. Farrar and Mr. Dunbar relating to the appropriate pricing of local interconnection and unbundled network elements.

Q. MR. HUNSUCKER STATES THAT SPRINT SHOULD BILL THE CARRIER COMMON LINE CHARGE AND TRANSPORT INTERCONNECTION CHARGE WHEN MCI PURCHASES UNBUNDLED ELEMENTS FROM SPRINT. (PAGE 28) DO YOU AGREE?

A. No. As pointed out in my direct testimony, the Hatfield model provides the basis for pricing interconnection and unbundled network elements at TELRIC with a reasonable allocation of forward looking common costs, with all the concomittant benefits for economic efficiency in the present and the efficient development of future competition.

The imposition of charges which do not reflect economic costs distort decisions and lead away from economic efficiency. For these reasons I recommend that the Commission take this opportunity for efficient pricing by choosing to exclude the carrier common line charge and transport interconnection charge from prices of interconnection and unbundled network elements. If an interim approach such as that adopted by the FCC is considered it should incorporate the three elements adopted by the FCC: it should take an immediate step in the direction of efficient pricing by allowing only a fraction of historical non-cost based access charges, it should constrain the transition to completion by a date certain, and it should immediately begin the work necessary to conclude the process by the designated date.

Q. MR. HUNSUCKER STATES THAT COMPENSATION FOR CALL TERMINATION SHOULD BE RECIPROCAL AND SYMMETRICAL. (PAGE 36) DO YOU AGREE?

A. Yes. But Mr. Hunsucker's proposal is not reciprocal and symmetrical because it does not provide for equivalent compensation unless the CLEC uses the same network architecture as the incumbent.

Q. SHOULD SYMMETRIC COMPENSATION APPLY ONLY WHERE THE TWO CARRIERS USE THE SAME NETWORK ARCHITECTURES?

A. No. If exchange of traffic is to involve reciprocal charges rather than a bill and keep arrangement the charges should be based on functionality provided rather than network architecture employed. The FCC recognized the need to "consider whether new technologies (e.g., fiber ring or wireless networks) perform functions similar to those performed by an incumbent LEC's tandem switch." In the view of the FCC this consideration comes down to whether "the interconnecting carrier's switch serves a

geographic area comparable to that served by the incumbent LEC's tandem switch." While a new entrant's coverage area will never be as densely occupied by the new entrant's customers, the appropriate question to consider in deciding the comparability of serving areas is the distance over which terminating calls must be carried for ultimate delivery.

The principle of establishing rates and rate structures that will not bias technology choices is fundamental and of the utmost importance to the objective of achieving economic efficiency in the telecommunications network. By using the incumbent's cost as a proxy for the cost to be recovered by the entrant, the entrant has a strong incentive to adopt the cost minimizing technology and architecture, without any reference to the technology and architecture adopted by the incumbent. To impose a cost recovery mechanism which creates incentives to mirror the technology and architecture of the incumbent will greatly blunt incentives to find a better way to provide functionally equivalent service. This "search for a better way" is a very large part of the benefits to be obtained from competition, and the prospect for capturing these benefits will diminish with the imposition of an asymmetric compensation mechanism.

Q. THE DIRECT TESTIMONY OF SPRINT'S WITNESSES DESCRIBES SPRINT'S PRICING PROPOSAL FOR UNBUNDLED NETWORK ELEMENTS IN GENERAL TERMS. PLEASE COMMENT ON THE COST METHODOLOGY WHICH SPRINT PROPOSES AS THE BASIS FOR SETTING THOSE PRICES.

A. Sprint proposes to set prices for unbundled network elements at TELRIC plus a reasonable allocation of forward looking common costs. I agree with this general approach, but there is a great deal of judgement that goes into implementing this

proposal. While there are suggestions in Mr. Farrar's testimony that Sprint's approach to certain parameters and to estimation of forward looking common cost may not be appropriate, it is premature to try to analyze Sprint's proposal in detail before seeing exactly how the principles are implemented in Sprint's actual cost studies. Examples of specific parameters that raise questions include the apparent use of tax depreciation rates instead of economic depreciation rates, economic lives and utilization rates or fill factors that may be inappropriately low, and the use of embedded cost data to determine annual charge factors. From Mr. Farrar's testimony the treatment of "shared and common costs" looks very much like a fully distributed cost study, but again it is premature to draw any firm conclusions before examining the detailed studies.

Q. WHAT ABOUT MR. DUNBAR'S DISCUSSION OF THE BCM 2 COST MODEL THAT WILL BE USED BY SPRINT TO ESTIMATE TELRIC COSTS?

A. At this time, I would simply note that a variety of criticisms of BCM 2 have been filed in other proceedings. BCM 2 is not designed to estimate TELRICs of unbundled network elements, but has been adapted to the purpose in this proceeding. While Mr. Farrar's testimony contains a brief discussion of the adaptation, I will reserve comment on the BCM 2 as it is used to estimate TELRICs for unbundled network elements until I have had an opportunity to examine the actual cost studies. I expect to have an opportunity to discuss Sprint's cost estimates when the actual studies become available.

Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, at this time. I may file additional rebuttal testimony to respond to Sprint's specific cost studies after they have been filed.

Q (By Mr. Melson) Dr. Cabe, could you briefly summarize your testimony?

A Yes. I would like to first thank the Commission, Chairman Clark, for the opportunity to offer my testimony in this proceeding, which I think is an important one. I think that in these proceedings the Commission is setting the parameters under which competition will develop in the State of Florida, and depending on the values of those parameters, the people of the State of Florida will very quickly or less quickly receive the benefits of competition.

My testimony addresses a variety of issues, some of which are not -- have been settled pretty much in this case. I would just like to call attention very briefly to three points in my testimony.

First, when I first saw the Hatfield Model, it was a real breath of fresh air in terms of its openness for critical evaluation, by contrast to all of the local exchange company cost studies that I had ever seen. In this case, Sprint is using for part of their cost development, the BCM-2, which is a step in the direction of being more open to critical evaluation. But that's only one part of Sprint's cost case, and the remaining part of it is just as closed

to critical evaluation as local exchange company cost studies have traditionally been.

Second, it is of crucial importance that a compensation mechanism for interconnection be symmetrical. And the reason for that is to avoid biasing the development of technological change. The reason for that is to give the parties incentives to choose appropriate technologies without having their incentives distorted by a regulatory mechanism that's not appropriate for new technological possibilities that are becoming available.

Finally, in my rebuttal testimony I raised a concern that Sprint's cost case relies inappropriately on historical embedded data. And as I continue to review documents that have more recently become available, that concern has only been reinforced.

Thank you very much. That concludes my summary.

MR. MELSON: Dr. Cabe is tendered for cross.

CHAIRMAN CLARK: Mr. Wahlen.

CROSS EXAMINATION

BY MR. WAHLEN:

Q Good morning, Dr. Cabe. I'm Jeff Wahlen.

A Are you with Sprint?

Q I noticed during your summary you used the

words "my testimony" several times. Is this really your testimony that you presented, your direct testimony?

A Parts of this testimony were developed by a working group of economists over the summer. And very honestly, it's been revised so many times, I would have to look through it to see exactly what parts of it came from that working group of economists in which I participated and which of it I have written from whole cloth for this piece of testimony.

Q Well, would you be surprised to find that except for the qualification section of this testimony that the testimony that you have here is almost identical to the testimony filed by Sara Goodfriend in the MCI/GTE arbitration?

A No, I wouldn't be surprised by that. Sara and I were both in that working group that develops engineeric testimony over the summer.

Q And I guess you probably wouldn't be surprised to find out that the same is also true of some testimony that was filed by Nina Cornell in the BellSouth arbitration recently?

A No, I wouldn't.

Q So while you claim this testimony to be yours, it's really testimony that has been provided by

a lot of people, or at least a couple other in the state of Florida.

A Well, several of us worked at developing testimony. And I adopt this testimony as -- I answered the question that I would answer these questions if they were asked to me today in the way that's written in the testimony. I believe that makes it my testimony.

Q Well, I guess, I just wanted to understand the nature of this testimony. It's generally theoretical in nature; is that correct, the direct testimony? It sets forth your theoretical view of the way competition should work?

A Well, if you would like to characterize it as theoretical, I'll accept that.

Q Okay. I guess, as opposed to something you prepared specifically for this case based on your knowledge of the details of negotiations between Sprint and the interaction between MCI and Sprint?

A That's correct. When I delivered this testimony to be filed, I was not aware of any of the details of the negotiations between Sprint and MCImetro except that there were issues going to arbitration.

Q Okay. I'd like to look at Page 8 of your

prepared direct testimony, Lines 22 and 23.

Are you there?

A Yes, I am.

Q And there you indicate that one of the basic economic premises of the FCC is that rates must recover costs in a manner that reflects the way they incurred. Is that your position?

A Yes, it is.

Q And is it consistent with that to say that it would be appropriate -- inappropriate for an incumbent to charge a new entrant for a function that it does not perform?

A Would it be inappropriate for an incumbent to charge a new entrant for a function that it does not perform?

Q Yes.

A I can agree to that.

Q Would you agree also, sir, that the converse is true that it would be inappropriate for a new entrant to charge an incumbent for a function that it does not perform?

A Absolutely.

Q Now, sir, looking at Page 36 of your testimony, Lines 12 through 14, you've indicated, I believe, there that there are three functions involved

in local call termination; is that correct?

A As they are typically performed by incumbent local exchange companies.

Q And consistent with the discussion we had of the economic principles, you would agree if the new entrant does not perform one of these functions for the incumbent that it should not be compensated for that function?

A I have no problem with the concept of any party -- well, let me -- I have to complain about just one word. And when you say "of these functions," and I'm not sure that those are appropriately defined as functions, I certainly agree to the principle that no one should charge anyone else for a function they do not perform.

Q Okay. I'd like to look at Page 23 of your prepared direct testimony, Lines 6 and 7.

If I understand this correctly, I guess it would be your testimony that's important to when you are evaluating a cost study to also evaluate the inputs and supporting work papers and so forth that accompany the cost study; is that correct?

A Yes, sir.

Q Isn't it true that you have not performed a detailed analysis of the work papers and data

assumptions and sources and inputs that support the Hatfield Model that has been prepared in this, or submitted in this case?

A That's correct. I've participated in meetings. I've seen several presentations of it. I've read some documentation of it, but I haven't examined in great detail the data sources, et cetera.

Q So your endorsement of the Hatfield Model is one that is made without a review of all of the detailed work papers, assumptions, inputs, and so forth?

A That's correct. My endorsement of the Hatfield Model is based on my acquaintance with the general structure of the model, the way that it approaches the problem of cost estimation, and the fact that it's very easily opened to critical evaluation.

Q Would you agree with me that the Hatfield Model that has been presented in this docket does not use Florida-specific inputs wherever possible?

A I'm afraid I have not examined the runs that were made for Florida so I can't answer.

Q Okay, so you don't know?

A I don't know.

MR. WAHLEN: Thank you. No further

questions.

CHAIRMAN CLARK: Staff.

MR. KEATING: Staff has no questions for the witness.

CHAIRMAN CLARK: Redirect.

MR. MELSON: Just a couple.

REDIRECT EXAMINATION

BY MR. MELSON:

Q Dr. Cabe, Mr. Wahlen asked you as to whether it would be inappropriate for an alternative LEC to charge an ILEC for a function that is not performed. Were you here during Mr. Murphy's testimony a few moments ago?

A Yes, I was.

Q And based on what you heard in applying your economic expertise, is it your judgment that MCI performs the same function when it terminates a local call for Sprint's that Sprint performs when it terminates a local call for MCI?

A Yes, absolutely. I think that termination of a call is an appropriately defined function. And just as Sprint performs the function of terminated call when the call is delivered to them by some entrant, or an interexchange carrier, or whoever, in exactly the same way, MCImetro will terminate a call,

perform the function of terminating a call when it is delivered from Sprint or from whomever. What that function involves is accepting the call at the point of their connection between the two interconnecting carriers and delivering it to an end user. That function is performed using different technologies, and I think that a lot of confusion arises in discussions around this topic because the entrants are using, typically, a different technology than the incumbents.

And the definitions that apply to the incumbent network aren't necessarily appropriate to the new entrant's different technology. The different network that's being put in by the new entrants is going to use very different terminology.

So the analogy that I like to use is if you define the function of delivering a piece of freight from point A to point B, and you have the possibility of competition between, for example, rail and truck freight, either one can perform that function, but they are going to use their different technologies. And if you establish some sort of compensation mechanism based on -- you may establish a compensation mechanism based on number of miles of steel rail used. In that case it would apply very, very differently to

rail than it would to truck freight.

At the same time you could establish a compensation mechanism based on the number of rubber tires used in performing that function. Such a compensation mechanism again would apply very, very differently to the two alternative providers of the same function, because they are using different technologies.

I think that this business of what is a function and what is a facility is crucially important here. The FCC order recognizes that, and the FCC was very reluctant to apply definitions from one technology and impose them on a different technology.

The FCC provided that the states may differentiate between the rate that an incumbent LEC charges to terminate traffic that's delivered that's interconnected to the incumbent LEC's network at a tandem, as distinguished from traffic that's delivered to it at an end office, and this respects the technology and the appropriate terminology that's currently in use by ILECs by and large.

On the other hand, the FCC never proposed applying that sort of technology to an entrant that's using a very different technology. In particular, what the FCC did at paragraph 1089, the FCC said

essentially the states may differentiate between traffic delivered to a tandem and traffic delivered to an end office, if the state wishes. It's not compulsory, but if the state wishes, it may differentiate. If it does, the FCC requires that the state must consider the possibility that the entrant, the new entrant, is providing the same function with a different technology.

And in that consideration, the third thing that that paragraph provides is that in that consideration of whether or not the new entrant's fiber ring, or radio-based technology, or whatever, whether it's providing the same function in that consideration, it will be presumptive that the incumbent's tandem rate including tandem switching, shared transport and termination, that that rate is presumptively the correct one for the entrant in situations where the entrant's geographic scope is comparable to the geographic scope covered by the tandem network of the incumbent LEC.

I think that this is just an absolutely crucial issue if the people of the State of Florida are to have the benefits of competition leading to the best technology giving the -- with mechanisms, pricing mechanisms that gives all participants incentives to

find a better way, if such a better way is out there; it is important to establish the metric compensation.

I'm sorry if I've gone on and on, but I think this is important.

MR. MELSON: You forced all the need for any additional follow-up questions. Thank you very much, Dr. Cabe.

CHAIRMAN CLARK: Exhibits.

MR. MELSON: Move Exhibit 9.

CHAIRMAN CLARK: Without objection Exhibit 9 will be entered in the record.

(Exhibit 9 received in evidence.)

MR. MELSON: And I would ask that both Dr. Cabe and Mr. Murphy be excused.

CHAIRMAN CLARK: They may be excused.

(Witness Dr. Cabe excused.)

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MS. McMILLIN: MCI would call Greg Darnell.

GREG DARNELL

was called as a witness on behalf of MCI and MCImetro and, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MS. McMILLIN:

Q Please state your name and business address.

A My name is Greg Darnell. My business address is 780 Johnson Ferry Road, Atlanta Georgia 30342.

Q By whom are you employed and in what capacity?

A I'm employed by MCI Communications as a manager of competition policy for the BellSouth region.

Q Have you prefiled in this docket direct testimony dated October 11, 1996 and consisting of 16 pages, and rebuttal testimony dated November 19, 1996 and consisting of 10 pages?

A Yes, I have.

Q Are there any portions of the direct testimony that you are withdrawing?

A Yes. On Page 7, Line 14 of my direct testimony, through Page 11, Line 2, I'm withdrawing.

Q Are there any portions of the rebuttal testimony that you are withdrawing?

A No.

Q Do you have any changes or corrections to the remaining portions of your testimony?

A Yes. There are two omissions in my direct testimony. On Page 12, I would like to add the account numbers 6722, reflecting external relations between Line 17 and 18. And between Line 21 and 22, I'd like to add account 6727 reflecting the research and development.

Q With those corrections, if I were to ask you the same questions today, would your answers be the same?

A Yes, they would.

MS. McMILLIN: Madam Chairman, at this time we would ask the direct and rebuttal testimony of Mr. Darnell be inserted into the record as though read.

CHAIRMAN CLARK: The direct testimony as revised and the rebuttal testimony as filed will be inserted in the record at though read.

Q **(By Ms. McMillin)** Was there attached to your direct testimony one exhibit identified as Exhibit GD-1 and to your rebuttal testimony one exhibit identified as Exhibit GLD-2?

A Yes.

Q And is GLD-2 simply a reformatted version of the information contained in GD-1?

A Yes, it is.

COMMISSIONER KIESLING: I'm sorry, I need a clarification. I have two pages attached. One is marked GD-1. The other is not marked. Is that GD-2?

MS. McMILLIN: GD-2 is attached to the rebuttal testimony.

COMMISSIONER KIESLING: Oh, okay. I'm sorry.

CHAIRMAN CLARK: Is it GLD-2?

COMMISSIONER KIESLING: One of them is GD; one of them is GLD.

MS. McMILLIN: Right. It's GLD-2.

Q **(By Ms. McMillin)** At this time, Mr. Darnell, are you withdrawing Exhibit GD-1?

A Yes.

Q Do you have any changes or corrections to make to Exhibit GLD-2?

A The only change I would make is my initials are GJD, not GLD. Change the L to J.

Q Is the information contained on that exhibit true and correct to your knowledge and belief with that change?

A Yes.

MS. McMILLIN: At this time, Madam Chairman, we would ask that Exhibit -- and maybe we could call GJD-2, be identified as Exhibit No. 10.

CHAIRMAN CLARK: It will being identified as Exhibit No. 10.

(Exhibit 10 marked for identification.)

DIRECT TESTIMONY OF GREG DARNELL

ON BEHALF OF MCI

MCI - UNITED/CENTEL ARBITRATION

October 11, 1996

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Greg Darnell, and my business address is 780 Johnson Ferry Rd., Suite 700, Atlanta, Georgia, 30342.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by MCI Telecommunications Corporation in the Southern Region as Regional Manager -- Competition Policy.

Q. HAVE YOU PREVIOUSLY TESTIFIED?

A. Yes, I have.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of this testimony is to describe and make recommendations on several key wholesale service pricing and provisioning policy issues that must be resolved in the context of arbitrations under Section 252 of the Communications Act of 1996.

WHOLESALE SERVICES: PRICING AND PROVISIONING

Wholesale Services: Overview

Q. HOW IS THIS PORTION OF YOUR TESTIMONY ORGANIZED?

A. First, I summarize the pertinent federal legislative and regulatory requirements.

Second, I discuss the necessary conditions of an effective resale policy. Third, I describe the avoided cost model used by MCI for Sprint United. Finally, I present my conclusions.

Q. WOULD YOU SUMMARIZE YOUR KEY CONCLUSIONS OF YOUR TESTIMONY AND ANALYSIS REGARDING PRICING AND PROVISIONING OF WHOLESALE SERVICES?

A. Yes. The key conclusions are:

- An effective local resale market is essential to development of full facilities based local competition.
- In addition to promoting facilities based competition, resale of local services provides independent benefits to consumers through retail competition.
- In order to capture all of these benefits, all local telecommunications services must be made available for resale at discounts that fully reflect avoidable costs.
- Wholesale services must not be provisioned in ways that discourage entry by resellers or unreasonably raise their costs.
- An avoided cost study must reflect the jurisdictional allocation of expenses.
- The appropriate resale discounts should be set on a state specific basis where the data allow.
- The appropriate resale discount for Sprint United for Florida should be set at 20.49% and for Sprint Centel at 21.37%. Outputs of the MCI model are attached as Exhibit withdrawn (GD-1).

Wholesale Services: Legislative and Regulatory Requirements

Q. WHAT ARE THE LEGISLATIVE AND REGULATORY REQUIREMENTS REGARDING RESALE AND WHOLESALE PRICING BY SPRINT UNITED?

A. The Telecommunications Act of 1996 ("1996 Act") is designed to bring competition to local telecommunications markets. The 1996 Act recognizes that simply removing legal barriers to entry is insufficient to allow competition to evolve. A number of procompetitive steps are necessary and explicitly required by the 1996 Act. For example, every incumbent local exchange carrier ("ILEC") is required to provide requesting telecommunications carriers: (1) interconnection to its network; (2) access to its unbundled network elements; (3) physical collocation for interconnection or access to unbundled elements, and (4) retail telecommunications services for resale at wholesale prices (rates). Economic barriers to entry into local telephone markets will be reduced substantially with an effective resale policy. In other words, resale of all retail telecommunications services at wholesale rates is necessary to the development of local competition.

The 1996 Act imposes a duty upon ILECs to offer certain services for resale at wholesale rates. Specifically, Section 251(c)(4) requires ILECs:

(A) to offer for resale at wholesale rates any telecommunications service that the carrier provides at retail to subscribers who are not telecommunications carriers; and

(B) not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of such telecommunications services, except that a state commission may, consistent with regulations prescribed by the Commission under this section, prohibit a reseller that obtains at wholesale rates a telecommunications service that is available at retail only to a category of subscribers from offering such service to a different category of

subscribers.

Further, the 1996 Act also provides guidance on the determination of wholesale prices for telecommunications services. Section 252(d)(3) states that:

> For the purposes of Section 251(c)(4), a state commission shall determine wholesale rates on the basis of retail rates charged to subscribers for the telecommunications service requested, excluding the portion thereof attributable to any marketing, billing, collection, and other costs that will be avoided by the local exchange carrier.

These statutory requirements are clear and concise. As described below, they are not only consistent with, they are essential to, the development of local competition.

Q. HOW DOES THE FCC ORDER ADDRESS RESALE?

A. The Federal Communications Commission ("FCC") recently released its First Report and order in CC Docket No. 96-98, In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, issued August 8, 1996 ("251 Order"). The 251 Order addresses the need for resale competition stating that:

> Resale will be an important entry strategy for many new entrants, especially in the short term when they are building their own facilities. Further, in some areas and for some new entrants, we expect that the resale option will remain an important entry strategy over the longer term. Resale will also be an important entry strategy for small businesses that may lack capital to compete in the local exchange market by purchasing unbundled elements or by building their own networks. In light of the strategic importance of resale to

the development of competition, we conclude that it is especially important to promulgate national rules for use by state commissions in setting wholesale rates. (251 Order, Para. 907).

The Order establishes ". . . a minimum set of criteria for avoided cost studies used to determine wholesale discount rates." (para. 909) Sections 605-617 of part 51 of the FCC Rules set forth the FCC's methodology. These Rules are attached as Appendix II. Beyond the minimum criteria, the FCC allows states ". . . broad latitude in selecting costing methodologies that comport with their own ratemaking practices for retail services." (para. 910) States are allowed to select interim "default" rates from within a range prescribed by the FCC if an avoided cost study such as the one presented here is not available. (See FCC Rules Section 51.611.)

The methodology which MCI has used to establish a wholesale discount rate for Sprint United follows the approach suggested by the FCC. However, it is appropriate to account for the jurisdictional nature of some of the expenses that are avoided when ILECs no longer perform the retail function. The necessary adjustments are described below. As discussed below, these adjustments are consistent with state rate making practices and therefore comply with the express desire of the FCC to provide latitude to states.

Wholesale Services: Necessary Conditions for Effective Resale

Q. PLEASE DESCRIBE THE NECESSARY CONDITIONS FOR EFFECTIVE RESALE.

A. There are several conditions necessary for an effective local resale market. In

general, the price of wholesale services must be reasonably related to the cost of providing the service and the wholesale services must be offered on reasonable terms and conditions. The specific conditions necessary for effective resale are: 1) wholesale rates must not include incumbent LEC retailing costs; 2) all retail services must be offered at a discount; 3) service quality and adequate wholesale-reseller interfaces must be maintained; and 4) service branding must be provided for the retailers' services.

Q. YOU STATED THAT WHOLESALE RATES CHARGED BY SPRINT UNITED MUST NOT INCLUDE RETAILING COSTS. PLEASE EXPLAIN.

A. If ILECs are allowed to charge excessive wholesale service prices, competition will be thwarted. In any market, resellers or retailers require a margin between the retail price and the wholesale price sufficient to allow recovery of their expenses, including a reasonable profit. The FCC points out that:

> There has been considerable debate on the record in this proceeding and before the state commissions on whether section 252(d)(3) embodies an "avoided" cost standard or an "avoidable" cost standard. We find that "the portion [of the retail rate] . . . attributable to costs that will be avoided" includes all of the costs that the LEC incurs in maintaining a retail, as opposed to a wholesale, business. In other words, the avoided costs are those that an incumbent LEC would no longer incur if it were to cease retail operations and instead provide all of its services through resellers. Thus, we reject the arguments of incumbent LECs and others who maintain that the LEC must actually experience a reduction in its

operating expenses for a cost to be considered "avoided" for purposes of section 252(d)(3). We do not believe that Congress intended to allow incumbent LECs to sustain artificially high wholesale prices by declining to reduce their expenditures to the degree that certain costs are readily avoidable. We therefore interpret the 1996 Act as requiring states to make an objective assessment of what costs are reasonably avoidable when a LEC sells its services wholesale. We note that Colorado, Georgia, Illinois, New York, and Ohio commissions have all interpreted the 1996 Act in this manner. (251 Order, Para. 911).

If avoided costs are estimated correctly, and then subtracted from retail prices, efficient resellers should be able to succeed in the retail market.

Q. YOU ALSO STATED THAT ALL RETAIL SERVICES MUST BE OFFERED AT A DISCOUNT. PLEASE EXPLAIN.

A. All of the telecommunications services offered to end-users must be made available to resellers at a wholesale discount. This includes Centrex and all Centrex features; custom calling and CLASS features; optional plans; grandfathered services; promotions and all contract services must be available for resale. This includes government and state agency contracts as well as any "umbrella" contract that allows other entities to participate and obtain the benefits of a master contract. Since all ILEC retail services are at least partial substitutes for one another, all services must be made available for resale. Absent this requirement, ILECs will be able to discriminate against resellers by making offers to customers that their retail competitors are unable to match.

If all services and features are not discounted, the ILECs' reseller competitors effectively will be denied the opportunity to market to a significant group of customers because the lack of a discount on these features will reduce reseller margins to inadequate levels.

The FCC's Rules also require promotions to be offered at a discount in certain circumstances. (See Section 51.613(a)(2).) Granting exceptions to the requirement that all services be made available at wholesale discounts may lead to abuse. States should be alert to this possibility and be prepared to take corrective action against ILECs that abuse the exceptions.

Q. YOU STATED THAT THE THIRD ISSUE IS THAT SERVICE QUALITY AND ADEQUATE WHOLESALE-RESELLER INTERFACES MUST BE MAINTAINED. WHAT IS THE IMPORTANCE OF THIS ISSUE?

A. The FCC has ruled that ILECs must offer all of its services for resale to competitors under the same terms and conditions as it enjoys itself. Therefore, it is crucial to a successful resale plan that operational interfaces between the ILEC's support systems and resellers' systems are adequate to allow the reseller to provide service to its customers efficiently. The Commission must also ensure that ILECs offer resellers the same quality service they provide to themselves and their own retail customers. To accomplish this, ILECs must implement systems and procedures that permit the ordering and provisioning of wholesale services under the same timetables available to the ILEC. These systems must include:

- Pre-Service Ordering Capabilities. On-line access to all information needed to verify availability of services and features, scheduling of service installation, and number assignment.

- On-Line, automated order processing. Capability of transmitting customer orders to the switch office and provide the reseller with notice of confirmation and completion of its order. Competitively-neutral long distance and local presubscribed carrier administration processes must be implemented.
- Exchange of billing data and exchange of customer account data on a timely basis. This must be done on a confidential basis.
- On-Line Monitoring. Monitor the network, isolate trouble spots, perform network tests, and schedule reports.
- Service quality reports. Documenting service quality ILECs provide themselves compared to the service they provide to others.

All of these requirements are consistent with the Commission's finding that " . . . service made available for resale be at least equal in quality to that provided by the incumbent LEC to itself or to any subsidiary, affiliate, or any other party . . . " (251 Order, Para. 970).

Q. ANOTHER IMPORTANT CONDITION OF RESALE COMPETITION THAT YOU MENTIONED WAS BRANDING. WHAT DO YOU MEAN BY BRANDING AND WHY IS IT IMPORTANT?

A. Resellers require carrier-specific branding for all customer contacts. Customers naturally expect services to be provisioned, serviced and maintained by their carrier of choice, regardless of whether the service is actually provided by another carrier through a resale arrangement. Customer confusion will be significantly diminished if the customer does not perceive that resold services are actually provided by another carrier.

Customers would experience concern, confusion and dissatisfaction when placing a bill inquiry, a directory assistance call, or an operator service call to their provider of choice if they are greeted with the name of their old telephone company. Customers may even conclude that they have been "slammed." State Commissions must ensure that resale of all ILEC retail services occurs with the least amount of customer confusion possible. Branding will minimize customer confusion with respect to resold ILEC services.

In a resale environment, differentiation of the underlying product is virtually impossible. Competitors must rely upon other factors to win customer loyalty. Superior customer service, simplified billing, and innovative pricing will provide the only opportunities to differentiate products from the underlying network provider. Without the ability to have resold LEC services branded appropriately, reseller efforts to provide superior customer services are diluted. Brand dilution makes the investment in these new service or billing innovations more difficult to justify.

A uniform branding standard will also reduce customer confusion as the industry moves into an unbundled environment. For example, as competitors develop their own operator services capabilities, the change in the provider of this service will be transparent to the customer.

In sum, when the end user selects a local reseller, it is important that the reseller be able to have its service branded appropriately. Without a clear brand image, the customer could face uncertainty when using directory or operator services. Such clarity can only be achieved by: (1) making reasonably available to local service resellers the ability to have the resold service branded appropriately at all points of customer-contact; and (2) barring the incumbent LEC from unreasonably interfering with such branding. As the FCC points out, "this brand

identification is critical to reseller attempts to compete with incumbent LECs and will minimize customer confusion." (251 Order, Para. 971)

Wholesale Services: Setting Wholesale Rates

Q. WHAT GUIDANCE IS PROVIDED BY THE RECENTLY ADOPTED FCC RULES REGARDING THE ESTABLISHMENT OF APPROPRIATE WHOLESALE PRICES?

A. The FCC's Order establishes minimum criteria for the avoided cost methodology based broadly on the MCI study. Essentially, the costs in certain FCC Part 32 Uniform System of Accounts ("USOA") accounts are identified as directly avoided while costs in other accounts are treated as indirectly avoided. The avoided indirect costs are calculated by determining the ratio of directly avoided costs to total costs and then applying that proportion to the accounts containing indirectly avoided costs.

Q. WHAT ARE THE "DIRECTLY AVOIDED COSTS?"

A. The following specific accounts from the Uniform System of Accounts ("USOA") are directly avoided (see Code of Federal Regulations, Title 47, Telecommunication, Part 32):

- Account 6611: Product management
- Account 6612: Sales
- Account 6613: Product advertising
- Account 6621: Call completion services
- Account 6622: Number services
- Account 6623: Customer services -

Q. YOU HAVE DISCUSSED "DIRECTLY AVOIDED COSTS." WHAT ARE THE "INDIRECT AVOIDED COSTS?"

A. Within the USOA there are a number of expense accounts that are either common costs or general overhead. By definition, overhead costs support all other functions, including those that are avoided, such as marketing. For example, the Human Resources department incurs expenditures in the staffing of the marketing department. As marketing expenses are avoided, so are the expenses incurred in supporting marketing. Therefore, the portion of these expense items equal to the proportion of direct avoided costs to total expense is excluded as an avoided cost. Consistent with the FCC's paragraph 918, account 5301 rather than 6790 is used to calculate the avoided uncollectible revenues.

The following USOA accounts include common costs or general overhead which support marketing and customer service operations:

- 6120 - General Support
- 6711 - Executive
- 6712 - Planning
- 6721 - Accounting and finance
  6722 - External Relations
- 6723 - Human resources
- 6724 - Information management
- 6725 - Legal
- 6726 - Procurement
  6727 - Research + Development
- 6728 - Other general and administrative, and
- 5301 - Uncollectibles

Expenses in these accounts are, at least, partially avoidable.

Q. ARE THERE YET OTHER COSTS TO BE CONSIDERED?

A. Yes. While the ILECs will avoid substantial costs when they provide wholesale services, they will incur a small amount of incremental expenses to service the accounts of the resellers. However, these costs will be quite small. The ILECs already are set-up to perform the wholesaling function because they provide wholesale-like functions to interexchange carriers ("IXCs") and Enhanced Service Providers ("ESPs"). The incremental cost of providing these services to resellers of wholesale local exchange service should be minimal. The FCC addresses this issue by treating only 90 percent of the costs in certain of the directly avoided categories as avoided for purposes of setting default discounts. Specifically, the FCC determined that 90 percent of accounts 6610, and 6623 would be avoided, while 100 percent of accounts 6621 and 6622 would be avoided.

The FCC approach is very conservative. For example, Account 6623 (Customer Services) records the cost of setting up and billing end user accounts. The purchaser of wholesale services will be providing this service to its own end users. Any cost of billing the purchaser of wholesale services, who will be billed for many end user lines, will be minuscule in comparison with the cost of billing each of those individual lines separately. Billing retail customers requires setting up accounts and billing individual customers. Wholesale customers, on the other hand, will be fewer in number, and are more acquainted with billing processes, thus enabling them to be served at much lower cost. Although there may be some minor Customer Services costs incurred by ILECs to provide wholesale services, those costs are so small that they could reasonably be completely excluded as avoided costs. Nevertheless, MCI has followed the approach used by the FCC for calculating default discounts and retained a portion of the expenses in these accounts

in the wholesale rate.

Q. WHAT OTHER FACTORS MUST BE TAKEN INTO ACCOUNT IN ARRIVING AT THE APPROPRIATE WHOLESALE PRICES?

A. The FCC approach divides total avoided costs by total expenses on a "subject to separations" basis. That is, both interstate and intrastate costs were included. MCI's original model used this approach. However, this study uses the original MCI model, as modified by the FCC, using ARMIS 43-04 data on state operations, rather than the Subject to Separations data in the original study.

The services to be resold are largely intrastate. The FCC has specifically concluded that even though access charges will not be moved to economic cost until after a transition period, interstate access services will not be subject to the wholesale discount. (paras. 873-874) Therefore, it is necessary for consistency to calculate the appropriate wholesale discount by dividing total avoided ARMIS intrastate costs by the total intrastate expenses for services that will be resold. Absent this modification, both the numerator and the denominator of the discount calculation will include expenses allocated to services that will not be resold. The necessary revision can be done with the aid of ARMIS Report 43-04, which breaks down the relevant costs on a jurisdictional basis. I would note that most of the interstate costs in the "directly avoided" ARMIS accounts will be avoided by ILECs selling local services at wholesale. That some of these costs appear in interstate accounts is an artifact of the separations process. Therefore, it would be appropriate to add interstate expenses in these accounts to the numerator of the discount calculation. This study does not take this step in recognition of the fact that complex jurisdictional issues are raised thereby. MCI will modify its wholesale discount

studies if the FCC rules on this issue.

Q. TAKING ALL OF THE ABOVE INTO ACCOUNT, WHAT ARE THE RESULTS OF YOUR ANALYSIS?

A. Having identified the accounts that can be fully or partially associated with retailing functions that the ILEC will not perform, the next step is to quantify the actual savings and produce a percentage discount. The Sprint United result is 20.49% and Sprint Centel is 21.37%.

Q. HOW SHOULD THE COMMISSION REQUIRE THAT THESE DISCOUNTS BE APPLIED TO SERVICES RESOLD BY MCI?

A. Discounts should be developed and applied on a uniform basis to promote consistency and simplify the process. The wholesale discount as calculated in this study for each ILEC should be applied to each of the telecommunications services offered at wholesale rates. The published information ARMIS Report 43-04 data provide a sufficient basis for an aggregate discount across all services. These data are broadly consistent across ILECs and are reported in a format that is familiar. Service by service data are much harder to come by. Even if more detailed information were publicly available on a service-by-service basis, the consistency of the information would be questionable due to the numerous allocations and assumptions the ILEC would have to make to develop the service-specific information. While the FCC Rules do not rule out service-specific discounts, requiring the ILEC to provide such detailed information on a service-by-service basis would be an administrative burden for the ILECs and the responsible federal and state regulatory agencies. Moreover, the result would be highly debatable product

by product discount levels.

The discount should also apply to each rate element. Any other basis provides opportunities for abuse. For example, applying the discount on revenue per minute for a service may penalize resellers whose sales by rate element are weighted differently than those of the ILEC or other resellers.

Wholesale Services: Summary

Q. WOULD YOU PLEASE SUMMARIZE THIS SECTION OF YOUR TESTIMONY?

A. Yes. Wholesale discounts are essential to the development of local competition. Adequate wholesale discounts will provide immediate consumer benefits by allowing retail competition to begin in advance of full facilities based competition. The methodology described here for developing these discounts is analytically correct and easy to administer.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

REBUTTAL TESTIMONY OF GREG DARNELL

ON BEHALF OF

MCI TELECOMMUNICATIONS CORPORATION AND

MCImetro ACCESS TRANSMISSION SERVICES, INC.

DOCKET NO. 961230-TP

NOVEMBER 19, 1996

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Greg Darnell, and my business address is 780 Johnson Ferry Road, Atlanta, Georgia, 30342.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by MCI Telecommunications Corporation in the Southern Region as Regional Manager -- Competition Policy.

Q. ARE YOU THE SAME GREG DARNELL WHO HAS PREVIOUSLY FILED TESTIMONY IN THIS PROCEEDING?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of this testimony is to rebut certain statements and allegations made in the testimonies of witnesses Michael Hunsucker and Randy Farrar for United Telephone Company of Florida and Central Telephone Company of Florida (collectively, Sprint). I will specifically provide rebuttal to demonstrate that notwithstanding the testimony of Mr. Hunsucker and Mr.

Farrar, Lifeline, LinkUp, voice mail, inside wire maintenance service and calling card services are telecommunications services provided to end users and therefore must be made available for resale, and that Sprint's calculation of wholesale discount percentages understates the appropriate discount percentages and contains so many flaws it should be disregarded.

SERVICES AVAILABLE FOR RESALE

Q. WHAT DOES THE TELECOMMUNICATIONS ACT SAY REGARDING THE SERVICES THAT AN INCUMBENT LOCAL EXCHANGE CARRIER (ILEC) SUCH AS SPRINT MUST MAKE AVAILABLE FOR RESALE AT A WHOLESALE DISCOUNT?

A. The 1996 Act is very clear on this issue. Section 251(c)(4) states that it is the duty of all ILECs:

> (A) to offer for resale at wholesale rates any telecommunications service that the carrier provides at retail to subscribers who are not telecommunications carriers; and
>
> (B) not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of such telecommunications service, except that a State commission may, consistent with regulations prescribed by the Commission under this section, prohibit a reseller that obtains at wholesale rates a telecommunications service that is available at retail only to a category of subscribers from offering such service to a different category of subscribers.

Therefore, cross class selling is the only resale restriction that an ILEC is

permitted under the Act to impose on its telecommunications services that are provided to subscribers who are not telecommunications carriers. In order for an ILEC to completely withdraw a certain service from resale it must prove the service is not a telecommunications service, or that the telecommunication service is not provided to subscribers who are not telecommunications carriers.

Q. DOES SPRINT PROPOSE TO WITHHOLD CERTAIN SERVICES FROM RESALE AT WHOLESALE RATES?

A. Yes. Sprint proposes that its Lifeline/LinkUp, voice mail, inside wire maintenance service and calling card services will not be made available for resale at wholesale rates.

Q. IS THIS APPROPRIATE?

A. No. Sprint has not proven that these services are not telecommunication services provided to end users. Therefore all of these services must be made available for resale at wholesale rates. If it is found that any of these services are not telecommunications services provided to end users, a decision will be needed as to whether these items are available at retail rates to CLECs. This Commission should carefully evaluate whether an ILEC should be permitted to refuse to resell its services to a CLEC. In a competitive marketplace, one customer's money is as good as the next, and vendors do not normally impose restrictions on who can buy their services.

RESALE DISCOUNT CALCULATION

Q. HAVE YOU REVIEWED SPRINT'S AVOIDED COST STUDY AND USER GUIDE?

A. Yes I have.

Q. HAVE YOU FOUND ANY ERRORS IN SPRINT'S AVOIDED COST STUDY AND IF SO WHAT ARE THEY?

A. Yes, I have found numerous flaws that cause Sprint's proposed wholesale discount percentage to be too low. These errors are as follows: 1) the numerator and denominator are not like terms; 2) Sprint incorrectly defines "avoided cost"; 3) avoided common costs and overhead expenses are ignored; 4) Sprint fails to recognize avoided uncollectibles; 5) Sprint finds that certain expenses are associated with services that will not be available for resale and excludes them from the numerator of its discount percentage, however Sprint fails to adequately adjust the denominator of that percentage; 6) Sprint incorrectly assumes that some of its support costs for wholesale services will be the same as its support costs for retail service; and 7) Sprint's incremental wholesale costs are completely unsubstantiated.

Q. HOW ARE THE NUMERATOR AND DENOMINATOR OF SPRINT'S WHOLESALE DISCOUNT PERCENTAGE UNLIKE TERMS?

A. Sprint's discount percentage is determined by taking what it deems to be avoided expense and dividing by revenue (Exhibit No. RGF-2, Page 3 of 20). Revenue is related to revenue requirement, which is equal to expense PLUS return on average net investment. Therefore, the revenue included in the

denominator of the fraction is not related to just expense; it is related to expense PLUS return on average net investment. Page 6 of Sprint's avoided cost user guide states, "Because there will be no effect on investment, there will be no effect on return." This appears to be Sprint's attempt to justify the mismatch of its discount percentage's numerator and denominator. However, Sprint's contention that there will be no avoided investment is incorrect and therefore its model is fatally flawed. MCI recognizes that it may be difficult for parties to agree on how much investment will be avoided, but to say there will be no investment avoided is simply wrong.

Q. WHAT IS THE IMPACT OF THE MISMATCH BETWEEN THE NUMERATOR AND DENOMINATOR IN SPRINT'S WHOLESALE DISCOUNT PERCENTAGE?

A. Since the denominator of the fraction used to calculate the discount percentage (i.e. revenue) is related to expense PLUS return on average net investment, and the numerator (i.e. expense) is related only to expense and does not take into account avoided return, the numerator is too small given the denominator and the wholesale discount percentage Sprint proposes is understated. Avoided Expense divided by Total Expense would be like terms, Avoided Revenue divided by Total Revenues would be like terms, but Avoided Expense divided by Total Revenues is a mismatch.

Q. WHAT LEADS YOU TO BELIEVE THAT SPRINT HAS INCORRECTLY DEFINED "AVOIDED COST"?

A. On page 7 and page 10 of its Avoided Cost User Guide, Sprint states that the

costs contained in its forecasting and toll processing accounts will not be avoided because these "functions will be required for all services including wholesale/resell services." This may be true. However, it is not reasonable to say that the new wholesale forecasting costs will equal the existing retail forecasting costs and this is what Sprint has done by treating accounts 6611.07X as totally not avoided. In the wholesale market Sprint will be dealing with only a handful of customers while in the retail market Sprint deals with many thousands of customers. Therefore, Sprint's wholesaling costs should be much less than the existing retailing cost and this should be reflected by counting most of 6611.07X as avoided or by counting all of 6611.07X as avoided and capturing the new wholesaling costs as incremental costs.

Q. SPRINT STATES THAT BECAUSE RESELLERS WISH TO PROVIDE THEIR OWN OPERATOR SERVICES THAT THE COSTS CONTAINED IN ACCOUNTS 6621 AND 6622 WILL NOT BE AVOIDED (Avoided Cost User Guide, Page 8). DOES THIS MAKE ANY SENSE?

A. No. If resellers provide their own operator services, Sprint will not be providing operator service to reseller's customers and as such the cost of providing operator service will be avoided. Sprint's position to treat accounts 6621 and 6622 as not avoided would force any wholesale companies that want to provide their own operator services to pay for all of their own operator service expense, plus pay for part of Sprint's operator service expense through an inappropriately low wholesale discount percentage.

Q. PAGE 6 OF SPRINT'S AVOIDED COST USER GUIDE STATES,

"COMMON COSTS ARE NOT AVOIDED" AND THEREFORE SPRINT DOES NOT INCLUDE ANY COMMON COST IN ITS CALCULATION OF AVOIDED COST (RCF-2, PAGE 4, SHOWS ACCOUNTS 6121, 6122, 6123, 6124, 6711, 6712, 6722, 6723, 6724, 6725, 6726, 6727 AND 6728 AS 0% AVOIDED). IS THIS APPROPRIATE?

A. No. It is intuitively obvious that if the direct cost of a service falls, then the functions needed to support that service should also fall. If support services were permitted to remain the same when direct services decline, support resources, such as employees, would be lying idle causing expense but providing no benefit. This logically would not occur. For example, when a direct service such as customer service declines, support services such as Human Resources will also decline proportionally.

Q. WHAT IS THE IMPACT OF SPRINT'S FAILURE TO INCLUDE AVOIDED COMMON COSTS AND OVERHEAD IN ITS CALCULATION OF AVOIDED EXPENSE AND THEREFORE THE NUMERATOR OF ITS WHOLESALE DISCOUNT PERCENTAGE?

A. The numerator will be too small and therefore the wholesale discounts will be understated.

Q. SPRINT CLAIMS THAT UNCOLLECTIBLES WILL NOT BE AVOIDED. IS THIS REASONABLE?

A. No. Sprint provides a general explanation of why it believes uncollectibles will not be avoided, stating that its "long distance division's experience with reseller write-offs, unsubstantiated billing adjustments, and fraudulent code

abuse are similar to the rate of uncollectibles experienced by Sprint's local division." However, Sprint never provides any data to support this claim.

Q. IS SPRINT'S CONTENTION THAT UNCOLLECTIBLES IN THE WHOLESALE MARKET WILL BE EQUAL IN RELATIVE MAGNITUDE TO UNCOLLECTIBLES IN ITS RETAIL MARKETS REASONABLE?

A. No. End user uncollectibles will be completely eliminated, since resellers will be absorbing the bad debt associated with those customers. In line with the FCC's methodology, MCI's study generously assumes that uncollectibles are only avoided in proportion to the avoided direct expenses. Other ILECs have assumed that uncollectibles will be completely avoided when dealing with resellers. For example, BellSouth testified in the AT&T/MCI arbitration proceedings that it "assumed that uncollectibles from customers who buy from resellers will be avoided by BellSouth." (Reid, Tr. 2339) This contradicts Sprint's contention that uncollectibles are not avoided. Sprint's experience in its long distance business with write offs and billing adjustments may simply be a result of inaccurate access billing and not a reflection of true uncollectibles or the uncollectible rate it will experience in the local resale business.

Q. WHAT IS THE IMPACT OF SPRINT'S FAILURE TO INCLUDE UNCOLLECTIBLES IN ITS CALCULATION OF AVOIDED EXPENSE AND THEREFORE IN THE NUMERATOR OF ITS WHOLESALE DISCOUNT PERCENTAGE?

A. The numerator will be too small and therefore the wholesale discounts will be

understated.

Q. SPRINT FINDS THAT CERTAIN EXPENSES ARE ASSOCIATED WITH SERVICES THAT WILL NOT BE AVAILABLE FOR RESALE (AVOIDED COST STUDY - USER GUIDE, ACCOUNTS 6611.06X, 6612.02X, 6623.63x, P. 7, P. 10.), AND THEREFORE WILL NOT BE AVOIDED. IT THEN EXCLUDES SUCH EXPENSES FROM THE NUMERATOR OF ITS DISCOUNT PERCENTAGE. IS THIS APPROPRIATE?

A. Yes. The theoretically correct wholesale discount percentage should be based on the following calculation:

$$\frac{\text{Total Avoided Cost of the Service Subject to Discount}}{\text{Total Cost of the Service Subject to Discount}}$$

Therefore, if the service is not subject to discount, its costs should not be included in the numerator or denominator of the discount percentage.

Q. HAS SPRINT MADE THIS ADJUSTMENT CORRECTLY?

A. No. Sprint removes the avoided cost of the services not subject to discount only from the numerator of its discount percentage, but fails to remove the total cost associated with services not subject to the discount from the denominator of its discount percentage.

Q. WHAT IS THE IMPACT OF THIS ERROR?

A. Since the numerator is reduced and the denominator stays the same, the resulting discount percentage is once again understated.

Q. SPRINT REDUCES ITS AVOIDED COST AMOUNT TO REFLECT INCREMENTAL WHOLESALE COSTS? IS THIS APPROPRIATE?

A. Yes, however its incremental wholesale costs are unsubstantiated. Sprint provides a spreadsheet analysis of its incremental wholesale costs (Exhibit RGF-2, page 19 of 20). Yet Sprint never explains how it derives any of its purported systems development, support, miscellaneous or corporate staff expense. Sprint provides no labor rates, no development work time and no vendor costs and never explains what development work it is doing. In addition, it appears that Sprint is attempting to recover all of its purported system development costs in 4 years. If this is true, it is inappropriate. MCI, as one resale customer, will benefit from any systems development work for much longer than four years.

Q. HAS MCI RECAST ITS WHOLESALE DISCOUNT STUDY IN A EASIER TO READ SIDE BY SIDE SPREADSHEET FORMAT?

A. Yes. Attached at Exhibit 10 (GJD-2) is MCI's Avoided Cost Study for United Florida and Centel Florida recast into a side by side spreadsheet. The results of these studies have not changed.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, at this time.

Q (By Ms. McMillin) Please summarize your testimony.

A Yes. Hello. I'm here to testify about how to stimulate the development of competitive local retail market through wholesale -- through local wholesale pricing.

This is important because new entrants will use their resale customer base to help justify capital deployment and, therefore, resale will help stimulate development of facility-based local competition, which leads us to two questions basically. It's how do we price wholesale services to stimulate efficient competition. And second, what services should be available for resale at a wholesale discounted price.

The first question, how should we price the service, is really just looking at what we are creating by this pricing mechanism. The wholesale discount should be set at a level that includes no Sprint retail costs. By doing this we capture Sprint's retailing margin, and we use that margin as a surrogate for what retail inefficiency is.

This definition of avoided cost ensures that the only companies that can enter the local market will be those that are as at least efficient as Sprint at retailing. It also ensures that Sprint will

continue to recover all of its efficient retailing costs.

To calculate this margin or avoided cost percentage, what we need to do is to use the data that was used to develop the rates for the services that will be subject to discount and to make sure that the numerator and denominator of this percentage are like terms, or equivalent terms.

MCI has done this by taking the state jurisdiction of avoided expense and dividing that by the state jurisdiction total expense. Sprint has done this by using data for services not subject to the discount and taken total avoided expense and divided it by total revenues.

This is not a correct way to do the analysis because expenses are not related to revenues directly. Expenses plus return on investment are related to revenues -- or revenue requirement is related to revenues; expenses not related to revenue, not directly.

The second question is what service should be available at wholesale discount prices. The answer to that question is all Sprint retail telecommunications services should be available for resale at a wholesale discount in price. This

includes inside wiring and voice mail, which still are on the table in this arbitration. If this is not permitted, Sprint will be able to package nondiscounted services with discounted services, and by doing so will inhibit the development of competition in the local market. And that concludes my summary.

MS. McMILLIN: Thank you, Mr. Darnell.

Mr. Darnell is available for cross.

CHAIRMAN CLARK: Mr. Fons.

CROSS EXAMINATION

BY MR. FONS:

Q Good morning, Mr. Darnell. I'm John Fons representing Sprint. The testimony that you've provided, your direct testimony, is it safe to say that that testimony is essentially as set forth in the white paper described "Wholesale Services Pricing and Provisioning" which is dated October 21, 1996?

A It was based off of that white paper, yes.

Q Aren't there portions of your testimony that are taken out of that white paper, Wholesale?

A Yes.

Q And this white paper was prepared by you and a number of other people at MCI; is that correct?

A That is correct.

Q And one of those persons was Don Price?
A That is correct.
Q And the testimony that you have filed in this proceeding, is that testimony, your direct testimony, essentially the same as the direct testimony that Don Price filed on the issue of wholesale prices in the MCI arbitration with BellSouth and GTE?
A It should be similar.
Q Indeed, didn't you and Mr. Price use the same model for determining the discount?
A Yes.
Q And the only thing that you changed were the numbers out of the ARMIS that would be applicable to Sprint and Centel which is set forth, I believe, in Exhibit 10?
A We used Sprint specific data.
Q Out of ARMIS; is that correct?
A Yes.
Q But in all other steps, you did the same thing for Sprint that Mr. Price did in his determination of the avoided cost for BellSouth and GTE?
A I believe so.
Q When you determined the wholesale discount

for Sprint, did you do that determining the avoided cost or the avoidable cost?

A We excluded all retail costs. So the definition, the defining of avoided versus avoidable is a hard thing to do.

Q And in your calculation of the discount, did you assume that Sprint would no longer be in the retail business?

A No.

Q In any of your calculations, did you assume that Sprint would no longer be a resaler but would be strictly a wholesaler?

A No. We assumed that Sprint would always remain in both marketplaces.

Q Is your position then different than Mr. Price's position in the BellSouth and GTE Florida proceedings?

A I don't believe so.

Q So if he said in that proceeding that: "Insofar as we are talking about that portion of the calculation that calculates retailing costs, yes, MCI assumes that BellSouth was a pure wholesale company and would provide no resale services direct to end users."

A In calculating that margin of how much of

retailing expense there is, that is the appropriate way to do that. That does not assume that they are going to cease to exist. It hypothetically assumes that that reflects what retailing margin Sprint currently employs in its marketplace. So, therefore, that is the same retailing margin that should be available to wholesalers.

Q With regard to operator services, how does the MCI wholesale discount treat operator services?

A It treats it as if it is avoided.

Q And when you say avoided, what do you mean? That there is no operating expense?

A That MCI will provide its own operators.

Q And, therefore, Sprint should not recover anything for the operator services it provides on a retail basis to other customers?

A Sprint should not recover those charges from the wholesale marketplace. They should recover them from the retail marketplace.

Q Sprint will continue to provide operator services, will they not?

A That is correct.

Q Did you treat the direct expense for operator services the same as indirect?

A I don't believe we treated any operator

services expense as indirect. I think we treated it all as directly avoided.

Q And I believe in your calculation of the discount you divided expenses by expenses?

A That is correct.

Q Are you familiar with the order -- or the Staff recommendations that were approved by the Commission in the BellSouth and GTE arbitration with MCI?

A Yes, I am.

Q And have you recalculated your calculation of avoided cost making the adjustments made by this Commission?

A No, I have not.

Q You don't know what that result would be?

A No, I do not.

Q Let's talk a minute about voice mail and inside wire services, or inside wire maintenance. You're asking that Sprint make these functions available to MCI for resale?

A Yes, I am.

Q Do you know how the 1996 Federal Communications Act defines telecommunications service?

A I am familiar with the definition, but I don't know its application directly.

Q Would you agree that under the Act Sprint is only required to provide telecommunications services for resale?

A Yes.

Q Is it your position that voice mail is a telecommunications service?

A If you are asking me if is it my position personally or is it my position under the Telecommunications Act, personally I believe they are telecommunications services.

Q How about under the Telecommunications Act?

A I don't know.

Q How about inside wire maintenance?

MS. McMILLIN: I would object insofar as it calls for a legal conclusion.

MR. FONS: I think he's already answered.

Q **(By Mr. Fons)** What is the basis for your personal opinion that these are telecommunications services?

A My personal opinion is that without them, without inside wire maintenance, your phone wouldn't work; it broke, basically. Just similar like if you were to cut your wire outside your house or if a backhoe cut the wire between end offices -- if you cut your wire inside your house, your phone doesn't work.

And without fixing it, your telecommunications services is stopped.

Q You can personally repair inside wire in your house, can't you?

A And you could personally repair the wire outside your house, too.

Q And you can still get it repaired whether you have inside wire maintenance or not?

A That's correct.

Q And what is the basis that you say that voice mail is a telecommunications service?

A Well, it -- voice mail service is basically a fancy answering machine that permits the storing, the recording, the forwarding of calls for the end user and seems to provide a telecommunications service, to me.

Q But you are not contending that voice mail or inside wire maintenance are telecommunications services?

A Not as -- I'm not a lawyer. I can't answer the question under the Act. I believe they are telecommunications services from a practical perspective.

Q Do you remember when I took your deposition on Friday?

A Yes.

Q And didn't I ask you the question: "Do you know how voice mail is defined by the FCC, as either a telecommunication service or enhanced service?"

A Yes.

Q And you answer is, "I do not." And then I asked you: "Are you contending that voice mail is a telecommunications service?" And your answer is, "No, I'm not."

A That is correct.

Q Are you changing?

A No. Under the Act, I don't know how it's defined under the Act.

Q And isn't this Commission required only to require Sprint to resell those services that are defined as telecommunications services by virtue of the Act?

A That is --

MS. McMILLIN: We would like to make an objection. That calls for a legal conclusion.

MR. FONS: I have no further questions.

CHAIRMAN CLARK: Staff.

CROSS EXAMINATION

BY MR. KEATING:

Q Mr. Darnell, do you have Staff's exhibit previously identified as GLD-3, which consists of a transcript of your deposition and Deposition Exhibit 1?

A I believe I do. Is it a Staff exhibit?

Q Yes.

A I do now.

Q Have you had a chance to review that exhibit?

A Not in depth. Let me take a second and make sure I --

Q Okay.

A It appears to be my transcript of my deposition and the white paper so, yes, I am familiar with it.

Q Do you have any corrections to make to the exhibit?

A No.

MR. KEATING: Chairman Clark, Staff requests that Exhibit GLD-3 be marked for identification.

CHAIRMAN CLARK: It will be marked as Exhibit 11.

(Exhibit 11 marked for identification.)

MR. KEATING: Staff moves that exhibit into the record, and Staff has no questions for the witness.

CHAIRMAN CLARK: Okay. Mr. Keating, we'll wait until we have redirect, and then we'll move it in the record.

MS. McMILLIN: I have no redirect. Madam Chairman, in fact, we would like to move Exhibit 10 into the record.

CHAIRMAN CLARK: Without objection, Exhibits 10 and 11 will be entered in the record.

(Exhibits 10 and 11 received in evidence.)

MR. KEATING: Thank you.

MS. McMILLIN: Can Mr. Darnell be excused?

CHAIRMAN CLARK: He may be.

(Witness Darnell excused.)

- - - - -

MR. MELSON: And MCI calls Don Wood.

DON WOOD

was called as a witness on behalf of MCI and MCImetro and, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. MELSON:

Q Would you state your name and business address for the record, please?

A Yes. My name is John J. Wood. My business address is 914 Stream, S-T-R-E-A-M, Valley Trail, Alpharetta, A-L-P-H-A-R-E-T-T-A, Georgia.

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

A MCI Communications.

Q What's your occupation or profession?

A I am a regulatory consultant. I am a principle in the firm Wood and Wood.

Q Have you prefiled direct testimony in this docket dated October 11, 1996, and consisting of 22 pages?

A Yes, sir, I have.

Q And on November 7th did you file a revised version on Page 21 of that direct testimony?

A Yes, I did. We revised Page 21 to include the results of the run of the model.

Q And are there any portions of that direct testimony that you are withdrawing?

A No, sir, I am not.

Q And with the revised Page 21, do you have any other changes or corrections to your testimony?

A I have one correction on Page 1, Line 16, where it reads "Sprint United Services," it should read BellSouth Services. I have not been employed by

Sprint as a pricing analyst, or a costing analyst, but I have been employed by BellSouth as one.

Other than that correction, I don't have any changes to my testimony.

Q So if I were to ask you the same questions today with that correction, would your answers be the same?

A Yes, sir, they would.

MR. MELSON: Madam Chairman, I ask that Mr. Wood's direct testimony be inserted into the record at though read.

CHAIRMAN CLARK: It will be inserted in the record as though read.

Q **(By Mr. Melson)** Mr. Wood, attached to your direct testimony, was there one exhibit identified as DJW-1 which is your professional resume?

A Yes, sir, that's right.

Q And on November 7, 1996, did you file three additional exhibits identified as DJW-2, 3, and 4?

A Yes.

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

A No, sir.

Q And is the information contained on those exhibits true and correct to the best of your

knowledge and belief?

A Yes, with the only exception of DJW-2, which based on Staff's request at my deposition we are going to supplement with a corrected version. These are nonsubstantive changes, but we do want to have a clean copy so we are going to provide those.

Q And do you have a time frame in which those revised pages, or that revised exhibit, will be available?

A I was just on the phone. It is winging its way here as we speak. So this afternoon or first thing tomorrow we will have the revised Exhibit DJW-2.

CHAIRMAN CLARK: Mr. Melson, let's just mark as a Composite Exhibit 12 what's there now.

MR. MELSON: All right.

CHAIRMAN CLARK: And then as soon as we get them, we'll mark it as another exhibit.

MR. MELSON: All right. I'd ask that DJW-1 through 4 be marked as Composite Exhibit 12.

CHAIRMAN CLARK: They will be so marked.

(Exhibit 12 marked for identification.)

MR. MELSON: And I don't remember whether I asked that you insert his direct testimony or not.

CHAIRMAN CLARK: I don't remember either, but his prefiled direct testimony will be inserted in

the record as though read.

MR. MELSON: Thank you. And just for the record, there was a piece of supplemental -- a piece of rebuttal testimony, a piece of supplemental rebuttal, that were filed that have been withdrawn, so there's just the one piece of testimony for Mr. Wood.

CHAIRMAN CLARK: Okay.

DIRECT TESTIMONY OF DON J. WOOD

ON BEHALF OF MCI

MCI - UNITED/CENTEL ARBITRATION

OCTOBER 11, 1996

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Don J. Wood, and my business address is 914 Stream Valley Trail, Alpharetta, Georgia 30202. I provide consulting services to the ratepayers and regulators of telecommunications utilities.

Q. PLEASE DESCRIBE YOUR BACKGROUND AND EXPERIENCE.

A. I received a BBA in Finance with distinction from Emory University and an MBA with concentrations in Finance and Microeconomics from the College of William and Mary. My telecommunications experience includes employment at both a Regional Bell Operating Company ("RBOC") and an Interexchange Carrier ("IXC").

I was employed in the local exchange industry by ~~Sprint United~~ BELL SOUTH Services, Inc. in its Pricing and Economics, Service Cost Division. My responsibilities included performing cost analyses of new and existing services, preparing documentation for filings with state regulatory commissions and the Federal Communications Commission ("FCC"), developing methodology and computer models for use by other analysts, and performing special assembly cost studies. I was employed in the interexchange industry by MCI Telecommunications Corporation, as Manager of Regulatory Analysis for the Southern Division. In this capacity I was responsible for the development and implementation of regulatory policy for operations in the southern U. S. I then served as a Manager in the Economic Analysis and Regulatory Affairs Organization, where I

participated in the development of regulatory policy for national issues.

Q. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY BEFORE STATE REGULATORY COMMISSIONS?

A. Yes. I have testified on telecommunications issues before the regulatory commissions of twenty-three states, the District of Columbia, state courts, and have presented comments to the FCC. A listing of my previous testimony is attached as Exhibit__1__(DJW-1).

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I have been asked by MCI Telecommunications Corporation ("MCI") to describe the methodology that MCI believes should be used for accurately determining the relevant costs of unbundled network elements to be provided by Sprint United Telecommunications, Inc. ("BST") pursuant to the Federal Telecommunications Act of 1996. I will also describe the results of applying this methodology in the state of Florida, and provide an overview of the model used to develop these costs.

My testimony is divided into three sections: Section I introduces the basis for the costs developed by MCI for the unbundled network elements and describes how those costs -- and the underlying methodology used to develop them -- are consistent with sound economic costing principles generally and with the FCC's August 8, 1996 First Report and Order in CC Docket 96-98 specifically. Section II describes how the model used to develop these costs operates, and Section III identifies the inputs used and reports the results of this analysis. I will refer to the methodology used as the Hatfield Model ("HM"), and will discuss the results obtained using Version 2.2, Release 2, of that model.

Q. PLEASE DESCRIBE YOUR EXPERIENCE REVIEWING COST MODELS AND METHODOLOGIES.

A. While employed in the Sprint United Service Cost organization, I had the opportunity to work with a number of cost models and to analyze and review the manner in which these models were used in the cost development process. Since that time, I have reviewed incremental cost studies performed by each of the seven regional Bell Operating Companies ("RBOCs") and a number of Tier 1 Local Exchange Companies ("LECs"), including BST. My review has included an evaluation of the methodologies, computer models and spreadsheets, and inputs/assumptions used. I have also been asked by regulators to develop detailed rules to be used by the LECs when performing TSLRIC studies.

Two constant sources of frustration have been present throughout this process: 1) The lack of publicly available information related to the LEC studies, and 2) the lack of independent and objective cost data to be used as a benchmark for the evaluation of the LEC-provided data.

Section I: Description of the Cost Principles Implemented by the Hatfield Model

Q. PLEASE DESCRIBE THE ORIGIN AND PURPOSES OF THE HATFIELD MODEL.

A. The Hatfield Model was developed by Hatfield Associates, Inc. of Boulder, Colorado at the request of AT&T and MCI. Its purposes are to 1) estimate the costs of the unbundled network elements described in § 252 (d) (1)(A) and (B) of the Telecommunications Act of 1996, and 2) to develop an estimate of the cost of basic exchange telephone service that is the subject of universal service funding mechanisms. Complete documentation describing the operation of the model in detail is being

developed and can be made available upon request.

The HM derives some of its inputs and methods from version 1 of the BCM Plus model, a successor to the Benchmark Cost Model ("BCM"), which was originally developed by US WEST, NYNEX, MCI, and the local services operation of Sprint (on July 3, 1996, US West and Sprint Corporation presented version 2 of the BCM to the FCC. NYNEX and MCI are not sponsors of BCM2. A careful review indicates that the purported enhancements in BCM2 are already present in the Hatfield Model).

Q. HAS THE HATFIELD MODEL EVOLVED OVER TIME?

A. Yes. Originally, the Model was used to produce estimates of the TSLRIC of basic local exchange service as part of an examination of the cost of universal service. A second version, referred to as the Hatfield Model V.2.2, Release 1 was then developed to estimate costs for unbundled network elements only. Version 2.2, Release 2, used to produce the results in this testimony, considers both unbundled elements and basic local exchange service. It also incorporates a number of enhancements over earlier versions, the ultimate effect of which is to increase the degree of certainty associated with the results it calculates.

Q. WHAT ARE THE KEY PRINCIPLES AND ATTRIBUTES OF THE HATFIELD MODEL?

A. The model uses sound economic costing principles to estimate the relevant costs. Its operations can be readily scrutinized, and a large number of its inputs can be set, by users. It includes all network elements and associated costs that are necessary to provide the unbundled elements and local exchange service considered by the model.

Q. PLEASE DESCRIBE THE PUBLIC NATURE OF THE MODEL.

A. Version 2.2, Release 1 of the model has been available through the International Transcription Service of Washington, DC, for some time. Release 2 of the model will shortly be available from the same source, and will be made available in this proceeding. The new release will be accompanied by complete documentation that describes the operation of the model. In addition, a considerable effort has been expended to facilitate the setting of many inputs by the user of the model through a graphical interface, and it is anticipated that this interface will be available when the model is released, or shortly thereafter.

The inputs to the model, both those adjustable by the user and those incorporated into the model itself, are readily visible to the user. The model runs as a set of Excel spreadsheets, and those spreadsheets can be examined by the user.

Q. WHY IS IT IMPORTANT THAT COST MODELS CAN BE PUBLICLY REVIEWED IN THIS FASHION?

A. Previously lacking such open cost models, regulators and intervenors have been forced to rely on cost studies produced by the incumbent Local Exchange Carriers (ILECs) as the only available source of cost data. Attempts to review, analyze, and verify the cost data produced by such models have met with, at best, only limited success.

As described above, two constant sources of frustration have been present throughout the process of reviewing such models. First, the lack of publicly available information related to the ILEC studies has often made a meaningful review difficult or impossible. The inputs and assumptions used by the respective ILECs, when made available, have often been subject to proprietary protection. Similarly, the mechanized cost models have often remained "black boxes" because of the inability of intervenors

(and often regulators) to test either the accuracy of the algorithms or the sensitivity of the model to inputs and assumptions. The second source of frustration has been the lack of independent and objective cost data to be used as a benchmark for the evaluation of the LEC-provided data. Without such an objective data source, it has been impossible for either regulators or intervenors to ascertain the reasonableness of ILEC cost estimates.

In contrast to the difficulty often experienced when attempting to evaluate ILEC cost studies and the underlying models, a review of the Hatfield Model can be direct and straight-forward. Complete and detailed documentation of the model is available, including descriptions of both the model algorithms and the inputs and assumptions used. Because the model is publicly available and its inputs can be varied by the user, it possible to directly evaluate the model for accuracy and to ascertain the sensitivity of the model to changes in various inputs. Because this level of review is possible, it is possible for the reviewer to conclude that the model produces both reasonable and verifiable cost data.

In summary, a fundamental issue with any cost study is the integrity of the assumptions, calculations and input values used to develop the ultimate outputs. The only method to test the reliability of the final product is to make all of the data as well as the methodology accessible for independent scrutiny and evaluation. The Hatfield Model uses clearly documented and visible methodologies which are verifiable, and non-proprietary data obtained from publicly-available sources. Both the inputs and outputs to the Hatfield Model are open for inspection and analysis. Inputs can be varied as appropriate, and sensitivity testing can be conducted by varying these inputs. The results are all subject to challenge and verification.

Q. YOU STATED THAT THE HATFIELD MODEL CALCULATES COSTS USING A METHODOLOGY THAT IS CONSISTENT WITH THE "FORWARD LOOKING ECONOMIC COST"-BASED STANDARD ADOPTED BY THE FCC. PLEASE DESCRIBE THE STATED BASIS FOR THE FCC'S METHODOLOGY.

A. In its August 8, 1996 First Report and Order in CC Docket 96-98 ("Order"), the FCC concluded that because "the prices of interconnection and unbundled elements...are critical terms and conditions of any interconnection agreement," it was necessary to "set forth the methodological principles" to be used when determining relevant costs and rates (para. 618). The FCC outlines in some detail a "cost based pricing methodology based on forward looking economic costs" which it concludes is the approach for setting prices that best furthers the goals of the 1996 Act" (para. 620), and that will "give appropriate signals to producers and consumers and ensure efficient entry and utilization of the telecommunications infrastructure" (para. 630). This methodology is to be used to determine costs and rates for unbundled network elements, interconnection, and collocation (paras. 628, 629).

In order to develop a national standard for the calculation of forward looking economic costs, the FCC identified the following criteria to be used:

Use of a long run assumption. The term long run, in the FCC's methodology, "refers to a period long enough so that all of a firm's costs become variable or avoidable" (para. 677). The HM uses this assumption when identifying relevant investments and expenses.

Definition of increment to be studied total demand. The FCC states that "the increment that forms the basis for a TELRIC study shall be the entire quantity of the network element provided, and that "all costs associated with providing the element shall be included in the incremental cost" (para. 690). The HM studies an increment

equal to the entire quantity of the network element, both as the incumbent uses the network element to provide its own retail services and as it provides that network element to other carriers on an unbundled basis. All costs that an efficient incumbent LEC would incur to provide the network element are included.

Use of a forward-looking methodology. The FCC concluded that the relevant costs should be the costs that "a carrier would incur in the future" (para. 683), and that a "forward-looking economic cost methodology based on the most efficient technology deployed in the incumbent LEC's current wire center locations" (para. 685). The HM utilizes existing wire center locations, and develops investments using the most efficient, currently available technologies for the provision of loop facilities, switching, interoffice transport, and signalling.

The inclusion of a "reasonable profit." The FCC concludes that "the concept of normal profit is embodied in forward looking costs because the forward looking cost of capital...is one of the forward-looking costs of providing the network elements," (para. 700), and that because a normal profit is represented by the LEC's forward looking cost of capital, "no additional profit is justified under the statutory language" (para. 699). The HM includes a forward looking cost of capital in the costs that it calculates, and does not provide an additional "markup" over this level.

Embedded costs should not be included. The FCC concluded that a cost methodology based on embedded costs, or a "markup" to reflect the difference between forward-looking and embedded costs, "would be pro-competitor -- in this case the incumbent LEC -- rather than pro-competition," and went on to state that "we reiterate that the prices for interconnection and network elements critical to the development of a competitive local exchange should be based on the pro-competition, forward looking, economic costs of those elements, which may be higher or lower than historical

embedded costs. Such pricing policies will best ensure the efficient investment decisions and competitive entry contemplated by the 1996 Act" (para. 705). The HM is based on forward looking economic costs, and embedded investments are not used.

Universal Service Subsidies should not be included. The FCC concluded that "funding for any universal service mechanisms adopted in the universal service proceeding may not be included in the rates for interconnection, network elements, and access to network elements" (para. 712). The HM does not include these costs in its calculations.

Access to Cost Data/Burden of Proof. The FCC notes that "the incumbent LECs have greater access to the cost information necessary to calculate the incremental cost of the unbundled elements of the network. Given this asymmetric access to cost data, we find that incumbent LECs must prove to the state commission the nature and magnitude of any forward looking cost that it seeks to recover" (para.680, 696). The HM calculates costs using the best publicly available data that has been identified. The model is designed to permit calculations of cost based on LEC-provided data if the LEC has met the burden of proof that these data will accurately identify forward looking costs.

Use of generic forward looking cost models. While the FCC stated that it had not had ample time to review the Hatfield Model specifically, it stated that the HM and similar generic models "appear best to comport with the preferred economic cost approach discussed previously" in the Order (para. 834), and that the HM and similar models "appear to offer a method of estimating the cost of network elements on a forward looking basis that is practical to implement and that allows state commissions the ability to examine the assumptions and parameters that go into the cost estimates" (para. 835). Of those models referred to by the FCC in this section, only the Hatfield

Model is based on publicly available data and permits scrutiny by both commissions and interested parties.

Inclusion of specific types of cost and application of principle of cost causation. The FCC states that unbundled network elements should be priced at "the forward looking costs that can be attributed directly to the provision of services using that element, plus a reasonable share of the forward looking joint and common costs" (para. 673), and indicates that "costs must be attributed on a cost-causative basis. Costs are causally related to the network element being provided if the costs are incurred as a direct result of providing the network elements, or can be avoided, in the long run, when the company ceases to provide them" (para. 691). The FCC goes on in subsequent paragraphs of the Order to define these terms and to give illustrative examples (See paras. 678,679,682, 690, 691, 694, 698). The HM uses cost-causative principles to identify forward-looking costs with specific network elements. It includes in the cost of network elements all the costs that the FCC specifically discussed in its order as being part of the direct cost of network elements. Specifically, the HM includes all "investment costs and expenses related to primary plant used to provide that element" (para. 682), and attributes "incremental costs of shared facilities and operations...to specific elements to the greatest extent possible" (para. 682). The HM specifically attributes "the costs of conduits shared by both transport and local loops, and the costs of central office facilities shared by both local switched and tandem switching...to specific elements in reasonable proportions" (para. 682). For both dedicated and shared investments, the HM includes "the forward-looking costs of capital (debt and equity) needed to support investments required to produce a given element" (para. 691).

The FCC's rules require that overhead costs be included to the extent that they

vary with the output of particular network elements (despite their accounting classification), and thus are part of the TELRIC of those elements. The FCC also requires, to the extent that there are any such overhead costs that are common to several wholesale elements, or to wholesale and other functions, that the prices of of network elements include "a reasonable share of common costs." The procedure of estimating the overhead costs of a wholesale-only carrier, which is what Hatfield does by adding the 10% markup, satisfies the FCC requirements. While statistical evidence and a growing literature on activity-based accounting systems suggest that many of the costs that have traditionally been considered "overhead" costs should actually be considered service-specific or element-specific costs, the Hatfield Model method for treating overhead costs renders any precise distinction between element-specific and "common" overhead costs unnecessary. Insofar as the 10% markup captures all of the relevant overhead costs, it includes any element-specific costs and a reasonable share of any "common" overhead costs. This approach ensures that each network element recovers at least its "reasonable" share of such common costs, to the extent that they exist. Moreover, if regulators set prices for network elements equal to the costs that the Hatfield Model reports for each element, these prices would allow a firm that is engaged solely in providing network elements on a wholesale basis (with no retail functions) to recover all of its economic costs of doing business, including a reasonable profit, but no more. From this vantage point also, the Hatfield approach lies well within the bounds of reasonableness.

In conclusion, the Hatfield Model complies with the detailed explanation of the cost methodology adopted by the FCC and the results of the Model should be used to establish rates for unbundled network elements in Florida.

Q. HAVE REGULATORS AND ECONOMISTS ENDORSED THE HATFIELD MODEL?

A. Yes. With reference to an earlier version of the model, which lacks a number of the features and enhancements incorporated into Release 2, the Washington Utilities and Transportation Commission concluded the following (See WUTC Docket No. UT-950200, Fifteenth Supplemental Order, page 82):

> The Commission rejects USWC's cost studies for local service and the local loop. The most reasonable and accurate measure of incremental cost for these services on this record is provided by the Hatfield model ... We are satisfied that it accurately reflects costs incurred by USWC and that, if it errs, it likely errs on the high side.

Nationally prominent economists have also endorsed the HM. In an affidavit submitted in response to the FCC's April 19, 1996, Notice of Proposed Rulemaking in CC Docket No. 96-98, Professors William J. Baumol, Janusz A. Ordover and Robert D. Willig state in paragraph 38 that:

> We have reviewed the costing model constructed for AT&T and MCI by Hatfield Associates, Inc., a telecommunications consulting firm. The object of the current Hatfield model is to estimate the total costs of building and operating a network, using efficient, forward-looking technology, to supply all "basic" narrowband services (essentially all local and intraLATA toll service, including carrier access) currently supplied in the United States. We conclude that the Hatfield

Model follows reasonably closely the TSLRIC principles discussed in Section II. Where limitations on the availability of data have forced the designers of the model to use approximations that deviate from the theoretical ideal, the shortcuts adopted tend to overestimate, not underestimate, true TSLRIC. Further the model is extremely flexible: whenever values are available, they can readily be substituted for the values used currently.

Section II: Constituents and Operation of the Hatfield Model

Q. PLEASE PROVIDE A SUMMARY DESCRIPTION OF THE HATFIELD MODEL'S OPERATION.

A. The Hatfield Model employs a methodology based upon engineering standards and methods applicable to the local exchange network in order to estimate the costs that would be incurred by an efficient firm to provide the unbundled network functions and basic exchange service that are considered by the model. Specifically, these costs would be incurred by an efficient LEC to provide the specified functions and services using a network designed to provide narrowband, voice-grade telephone services. The Hatfield Model is a table-driven system that is adaptable to any LEC or geographic area, provided the appropriate state-specific and company-specific information is available and input into the model.

Q. HOW DOES THE HATFIELD MODEL RELATE TO THE BCM?

A. A key constituent of the HM is BCM-PLUS, which was derived from the first version of the BCM ("BCM1"). However, BCM-PLUS, and the remaining modules of the

HM, use BCM1 only as an initial step in the development of the investment associated with the feeder and distribution components of the local loop. The Hatfield Model adds network components not included in BCM1. It also applies BCM1 output to its own switching investment module. The switching module in the Hatfield Model contains separate, user-changeable factors for switching investment, construction, installation, floor space and frames. This disaggregation provides for a thorough determination of wire center costs. The same module determines the investment in interoffice call transport and signaling facilities.

BCM-PLUS, together with the Hatfield Model, improve on BCM1 in a number of ways. First, the HM uses a 1995 estimate of households per Census Block Group (CBG), whereas BCM1 used 1990 census data. Second, the HM accounts for multi-line residences, and business, special access, and payphone lines, which were excluded from the loop facilities calculation in the BCM1. In doing so, it uses a database showing the number of employees per CBG that was not identified at the time BCM1 or earlier versions of the HM were written. Third, the HM estimates costs according to the line density -- that is, the number of *lines* served per square mile -- rather than the number of *households* per square mile. Fourth, the HM increases the amount of distribution cable in the two highest density ranges, and decreases it in lowest density range, consistent with the amount of cable that would actually be required for such a line density. Fifth, the HM estimates structure costs independently of the cost of the cable itself, whereas the BCM1 estimated structure costs as a multiplier of cable costs. In addition, the HM includes cable installation (placement) costs, which tends to increase the per-foot cost of the cable. Sixth, the Hatfield Model includes costs associated with network elements that were not included in the BCM1, such as the drop wire, network interface device, terminal, and serving area interface portions of the local loop, and the

facilities necessary to connect LEC end offices (interoffice facilities). These are perhaps the most significant changes; there are a number of additional minor changes.

As already noted, U S WEST and Sprint recently released a new version of the Benchmark Cost Model ("BCM2"). BCM2 incorporates many, but not all, of the modifications that the Hatfield Model made to BCM1.

Q. PLEASE DESCRIBE THE INPUT DATA USED BY THE HATFIELD MODEL.

A. The Hatfield Model uses seven primary categories of input data: CBG data, business employee data, cable and installation cost data, wire center data, traffic data, expense data, and ARMIS-reported data on the number of residence and business lines. The CBG data used by the Hatfield Model are: 1) number of households in each CBG; 2) CBG land area; 3) CBG position relative to the nearest wire center; and 4) geological factors including rock depth, rock hardness, water table depth, and surface texture. The business line data provide the number of business employees by CBG; this information is used to distribute the ARMIS-reported number of business, special access, and payphone lines by CBG.

The wire center data provides the location of existing wire centers in each LATA, as well as the location of existing tandem switches and signal transfer points.

Network traffic is estimated using dial equipment minutes and call attempt statistics. These inputs are used to appropriately size investment in switching, signaling, and interoffice facilities, as well as to calculate usage-sensitive costs for several of the unbundled network elements.

The information necessary to estimate future recurring expenses associated with operating and maintaining the telephone network comes from two sources. Forward-

looking expense information is used if it exists in the public domain. Where no such data is available, selected expense data reported by the LECs in ARMIS is used because it is the best publicly available data.

Q. WHAT ARE THE FUNCTIONAL MODULES THAT COMPRISE THE HATFIELD MODEL?

A. The Hatfield Model contains six functional modules. They are:

- Line Multiplier Module;
- Data Module;
- Loop Module;
- Wire Center Investment Module;
- Convergence Module; and
- Expense Module.

An overview of each of the modules is provided below.

Q. WHAT IS THE PURPOSE OF THE LINE MULTIPLIER MODULE?

A. In order to calculate costs on a per line basis, the HM uses estimates of the total number of lines (including residential, business, public telephone and special access lines) within each CBG. CBG input data contains the number of households, not number of lines, in each CBG. The line multiplier module determines a ratio of total residential lines reported in ARMIS to total households, and applies this ratio to the number of households in each CBG to estimate the number of residential lines by CBG. It estimates the number of business, special access, and payphone lines by distributing the corresponding ARMIS numbers among CBGs proportionally to the number of employees in each of the CBGs.

Because the network is sized to provide all loops, not just residential loops, and because the total line density may be substantially different than the residential line density, the model subsequently categorizes and reports costs within CBGs according to total line density (i.e., total lines served per square mile) rather than residential line density. Line density is broken into six categories, or density ranges: 0-5, 5-200, 200-650, 650-850, 850-2,550 and greater than 2,550 lines per square mile, respectively.

Q. WHAT FUNCTION IS PERFORMED IN THE DATA MODULE?

A. The Data Module uses CBG data and line totals to determine the quantity and type of outside loop plant facilities required, based upon density and distance of the CBG from the wire center. In doing so, it basically employs the same methodology as does the BCM1, although there are a few exceptions, such as 1) as already discussed, the length of distribution cable is changed for the highest and lowest line density zones; 2) the fiber-copper breakpoint -- that is, the feeder length below which copper cable, and above which fiber cable, are used -- becomes a user input; and 3) fiber cable is assumed to have a higher equivalent line capacity than is assumed by BCM1. The HM also separately considers the amounts and costs of underground and buried cable, whereas they were combined in the BCM1. The Data Module also calculates outside plant structure (poles, conduits) costs associated with placing and installing cable under varying terrain and population density conditions.

Q. WHAT FUNCTION IS PERFORMED BY THE LOOP MODULE?

A. The Loop Module, which is also part of BCM1, determines the size and type of cable required to serve each CBG, given loop lengths, fill levels, and population density. The Module then uses the distribution and feeder lengths calculated in the Data Module as

well as cable price information to determine the total required loop investment for each CBG including supporting structure investment.

Q. WHAT IS THE PURPOSE OF THE WIRE CENTER MODULE?

A. The Wire Center Module calculates wire center and interoffice facilities investments. This module quantifies investments associated with end office switches, wire centers, trunks, tandems (including operator tandems, and operator positions), signaling links, signal transfer points (STPs), and service control points (SCPs). Some of the elements it considers, such as the cost of the SCPs and operator positions, are relevant only to unbundled network elements; the remainder are germane to both unbundled elements and the cost of basic local service. The module uses the total number of access lines, the location of wire centers, and network traffic data to determine required switching, trunking, and signaling investments.

The module sizes network facilities sufficient to serve the total demand created by all users and uses of the network. The Hatfield Model derives its switch investment estimates by using both typical per line prices paid for by Bell Operating Companies, GTE and other independents for end office switches (according to a published source), and by using Table 2.10 of the FCC's Statistics of Communications Common Carriers, which provides the average number of access lines served by a LEC switch.

Q. WHAT IS THE PURPOSE OF THE CONVERGENCE MODULE?

A. The Convergence Module modifies the loop investment calculated in the Loop Module to account for network elements omitted from BCM1. It combines the modified loop investment with the wire center, interoffice, and signaling investment calculated in the Wire Center Module. For each of the six density ranges, the convergence module

reports the number of lines by type, number of households and investment in categories such as distribution, feeder, end office switching, tandems, and trunks.

Q. PLEASE DESCRIBE THE EXPENSE MODULE.

A. The Expense Module uses the outputs from the Convergence Module to determine annual capital carrying costs, operations and maintenance expenses, and support expenses associated with the investments needed for a local telecommunications network. This module uses the best publicly available information to estimate future expenses and reports the annual cost for each unbundled network element. The module requires as inputs appropriate assumptions regarding the cost of capital (cost of debt, cost of equity, and debt/equity ratio); the economic lives of various categories of network equipment and facilities, and the relationship between investment and expenses. It produces the appropriate unit cost of various unbundled network elements and of basic exchange service. These units vary by type of element and service: for instance, the cost of unbundled local switching is reported as both cost per port and cost per minute of use; while the SCP cost unit is messages. Basic local exchange service is reported as the cost per line per month for the service, whose elements have been defined previously. The results are reported by line density zone, using the ranges I have defined previously.

Q. YOU PREVIOUSLY REFERRED TO HATFIELD MODEL VERSION 2.2, RELEASE 1. PLEASE SUMMARIZE THE KEY DIFFERENCES BETWEEN HATFIELD MODEL VERSION 2.2 RELEASE 1 AND RELEASE 2.

A. The key differences may be summarized as follows. Compared to Release 1, Release 2

- estimates the cost of basic local exchange service,
- tentatively provides a graphical user interface to facilitate the setting of user inputs and running the model,
- provides an increased set of inputs that can be set by the user,
- uses a 1995 estimate of households by CBG, rather than 1990 census data,
- estimates the number of business, special access, and payphone lines per CBG using a database containing employees per CBG,
- increases the length of distribution cable for the two highest-density ranges, and decreases it for the least dense range,
- specifies cable costs on an as-installed basis, generally leading to higher per-foot cable costs,
- separates structure costs from cable costs, rather than calculating them as a multiplier of cable costs,
- places each serving area interface (the interface point between feeder and distribution cable) inside the CBG it serves, rather than at the edge of the CBG,
- refines the treatment of interoffice transport and signaling costs,
- provides a greater disaggregation of expense factors, for instance, by considering underground and buried cable expenses separately, and
- adds the estimated cost of local number portability.

Section III: Florida-Specific Model Results

Q. PLEASE SUMMARIZE THE MODEL INPUTS THAT HAVE BEEN USED TO DEVELOP COST ESTIMATES FOR FLORIDA.

A. The inputs used to perform the run of the model used to develop costs for use in this proceeding are attached as Exhibit DJW-2. As with all data, MCI is continuing to evaluate the accuracy and validity of these inputs in order to ensure the reliability of the cost information produced by the model.

Q. WHAT ARE THE RESULTS OF THE MODEL?

A. In Exhibit DJW-3, I have included the results of running the Hatfield Model to develop costs for use in this proceeding. In summary, the results of MCI's analysis are as follows:

Hatfield Model Unbundled Network Element Summary

	Element	Unit Definition	Unit Cost
1.	Network Interface Device	per line-per month	$ 0.52
2.	Loop Distribution	per line-per month	$ 8.50
3.	Loop Concentrator	per line-per month	$ 2.49
4.	Loop Feeder	per line-per month	$ 2.34
5.	End Office Switching Port	per line-per month	$ 1.05
	Usage	per minute	$ .0023
6.	Signaling Links	per link-per month	$ 27.57
7.	Signal Transfer Point	per message	$ .00018
8.	Signal Control Point	per message	$ .00119
9.	Common Transport	per minute	$ .00063
10.	Dedicated Transport	per DS0 - per month	$ 3.76
11.	Tandem Switching	per minute	$ .0025
12.	Operator Systems		$ 2,347,959

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Q (By Mr. Melson) Mr. Wood, would you please summarize your testimony?

A Yes, I will. Good morning. I'm here on behalf of MCI to present the results of what's become referred to as the Hatfield Model. And I'm doing so because I believe that the results of this model represent to you the most accurate and ultimately the only verifiable costs that are available to you in order to set prices for unbundled network elements. But what I'm sponsoring really goes beyond that. I'm really sponsoring a start to finish costing process.

I talk a lot in my testimony about the need for an open costing process based on the experience that I've had attempting to review cost studies performed by the incumbent local companies including Sprint Untied. I've done a lot of that work on behalf of intervenors, like MCI. I've done it on behalf of commissions and their staffs. The experience has been very similar in both cases, and that is that it's very difficult to review the incumbent studies.

There is a lot in the record and several witnesses' testimony about the openness of both the Hatfield Model and the Benchmark Cost Model which Sprint United is advocating here with regard to the development of the investment piece, or the investment

calculations, for the local loop. But the development of investments is really only the first step in a more complete costing process. What's equally important in this process is how you convert those investments into an annual cost, and then the method that might be used to further mark up those costs to develop prices -- although to be clear, I'm not suggesting that any such mark up is necessary or appropriate.

The Hatfield Model as it's been presented includes that entire start to finish process on an open and public basis. It calculates forward-looking economic costs that an efficient provider of unbundled network services providing those services or elements on a wholesale basis would incur on a forward-looking basis. It is not and it does not purport to be a study of Sprint United's embedded costs. It is not a study of Sprint Untied's fully distributed or nearly fully distributed costs. It is not a study of Sprint United revenue requirement, nor does it purport to be.

The prices based on the results of the Hatfield Model are prices that will permit and promote competition within the state. They are not the prices that are designed to protect one competitor over another, and for that reason, I urge you to adopt these prices for unbundled network elements. That

concludes my summary.

CHAIRMAN CLARK: Mr. Fons or Mr. Wahlen.

MR. FONS: Yes.

CROSS EXAMINATION

BY MR. FONS:

Q Good morning, Mr. Wood.

A Good morning, Mr. Fons. Good to see you again, sir.

Q Good seeing you. Usually we've just talked to each other by telephone, so face-to-face is a blessing.

Let me ask you a few background questions, if I may. The Hatfield Model that you used in this proceeding, this arbitration proceeding between MCI and Sprint, is that the same Hatfield Model that was used in the arbitrations involving BellSouth and GTE of Florida?

A Yes, sir, it is.

Q And the only changes would be some specific data relative to Sprint, as opposed to BellSouth and GTE Florida?

A That's the only change. To be clear, the vast majority of the data in the model is specific to the company being studied and the serving territory of the company being studied. So the vast majority of

the data will have been changed from one run to the next to reflect Sprint United's serving territory in Florida. But those are the only changes. There are no calculation-type changes that have been made to the model.

Q You did not design the Hatfield Model, did you?

A No, sir, I did not.

Q Are you familiar with all of its inner workings?

A I have looked extensively at its inner workings. I guess at different times I've been more familiar with certain pieces and less with others and that changes over time depending on what people have been interested in. It's -- I guess to be perfectly honest -- a lot of information to load into my brain at one time, so I keep loaded the piece the people have been interested in and asking about.

I'm sorry, I'm generally familiar with this, yes. I have spent quite a bit of time looking at it.

Q What input data did you use for Florida that would be different from the data that you would have used for BellSouth and GTE?

A Two primary groups. As you know, the model looks at specific discrete geographic areas census

block groups when it does these calculations. And it looks specifically at the CBGs within the United/Centel serving territory in Florida. The population of those CBGs, the distribution of population, the number of lines to be served, is specific to your company's operations. The network traffic characteristics; dial equipment minutes, for example, is specific to your company.

Also, the cost of placing plan in those CBGs is a function of the geographic characteristics. So the U.S. Geological Survey data that's in the model on a CGB-by-CGB basis will also be specific to Sprint United's serving territory.

Q In the GTE and BellSouth arbitrations, you testified and were subject to cross examination and were also deposed; is that correct?

A Yes, sir.

Q And a lot of the questions that were asked of you during the hearing and during the depositions were questions concerning the operation of the Hatfield Model; isn't that correct?

A That's right.

MR. FONS: Madam Chairman, I would like to offer at this time as an exhibit portions of the transcript and depositions of Mr. Wood in the

BellSouth and GTE proceeding. Those would have been --

CHAIRMAN CLARK: Okay. We will label that as Exhibit 13. And that's portions of the transcript from what?

MR. FONS: Of the testimony, direct -- I'm sorry, his deposition transcript in Docket Nos. 960847-TP, 960980-TP, 960846-TP, 960833-TP, and his testimony in the BellSouth, his cross examination in the BellSouth proceeding.

CHAIRMAN CLARK: Okay. Those portions of the transcripts from those proceedings and the depositions will be marked as Exhibit 13.

(Exhibit 13 marked for identification.)

MR. FONS: I would also at this time ask if we could have Staff's exhibit which has the I.D. No. DJW-5 identified as Exhibit 14.

CHAIRMAN CLARK: It will be marked as DJW-5. 14.

(Exhibit 14 marked for identification.)

Q (By Mr. Fons) Mr. Wood, is the Hatfield Model an engineering model?

A It is a cost model. It certainly relies on some engineering principles and engineering practices, but its objective is to create or to develop the

correct cost of serving an area. In doing so it makes some engineering calculations. But the purpose of the model is not to engineer a network or to do network planning.

So if you look at the costs associated with a specific area, you should get the right cost number. And I think you do. If you look at -- underlying that, some details of network assumptions, those may or may not be the same network assumptions that a network planner would make when serving that area. But the test of a cost model is if it gets the cost right, not the engineering right. And I think that's what this model does very well.

Q Does it create a real or a hypothetical network?

A Well, it's a forward-looking network and all forward-looking networks are by definition hypothetical. It's constrained by your existing switch locations. But building out from those locations, it does so on a forward-looking basis.

Q Does it engineer a network that is capable of providing telecommunications service?

A It calculates for each of the CBGs the correct costs that would be required for such a network. But, again, it does not purport to engineer

a specific network for a specific area. That's not the purpose of the model.

Q Does it model for actual service or just for averages?

A It models -- well, I'm not certain what you mean by "actual" verses "averages." It does not -- it does actually very little averaging because it looks at costs on these very discreet geographical units. There are almost 5,000, I think, or 6,000 in Florida. There's very little averaging that you typically see in cost studies of statewide characteristics, it's very specific.

Q Would you agree, Mr. Wood, that there are some loops that are modeled by the Hatfield Model that will simply not work in real life?

A That is a possibility. I can't tell you that I've -- unless you may want to show me one, I have not seen any. Again, it's possible. You will probably have some areas -- within a given CBG, you'll have some overinvestment for some loops and some underinvestments for some loops.

Again, the real test of any cost model is whether it gets the cost right. And when you look at each census block group calculation and the total investment assumed to serve that area, each time we

look, the model gets it right.

Q Will an 89,000 foot copper loop work?

A I'm not an engineer, but I suspect that it would not.

Q Are you aware that in your model there is an 89,000 foot copper loop?

A I have not seen that one in the Florida Sprint run, but it could very well exist. Again, I expect there are probably some loops that are in the model much shorter than that that are overbuilt. So, again, you need to look at the total investment assumed to serve the CBG. This is not a loop-by-loop cost model. It is a CBG-by-CBG cost model.

Q But ultimately, aren't you using this model to determine what the loop cost will be for unbundling purposes?

A Yes, we are.

Q And doesn't that have to take a look at the actual loops to make a determination of what those costs are?

A Well, it has to take a look at the actual area, and it does that. Now, when we are talking about unbundling, we are not asking for every loop in the state to be priced differently. If we were, then I think you are exactly right; I think you would need

a model that looked loop by loop. But what we're actually asking for, though, is loops to be priced based on the characteristics of a given area that affect the price of that loop, density, geographic terrain, that sort of thing.

What we are actually studying is a much smaller geographic area than the area in which we are asking to be unbundled. So you wouldn't need to do the type of analysis you're describing in order to reach the pricing proposal that we are asking for.

Q But don't you do that kind of an analysis to determine the cost?

A I'm sorry, what kind of an analysis?

Q Analysis on a CBG-by-CBG on a loop-by-loop basis?

A We do it on a CBG-by-CBG basis. We do not attempt to engineer and cost every individual loop, but we have no individual loop cost. But we are not asking for individual loop prices either.

Q Are there other factors that need to be taken into account as to whether or not these loops will actually work? And if they don't work, what has to be done to make them work, and what costs would be involved in making them work?

A It's necessary in the following sense -- and

I've been doing some of this analysis because BellSouth has asked for it in other states. If you look at what the model calculates as the total investment in distribution plant, for example, to serve a census block group, a given census block group, you then can calculate through and find out the total dollars available to spend.

If you want to then do the type of analysis you're talking about, you take those total dollars and then you go on a much more specific loop-by-loop basis. And essentially, that's the dollars that you have to spend. And the question becomes can you then design a network given the dollars that you're allowed to spend under the model and of the results of the model. If you can, the model is validated. It's an effective costing model because it correctly calculated the cost of serving the area.

It's only in that type of analysis that you would get to the type considerations that you are asking about.

Q One of your assumptions is that all distribution plant will be copper; isn't that correct?

A Yes.

Q And aren't there distance limitations on copper being able to transmit voice?

A There certainly are. I should have given you one additional piece of the previous answer. And that is for calculation purposes the model assumes that all loops are copper to develop that cost number.

Q And wouldn't you agree that some copper loops -- would you agree that any copper loop over 18,000 feet requires additional electronics to work?

A Again, I'm going to give you the same qualification, that I'm not an outside plan engineer. But I have done some loop studies, and I've talked to these folks. And depending on the different quality measures that you are going to apply the loop, at some number of kilo feet, you are going to need to invest in additional load coils or loop extenders.

Q And would you accept, subject to check, that your model produces 121,424 loops that are over 18,000 feet in length?

A You asked me about that, and we ran it, and that's nearly correct. Actually, we came up with 115,593.

Q And wouldn't each one of these loops require load coils or loop extenders if they were to work in the real world?

A It may indeed. And the question again comes back to what I described to you before. You have a

total dollars of investment figure predicted by the model for each CBG. And the question is, can you then actually design those loops in the, quote/unquote, real world, as you described it, given that number of investment dollars.

Q Do you know if there are any costs included in the Hatfield for loop extenders and load coils?

A I have a question into the model developers to confirm that. I believe the answer is no, but I'm verifying that because I don't want to say so without checking first.

Q Loop extenders and load coils do have a cost, do they not?

A Yes, sir, they do.

Q And if those loop extenders and load coils are not included, the cost of them are not included in the model, then your cost of the loop is understated; isn't that correct?

A Well, no, sir, not necessarily. That's what I was describing to you before. There's a total investment dollar figure for each CBG. That figure is a result of a lot of different calculations. It may very well be and, in fact, it's borne out in some of the analysis I've done for BellSouth that there are some overassumptions in terms of investment with

regard to cable and structure necessary. And that overinvestment, it provides more than sufficient investment funds to then go out and buy the load coils that you are talking about.

So again, this is a cost model; it's not an engineering model. The question is, does it predict enough total investment dollars to serve an area. It's not intended to constrain you in terms of how you spend those dollars.

Q Let's move to the supporting structures.

A Yes.

Q I believe you've indicated that -- and I think this is in -- if you'll turn to Exhibit 14, which is DJW-5. You should have a copy of that in front of you.

A Yes, I do.

Q If you would turn to Page 22 of 31, which I guess now has a different number. It would be Page 46 of this exhibit.

A Yes, sir.

Q And if you'll look under Miscellaneous Loop Investment Inputs, distribution percent -- I'm sorry, distribution structure percent assigned to telephone.

A Yes, sir.

Q It shows under default 0.33. What does that

represent?

A That represents the way the model recognizes that the use of structure: holes, conduit, and trenches, can be shared by utilities in order to save money. Quite a bit of that is done today.

As a cost saving opportunity, it's expected that more companies will avail themselves of that opportunity in the future. This is a three-way assumption and an equal split among three utilities. It may overstate the amount that ought to go to telephone slightly.

Q The one-third is applicable to conduit, as well as to pole lines?

A Yes, sir.

Q And to trenches?

A Yes, sir.

Q When a telephone company uses an area cable, does the telephone company have to put some kind of a strand or wiring up there to hold the cable?

A I'm sorry, I couldn't understand the word you used.

Q When a telephone company puts up an aerial cable --

A Yes, sir.

Q -- doesn't it have to put a strand of wire

up there between the two poles to hold up the cable?

A It depends on which type of aerial cable you are using and how it's sheathed. And sometimes that type of -- that wire is coiled and part of the cable itself.

Q Suppose that the telephone company does put up a wire called "a strand" between the two poles.

A Yes.

Q Are you saying that the telephone company shares that strand?

A Not if it's associated directly with your cable, no, sir.

Q Well, if the cost is of the structure, which would be part of the pole and not the cable itself, wouldn't you be requiring the telephone company to share the strand with other providers, and wouldn't that require the other provider to lash its cable to the telephone company's cable?

A No, sir, not at all. What we are talking about here is a piece of cable that would support yours. Most often when I've seen it in outside planted applications, it actually comes off the reel at the same time your working cable does and oftentimes is wrapped around it. In that case we're talking about part of the investment in the cable

itself, in your aerial cable itself, not an investment that would be associated with the pole.

Q How do I know that from the model?

A You'd have to ask, I guess.

Q I'd have to ask whom?

A Well, I guess today it's me.

Q And do you know the answer, where would I find that in the model?

A Well, that's what I'm just saying. You'll have to look at the model calculations. You will see investment for aerial cable. And it's my understanding that they include the type of sheathing that we are talking about in order to cover the span of 150 feet, which is assumed in the model.

Q Does it include the wire strand between the poles?

A It's my understanding that if you did that as a separate strand, that would be a different investment. You can purchase a cable that includes that strand, and that's what's included here on an aerial cable.

Q Does your study include the cost of the guy wires and anchors?

A That's part of the pole installation, yes, sir.

Q And when a telephone company puts up an area of cable, doesn't it have to install an anchor and a guy wire?

A That's part of the pole. That's part of putting up the pole no matter who puts it up, and it's part of the pole investment.

Q And if another cable is added to that pole by some other entity, a cable TV company, isn't another guy required?

A That would be unique in my experience, but I could answer that as a cost analyst who's done outside plant costing, and I haven't included that before. I have not had an engineer suggest that it be included, but I'm not giving you that answer as an outside plant engineer.

Q Where is the cost of the guy and the anchor in the Hatfield Model, where will we find that cost?

A If you give me one minute, I believe it's in the document that we are talking about. I could tell you generally. If we need to look at the page, we can.

The pole investment is broken into two pieces, material and installation. The installation figure is the larger of the two. Of the $450, there's more installation dollars assumed than actual pole

dollars assumed. And part of the installation includes the material required to do that, which would be the guy wire.

Q And that is a structure that has to be shared then under your model. So one-third -- the telephone company only gets one-third of the cost of that guy and anchor?

A Well, that's part of the pole, that's right.

Q How do you share a guy and an anchor?

A Well, if the guy and the anchor are supporting the pole and you are sharing the pole, then I guess by definition you are sharing the guy wire and the anchor.

Q But if each one of the entities has to put up its own guy and anchor or the pole will fall down, how do you share the one that the telephone company has put up?

A Well, that's what I described to you before. You are talking about a requirement that I'm simply unfamiliar with. I've looked at a lot of pole investment, I've done some loop cost studies, I've done some transport cost studies that are involved with poles, and the number of guys to properly support a pole on a given terrain isn't dependent on which utility is attaching to the pole. It's dependent on

the height of the pole and the type of soil and that sort of thing. Once you put those in place and done it properly, it really doesn't change depending on how many utilities are then attaching.

Q That's your opinion?

A That's my experience, yes, sir.

Q Is that your opinion?

A Well, certainly. It's my opinion that my experience would bear out. Yes, sir, it is.

Q Let's talk about conduits for a movement. In the study, how many conduits does the study provide for each CBG?

A That depends. It doesn't provide conduits by CBG. It provides conduits for different cable facilities. So depending on the density zone, there will be a different mix of aerial, underground, and buried cable. So if you are in a very high density area, you would have more conduit assumed. In a low density area, you won't have any conduit assumed.

Q So you are saying that the model will provide more than one conduit duct in a run?

A No, sir. You asked about how many conduits per CBG, and that depends on whether this is a high density or low density CBG.

Q Will you have more than one duct in a duct

run?

A I believe the answer is no, but that's also one of the things that you asked me about that I'm confirming with the model developers.

Q And this is a four-inch PVC duct?

A The conduit is four-inch PVC, and it does not have inner duct, so in a sense it is a single duct conduit.

Q And under the model, the telephone company is required to share that duct, that four-inch PVC, with other entities?

A In some areas, yes.

Q And is it not common in your model to have 4,200 pair of cable in an underground situation requiring conduit?

A 4,200 pair of cable?

Q Yes.

A I think that is fairly uncommon, but it certainly occurs.

Q You would have a 4,200 pair cable, would you not, in a high density situation?

A You could very well, yes.

Q In the city of Tallahassee, you would expect to find 4,200 pair of cable?

A You could. As I give you that, I may can

give you a better answer. And I've got a page marked.

CHAIRMAN CLARK: Mr. Fons, how much more do you have?

MR. FONS: I probably have about an a half-an-hour more.

CHAIRMAN CLARK: We are going to go ahead and take a break for lunch now, and we will come back at quarter after 1:00.

(Thereupon, lunch recess was taken at 12:10.)

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(Transcript continues in sequence in Volume 3.)