FILE COPY

Marceil Morrell**
Vice President & General Counsel - Florida

Associate General Counsel
Anthony P. Gillman**
Leslie Reicin Stein*

Attorneys*
Kimberly Caswell
M. Eric Edgington
Ernesto Mayor, Jr.

* Licensed in Florida
** Certified in Florida as Authorized House Counsel

GTE Telephone Operations

One Tampa City Center
201 North Franklin Street, FLTC0007
Post Office Box 110
Tampa, Florida 33601
813-483-2606
813-204-8870 (Facsimile)

October 21, 1996

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

Re: Docket No. 961169-TP
Petition by American Communications Services, Inc., and its local exchange operating subsidiaries, for Arbitration with GTE Florida Incorporated pursuant to the Telecommunications Act of 1996

Re: Docket No. 961173-TP
Petition of Sprint Communications Company Limited Partnership for Arbitration of Proposed Interconnection Agreement with GTE Florida Incorporated Pursuant to the Telecommunications Act of 1996

Dear Ms. Bayo:

Please find enclosed the following for filing:

CMU
Leg 2
OPC 1
COMMS 5

An original and fifteen copies of GTE Florida Incorporated's Response to Sprint Communications Company Limited Partnership's (Sprint) Petition for Arbitration in Docket No. 961173-TP. This response includes GTE's pre-arbitration brief, testimony and other related materials pertaining to Sprint's petition for arbitration; 11239-96

An original and fifteen copies of another binder containing GTE's proposed interconnection, resale and unbundling agreement. This binder is also being filed in response to Sprint's Petition for Arbitration in Docket No. 961173-TP; 11240-96

An original and fifteen copies of GTE Florida Incorporated's Response to American Communications Services, Inc.'s (ACSI) Petition for Arbitration in Docket No. 961169-TP. This response includes GTE's pre-arbitration brief, GTE's testimony and other related materials pertaining to ACSI's petition for arbitration; 11240-96

Six cost study binders containing confidential cost study materials. One binder contains all cost studies as well as related workpapers. The other five binders contain additional supplemental material relating to such studies. These cost study materials are confidential and are not to be publicly filed or disclosed. They are being provided subject to GTE's Notice of Intent to Seek Confidential Classification, which is being filed under separate cover. These six cost study binders are applicable to both dockets, Docket No. 961169-TP (ACSI arbitration) and Docket No. 961173 (Sprint arbitration).

Service has been made as indicated on the Certificates of Service. If there are any questions regarding this matter, please contact me at (813) 483-2615.

Very truly yours,

Anthony P. Gillman

APG:tas
Enclosures

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that copies of GTE Florida Incorporated's Response to American Communications Services, Inc.'s Petition for Arbitration and Notice of Intent to Seek Confidential Classification in Docket Nos. 961169-TP and 961173-TP were hand-delivered (*) or sent via overnight delivery (**) on October 21, 1996 to the parties listed below.

Monica Barone/Charlie Pellegrini (*)
Division of Legal Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Norman H. Horton, Jr. (*)
Messer, Caparello, Madsen, Goldman & Metz
215 S. Monroe Street, Suite 701
Tallahassee, FL 32302-1876

James F. Falvey, Esq. (**)
Swidler & Berlin
3000 K Street, Suite 300
Washington, DC 20007-5116

Anthony Gillman

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that copies of GTE Florida Incorporated's Response to Sprint Communications Company Limited Partnership and Notice of Intent to Seek Confidential Classification in Docket Nos. 961169-TP and 961173-TP were hand-delivered (*) or sent via overnight delivery (**) on October 21, 1996 to the parties listed below.

Monica Barone/Charlie Pellegrini (*)
Division of Legal Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Benjamin W. Fincher (**)
Sprint
3100 Cumberland Circle
Atlanta, GA 30339

C. Everett Boyd (*)
Ervin, Varn, Jacobs, Odom & Irvin
305 S. Gadsden Street
Tallahassee, FL 32302

Anthony Gillman

GTE'S RESPONSE TO SPRINT'S ARBITRATION PETITION

DOCUMENT NUMBER-DATE
11239 OCT 21 96
FPSC-RECORDS/REPORTING

SECTION I

TABLE OF CONTENTS

TABLE OF CONTENTS

Section I	Table of Contents
Section II	Response
Tab 1	Arbitration Brief
Tab 2	8th Circuit Opinion
Tab 3	Brevitz Testimony
Tab 4	Takings Report
Tab 5	Issue Matrix
Section III	Glossary
Section IV	Testimony
Part I	Loop and Switch Unbundling
Part II	SS7 Unbundling
Part III	Resale
Part IV	Interconnection, Transport and Termination
Part V	Collocation
Part VI	Poles, Ducts and Rights-of-Way
Part VII	Economic Study
Part VIII	Cost Study
Part IX	Pricing
Part X	Operations Support Systems Issues and Related Issues
Part XI	Number Portability
Part XII	OS/DA
Part XIII	Policy Testimony
Part XIV	Directories

SECTION II

RESPONSE

TAB 1

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by American Communications Services, Inc., and its local exchange operating subsidiaries, for Arbitration with GTE Florida Incorporated pursuant to the Telecommunications Act of 1996	Docket No. 961169-TP Filed: October 21, 1996
In re: Petition of Sprint Communications Company Limited Partnership for Arbitration of Proposed Interconnection Agreement with GTE Florida Incorporated Pursuant to the Telecommunications Act of 1996	Docket No. 961173-TP

GTE FLORIDA INCORPORATED'S BRIEF IN RESPONSE TO REQUEST FOR ARBITRATION BY SPRINT COMMUNICATIONS COMPANY L.P.

GTE Florida Incorporated (GTE) hereby responds to the Petition for Arbitration filed by Sprint Communications Company L.P. (Sprint). This Response is filed pursuant to Section 252(b)(3) of the Communications Act of 1934, as amended by the Telecommunications Act of 1996 (the Act).

I. INTRODUCTION

The Act has removed all restrictions to competition in the local exchange market. Today, any new entrant may build facilities and offer local exchange service in competition with incumbent local exchange carriers (ILECs). The Act also permits new entrants to take advantage of existing ILEC facilities by purchasing the right to use certain "unbundled elements" of an ILEC's network, which the new entrant may combine with its own facilities

to offer local service. Alternatively, new entrants may elect to resell an ILEC's existing retail services.

When a new entrant desires to purchase unbundled elements or wholesale services from an ILEC, the Act requires the parties to negotiate the relevant prices, terms and conditions. If the parties are unable to reach agreement on specific issues, the Act permits States (through their public utility commissions) to resolve these issues through State-sponsored arbitrations.

For several months, Sprint and GTE have been negotiating the rates, terms and conditions of a comprehensive interconnection agreement. Although the parties have reached agreement in many areas, they have been unable to resolve several fundamental issues. A summary of the unresolved issues and the parties' positions on each is set forth in the matrix attached to this Brief (see Section II of Response, Tab 5).[1]

The principal areas of the parties' disagreement center upon the prices Sprint should pay for interconnection, unbundled network elements, and wholesale services. Under the Act, GTE is entitled to recover all its costs associated with its services and facilities (including a reasonable profit), and GTE has submitted testimony and detailed cost studies in support of its prices. Sprint, however, has not presented any evidence on these essential issues. Instead, Sprint appears to rely exclusively upon the "default proxy"

---

[1] In its Petition, Sprint included a matrix which purported to set forth GTE's positions on the disputed issues. This matrix is incorrect, and the attached matrix reflects GTE's actual positions. The attached matrix is, of course, merely a summary of GTE's positions. GTE's positions are addressed in detail in the pre-filed testimony included in GTE's Response.

rates and the pricing methodology established by the Federal Communications Commission (FCC) in its First Report and Order.[2]

Sprint's reliance on the FCC's rules is misplaced, because all of the FCC's pricing rules have been stayed by the United States Court of Appeals for the Eighth Circuit.[3] In granting the stay, the Eighth Circuit concluded that GTE and other petitioners were "likely to succeed on the merits" in establishing that the FCC acted outside its authority in establishing proxy rates and pricing rules. The court also concluded that, absent a stay, the FCC's rules and proxy rates would result in irreparable injury to GTE and other parties. Specifically, the court accepted GTE's argument that the FCC pricing methodology would force GTE to offer its services to carriers like AT&T at prices that are below actual costs, causing GTE to incur irreparable losses in customers, goodwill and revenue. (Stay Order at 18.) The court found, in effect, that imposition of the proxy rates would penalize GTE in the transition to market in which carriers are free to compete for the local market:

> As we explained above, we are persuaded that, absent a stay, the proxy rates would frequently be imposed by the state commissions and would result in many incumbent LECs suffering economic losses beyond those inherent in the transition from a monopolistic market to a competitive one.

Id.

---

[2] In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, First Report and Order, CC Docket No. 96-98, FCC 96-325 (released August 8, 1996) ("First Report And Order").

[3] A copy of this decision, Iowa Board, et al. v. Federal Communications Commission, No. 96-3406 (8th Cir. October 15, 1996), is appended to this brief (attached in section II of GTE's response, Tab 2).

The consequences of the Eighth Circuit's ruling are clear. First, neither Sprint nor this Commission may rely on any aspect of the FCC's proxy rates or pricing rules. Second, the Commission retains the authority granted by the Act to establish appropriate "just and reasonable" rates that reflect an ILEC's costs. Indeed, the Commission has an obligation to do so. Third, the Eighth Circuit's opinion fully supports GTE's proposed rates, which are based on the Company's forward-looking costs and not on the costs of a hypothetical network or hypothetical company.

The Eighth Circuit also stayed the effect of another FCC rule relied upon by Sprint: the so-called "pick and choose" rule, which would have allowed new entrants to "cherry pick" favorable provisions from any negotiated or arbitrated agreement. The Eighth Circuit stayed this rule in part because it would result in irreparable injury by undercutting the Act's negotiation provisions. Sprint relies on this rule to support its request for a Most Favored Nations clause, but here again Sprint's request has been preempted by the Eighth Circuit's ruling.

The following sections of this Brief address in greater detail the pricing issues, the "pick and choose" rule, the Eighth Circuit's stay, and several of the more significant issues raised by Sprint's Petition.[4] This Brief and the attached matrix are intended only to summarize GTE's positions, all of which are fully addressed in the accompanying testimony.

---

[4] Most of the issues addressed in this Brief are presented in the same order as Sprint's Petition. GTE, however, has re-organized the presentation of some issues for clarity.

Finally, GTE has included its proposed Interconnection, Resale and Unbundling Agreement in its Response. GTE, however, urges the Commission to decide only those issues raised by Sprint's Petition rather than attempt to draft specific contract terms. GTE believes this approach is consistent with Section 252 of the Act.[5] For example, section 252(c)(4) contemplates that the parties will prepare and separately submit an agreement to the State commission for approval only after the arbitrator resolves the outstanding issues. This sequence of events is logical. Indeed, to require the parties to draft specific contract language before an arbitrator resolves the essential "over-arching" issues would be an exercise in futility. This sequence of events also is consistent with commercial contract negotiation and drafting, where parties first reach agreement on the major items of their deal and then draft specific language to reflect their "agreement in principle." Here, the arbitrator should resolve the major issues so that the parties can take the next step and draft contract language reflecting the arbitrator's decisions.

---

[5] This Section provides: "During the period from the 135th to the 160th day (inclusive) after the date on which the incumbent local exchange carrier receives a request for negotiation under this section, the carrier or any other party to the negotiation may petition a State Commission to arbitrate any open issues." Section 252(b)(1) (Emphasis added.) See, also Section 252(b)(4)(c) The Commission "shall conclude the resolution of any unresolved issues not later than 9 months after the date on which the local exchange carrier received the request under this section." (Emphasis added.)

II. COST AND PRICE-RELATED ISSUES

A. Rates for Interconnection and Unbundled Elements

The parties disagree as to the appropriate rates for interconnection and unbundled elements. Section 252(d)(1) of the Act governs this issue, and provides as follows:

> Determinations by a State commission of the just and reasonable rates for the interconnection of facilities and equipment . . . and the just and reasonable rates for network elements . . . (A) shall be (i) based on the cost (determined without reference to a rate-of-return or other rate-based proceeding) of providing the interconnection or network element . . . and (ii) nondiscriminatory, and (iii) may include a reasonable profit (emphasis added).

Contrary to the plain language of the Act granting State commissions the authority to set rates for interconnection and unbundled elements, the FCC attempted to strip the States of their rate-setting role by establishing mandatory costing and pricing principles and by creating default proxy rates for States to apply. These are the default proxy rates Sprint is urging the Commission to adopt in this proceeding.

GTE, other ILECs, and various State commissions have appealed the FCC's rules. As a part of this appeal, GTE and several other parties moved to stay the effect of the First Report and Order pending a review on the merits. On October 15, 1996, the Eighth Circuit granted a stay of all the FCC's cost and price-related rules, finding that GTE and the other petitioning parties "have demonstrated that they likely will succeed on the merits of their appeals based upon their argument that, under the Act, the FCC is without jurisdiction to establish pricing regulations regarding intrastate telephone service."[6] Accordingly, the

---

[6] The Eighth Circuit's decision staying the First Report and Order is binding nationwide. The Eighth Circuit was selected pursuant to the "lottery statute," 28 U.S.C.

FCC's cost and price-related rules -- as well as the FCC's default proxy rates -- may not be relied upon or imposed by anyone. See, e.g., Scripps-Howard Radio, Inc. v. FCC, 316 U.S. 4, 9 (1942) ("an appellate court should be able to prevent irreparable injury to the parties or to the public resulting from the premature enforcement of a determination which may later be found to have been wrong").

Given that the FCC's default proxy rates have been stayed, and given that Sprint has not submitted any cost studies to support any rate for interconnection and unbundled elements, GTE urges the Commission to adopt GTE's proposed rates, which fully conform with § 252(d)(1) of the Act.

GTE has submitted testimony and accompanying exhibits of several witnesses to support its proposed rates. First, GTE's Economic Presentation sets forth the Company's proposed pricing methodology, known as the Market-Determined Efficient Component Pricing Rule (M-ECPR). This methodology is based on two fundamental principles: (1) rates for unbundled network elements should be based on their Total Element Long-Run Incremental Cost ("TELRIC")[7] plus a reasonable contribution to the Company's "common costs"; and (2) competitive market assumptions should be included in GTE's ratemaking

---

§ 2112(a), as the only Court of Appeals to hear the multiple petitions for review that were filed after the publication of the First Report and Order. Under the "lottery statute," the Eighth Circuit was chosen at random to hear all petitions for review and related matters, including the stay requests. Pursuant to the "lottery statute," no other court will be authorized to consider a review of the First Report and Order. That means that the Court's Order is binding on this and every Commission and State.

[7] TELRIC is a term coined by the FCC. See the FCC's First Report and Order issued in CC Docket No. 96-98 on August 8, 1996; hereinafter referred to as the FCC's "First Report."

process to ensure that rates are less than or equal to the Stand-Alone-Cost ("SAC") of any network element.

Sprint does not appear to object to GTE's pricing methodology; rather, Sprint seems to believe that GTE's common costs are de minimis, and therefore GTE's proposed rates should be reduced. The evidence, however, conclusively establishes the nature and extent of GTE's common costs. In fact, the evidence shows that GTE's common costs are approximately 35-50% of GTE's total costs. This ratio is not surprising, given the significant economies of scale present in GTE's operations.

GTE's costing methodology and cost studies are discussed in detail in the testimony of GTE's witnesses, but there are two important points we stress here. First, GTE's TELRIC estimates do not incorporate any common costs. Second, GTE's common costs relate to services and facilities that are essential to GTE's operations and that enable GTE to enjoy significant economies of scale. These common costs are found, for example, in the following expense categories: plant specific expenses, such as network support, general support, and general purpose computers; plant non-specific expenses, such as network planning and engineering; general support assets, such as furniture, office support equipment, company communications equipment, and general purpose computers; land and buildings (other than central offices); indirect labor expenses; corporate expenses; and taxes and fees, such as local franchise taxes, federal superfund taxes, local and state business license and occupation taxes. These are real costs that are actually incurred by GTE, and GTE is entitled to recover a fair share of these costs from Sprint under § 252(d)(1) of the Act.

In sum, the Company's "common costs" are integral to the efficient operation of GTE's network and are incurred to support all the network elements requested by Sprint and other new entrants.[8] Accordingly, GTE is entitled to recover a fair share of these costs under the Act, and GTE's proposed rates reflect this fair share.

Because Sprint believes the FCC proxy rates are reasonable and should be imposed upon GTE, GTE conducted an analysis of the FCC's rates to determine how they compared to GTE's actual costs and revenues. GTE's pricing witness has prepared a chart comparing the FCC's proxy price for a combination of unbundled local switching and an unbundled local loop (i.e., the reassembled equivalent of local service) to the results of GTE's TELRIC study and to GTE's current average revenues per line This analysis confirms that the FCC's rates -- or any other rates approximating the FCC's rates -- are wholly inadequate and confiscatory.

Specifically, GTE's comparison shows that when the unbundled network elements of switching, a loop and a Network Interface Device (NID) are combined to replicate local service, the revenues from those elements when priced at the FCC's proxy rates are only sixty percent of GTE's TELRIC for the combined elements. This comparison of price to cost actually understates the shortfall, because by definition TELRIC does not include any allocation of common costs. Moreover, the FCC's proxy rates would provide new entrants with about a 64% discount off GTE's current average business retail revenue per line. Clearly, the FCC's proxy rates do not come anywhere close to providing revenues that

---

[8] GTE has prepared a "common cost" chart that is attached to the testimony of its pricing witness. This chart sets forth a state-specific estimate of GTE's forward-looking common costs.

cover GTE's costs. Accordingly, the FCC's proxy rates, or any similar rate, regardless of how it is derived, cannot be imposed upon GTE. Such rates would violate both the Act and the Constitution, which require that GTE be allowed to recover all its costs, including a reasonable profit.

B. Rates for Wholesale Services

As with interconnection and unbundled elements, the parties disagree over the prices for wholesale services. This issue is governed by § 252(d)(3) of the Act:

> [A] State commission shall determine wholesale rates on the basis of retail rates charged to subscribers . . . excluding the portion thereof attributable to any marketing, billing, collection and other costs that will be avoided by the local exchange carrier (emphasis added).

Here again, contrary to the plain language of the Act granting State commissions the authority to set wholesale rates, the FCC established specific cost methodologies and default proxy rates for services. The Eighth Circuit properly stayed these rules for the same reasons it stayed the rules governing the costing and pricing of interconnection and unbundled elements. Therefore, neither Sprint nor this Commission may rely on or impose the FCC's proxy rates.

Given that the FCC's default proxy rates have been stayed, and given that Sprint has not submitted any cost studies to support any discount rate for wholesale services, GTE urges the Commission to adopt GTE's proposed rates, which fully conform with requirements of § 252(d)(3).

In support of its proposed discount rates, GTE has submitted two separate avoided cost studies: (1) the GTE Avoided Cost Study, where GTE's proposed prices are

calculated as the price of the retail offering less costs avoided when service is offered through wholesale, rather than retail, distribution channels; and (2) the Modified Avoided Cost Study, which is a modification of the ARMIS-based avoided cost analysis conducted by MCI and relied upon (in part) by the FCC in establishing its default proxy rates. GTE believes its Avoided Cost Study best reflects the intent of the Act, and offers the Modified Study as an alternative only if (1) the FCC's rules are deemed to be lawful, and (2) this Commission elects to follow the FCC's methodology.

GTE's avoided cost methodology is explained in detail in the attached testimony of GTE witness Douglas E. Wellemeyer. We note here, however, that Sprint expressly agreed with GTE's methodology and the resultant discount rates in a recent California proceeding. In that proceeding, Sprint witness David S. Brevitz testified that "[r]esale discounts of the size identified by GTEC and the United/Tennessee studies are appropriate for the Commission to adopt."[9] The Avoided Cost Study filed by GTE in that proceeding is the same study GTE is presenting here. Given Sprint's lack of evidence in this arbitration, and given Sprint's earlier acknowledgment that GTE's avoided cost methodology is appropriate, GTE respectfully requests that its proposed wholesale rates be adopted.

C. Cost Recovery Issues

There are several "cost recovery" issues that arise from many of Sprint's requests, and these issues are independent of the costing and pricing issues related to

---

[9] See Direct Testimony at 46. Selected portions of Mr. Brevitz's California testimony is included in GTE's Response package (Section II, Tab 3).

interconnection, network elements and wholesale services. A simple example illustrates this point. Sprint is seeking loop unbundling, and GTE has agreed to make unbundled loops available to Sprint at GTE's proposed prices. Some of GTE's loops, however, cannot be unbundled without adding additional facilities, such as "channel banks." GTE's proposed prices for unbundled loops does not include the costs associated with installing channel banks; accordingly, Sprint's request for loop unbundling presents a separate cost recovery issue: Who should pay for the costs of the channel banks?

Sprint's Petition does not appear to address this cost recovery issue. GTE, however, believes that Sprint and every other requesting carrier should pay all the costs associated with their specific requests, including a reasonable profit. Thus, in the example above, Sprint should pay for the channel banks.

GTE's position is consistent with the Act, which expressly requires new entrants to pay for the cost of providing the interconnection or network element.[10] The FCC's First Report and Order also supports this position. For example, the FCC requires ILECs to take "affirmative steps" to modify their existing facilities to meet the requirements of requesting carriers,[11] but recognizes that the requesting carrier must bear the cost of such modifications:

> We find that the 1996 Act bars consideration of costs in determining "technically feasible" points of interconnection or access [to unbundled elements]. Of course, a requesting

---

[10] 47 U.S.C. § 252(d)(1)(A).

[11] See First Report and Order at ¶ 382. GTE does not believe that the Act requires ILECs to take such "affirmative steps," although GTE is willing to do so in certain instances so long as it recovers its costs plus a reasonable profit.

> carrier that wishes "technically feasible" but expensive interconnection would, pursuant to section 252(d)(1), be required to bear the cost of that interconnection, including a reasonable profit.

Id. at ¶¶ 198, 199.[12] Simply put, if a new entrant requests changes to an ILEC's network or requests special services or facilities, it must pay for them.

This "cost recovery" issue becomes even more significant when we examine Sprint's other requests. For example, Sprint is requesting switch unbundling so that it can route its customers to Sprint's operator services (OS) and directory assistance (DA) platforms. To offer Sprint this functionality, GTE would be required to spend considerable time, money, and other resources to modify its switches (assuming, of course, that the particular switches are even capable of such modifications without adversely affecting GTE's network). GTE may also have to acquire new software to increase switch capacity throughout many of its central offices. Here again, GTE's proposed prices for unbundled ports and switching services do not include the costs of such modifications.

Sprint also has requested "electronic bonding systems" with real-time access to GTE's operations support systems. The costs of developing and providing these systems are unknown, but they are likely to be quite high based upon GTE's experience in developing systems for its own use.[13]

---

[12] See also First Report and Order at ¶ 382 (the requesting carrier must bear the cost of compensating the ILEC for loop conditioning); ¶ 393 ("the new entrant bears the cost of connecting its NID to the incumbent LEC's NID"); ¶ 751 (ILECs may recover costs of collocation cages).

[13] Over the last four years, GTE has engaged in an unprecedented overhaul of its operations support systems, spending almost $400 million to bring its systems to the level they are at today. The work to develop Sprint's systems is likely to be of the

In all of the examples cited above, Sprint has not expressly assumed responsibility for the costs of designing, developing and deploying the new facilities or systems it seeks. GTE asks the Commission to resolve this issue by requiring Sprint to bear all the costs associated with every Sprint request, in accordance with the requirements of the Act and the Constitution.[14]

D. Rates for Transport and Termination of Local Traffic

The parties also have been unable to agree on the appropriate rates for the transport and termination of local traffic. Section 251(b)(5) of the Act requires all local exchange carriers, including new entrants, to establish "reciprocal compensation arrangements" for the transport and termination of local traffic. Section 252(d)(2) defines the types of reciprocal compensation arrangements that are permissible under the Act:

> A State commission shall not consider the terms and conditions for reciprocal compensation to be just and reasonable unless (i) such terms and conditions provide for the mutual and reciprocal recovery by each carrier of costs associated with the transport and termination of each carrier's network facilities of calls that originate on the facilities of the other carrier; and (ii) such terms and conditions determine such costs on the basis of a reasonable approximation of the additional costs of terminating such calls.

Here again, Sprint relies on FCC rules and proxy rates to support its position on rates for transport and termination. But, as discussed earlier, these rates and the related

---

same magnitude.

[14] The Takings Report that accompanies GTE's Response (Section II, Tab 4) discusses the Constitutional issues raised by Sprint's Petition. GTE strongly believes that under the Constitution, GTE cannot be required to undertake activities or deploy new facilities for Sprint's benefit unless GTE is permitted to recover all its costs, including a reasonable profit.

FCC rules have been stayed by the Eighth Circuit. Therefore, Sprint's position is without legal or factual support.

GTE believes that all parties should recover their respective costs of transport and termination through mutual compensation systems. GTE also believes that its costs are greater than Sprint's, and that GTE is entitled to recover all its costs from Sprint in accordance with the Act. These issues are addressed in GTE's "Interconnection, Transport and Termination" testimony.

GTE, however, is willing to enter into a bill and keep compensation arrangement under certain conditions. GTE proposes that the parties use a bill and keep arrangement for the transport and termination of end user local traffic only. The arrangement would specifically exclude any toll or access traffic. Also, interLATA access traffic must be carried over separate trunk groups and may not be included with the local and local toll traffic.

GTE, in an effort to expedite the competitive process, is proposing a fairly broad definition of roughly balanced traffic. The Company is proposing that roughly balanced equates to plus or minus ten percentage points. This means that the originating/terminating split could be up to 60/40% of total terminated minutes for the two carriers. If traffic reports showed one party was terminating more than 60 percent of the total terminated minutes, the parties would enter into a mutual compensation arrangement reflecting their costs.

Sprint has proposed a bill and keep arrangement as an alternative to the FCC's proxy rates; thus, the parties appear to agree in principle on this issue. Given that the

FCC's proxy rates have been stayed, and given that Sprint has not submitted any evidence supporting any other rate, GTE believes its bill and keep proposal should be adopted.[15]

E. GTE's Stranded Costs

As noted earlier, GTE has proposed a market-based pricing methodology (M-ECPR) for setting prices. As discussed in the pre-filed testimony of GTE's policy witness and economic expert, this methodology does not afford GTE the opportunity to recover fully its forward-looking common costs. Therefore, stranded costs will arise. These stranded costs include, for example, the shared costs of network operation, the common costs of network operation incurred among all of GTE's services, the losses resulting from GTE's provision of services to classes of customers at regulated prices that are below GTE's incremental cost of providing such services, and costs incurred as a result of incumbent burdens that GTE continues to bear after the advent of competition, but which GTE's competitors are not required to bear, such as carrier-of-last-resort obligations. GTE will incur these costs on a forward-looking basis to discharge its obligation to serve, but will not have an opportunity to recover these costs through competitively-set M-ECPR prices. Under the Act and the Constitution, however, GTE must have this opportunity. This issue is discussed in GTE's pre-filed testimony and Takings Report, and GTE preserves it right to recover these costs in this proceeding.

---

[15] This proposal is more fully described in GTE's "Interconnection, Transport and Termination" testimony.

III. SPRINT'S REQUEST FOR A "PICK AND CHOOSE" PROVISION

GTE and Sprint have worked to resolve as many issues as possible and are continuing with their negotiations. In fact, the parties are scheduled to meet the week of October 21 to discuss the disputed issues. But although GTE remains hopeful that at least some of the outstanding issues will be resolved, a major impediment to meaningful negotiations has been (and continues to be) Sprint's claim that it is entitled to a Most Favored Nation or "pick and choose" provision.

In support of its position, Sprint relies exclusively on FCC Rule 51.809, which purports to allow requesting carriers to "pick and choose" provisions from other interconnection agreements. The Eighth Circuit, however, stayed this rule, echoing GTE's concerns about the "destabilizing" impact such a rule has on the negotiation process:

> The petitioners' objection is that the rule would permit the carriers seeking entry into a local market to "pick and choose" the lowest-priced individual elements and services they need from among all of the prior approved agreements between that LEC and other carriers, taking one element and its price from one agreement and another element and its price from a different approved agreement. Moreover, if an LEC and Carrier A, for example, reach an approved agreement, and then the LEC and a subsequent entrant, Carrier B, agree in their agreement to a lower price for one of the elements or services provided for in the LEC's agreement with Carrier A, Carrier A will be able to demand that its agreement be modified to reflect the lower cost negotiated in the agreement with Carrier B. Consequently, the petitioners assert that the congressional preference for negotiated agreements would be undermined because an agreement would never be finally binding, and the whole methodology for negotiated and arbitrated agreements would be thereby destabilized.
>
> • • •

> We are persuaded . . . by the petitioners' evidence that the negotiations preferred by the Congress are already breaking down . . . . These experiences indicate that the FCC's pricing rules will derail current efforts to negotiate and arbitrate agreements under the Act, and the "pick and choose" rule will operate to further undercut any agreements that are actually negotiated or arbitrated. The inability of the incumbent LECs and the state commissions to effectively negotiate and arbitrate agreements free from the influence of the FCC's pricing rules, including the "pick and choose" rule, will irreparably injure the interests of the petitioners (emphasis added).

Given the Eighth Circuit's ruling and reasoning, GTE respectfully requests that the Commission move expeditiously to deny Sprint's request for a Most Favored Nations clause.

IV. POINTS OF INTERCONNECTION

Section 251(c)(2) of the Act requires ILECs to interconnect with new entrants at "technically feasible" points. In the telecommunications industry, interconnection is most common at end offices, tandem switches and mutually acceptable meet points, because these types of interconnections usually pose the fewest technical problems. Interconnection at an end office allows the interconnector access to the line equipment, and thus the customers, served by that end office. Interconnection at a tandem switch allows access to all end offices subtending that tandem.

Interconnection generally takes place between the end office of the requesting carrier (ALEC) and the tandem switch or end office of the ILEC. Interconnection at a tandem switch allows access to all end offices that subtend that tandem switch. As such,

completion of calls for an interconnecting ALEC that interconnects at a tandem switch will typically involve (1) tandem switching, (2) transport between the tandem switch and the subtending end office, and (3) termination from the end office to the customer, but does not involve transport between tandem switches.

Sprint, however, wants to change this structure. In a local access and transport area ("LATA"), Sprint wants to interconnect at a single tandem switch and at the same time gain access to all end offices in the LATA, regardless of whether the end offices subtend the tandem switch where Sprint has interconnected. Accordingly, GTE would have to perform switching between tandem switches in order to complete Sprint calls.

GTE cannot agree to this kind of interconnection arrangement. Although this type of interconnection is technically possible and GTE engages in inter-tandem switching with other ILECs, it is not appropriate unless a new entrant agrees to the billing methods necessary to implement inter-tandem switching. In the absence of such a billing method, GTE would be unable to bill for all of the network elements involved in the completion of calls from the new entrant.

Specific billing methods are necessary because of the way inter-tandem traffic is exchanged. Signaling information from the switch, as well as the current industry standard Automatic Message Accounting ("AMA") record format, does not identify more than one tandem switching occurrence. Thus, if more than one tandem switch is used to route a telephone call, the additional switches are not reflected in the billing record.

The following illustration helps describe this problem. If a call originates in end office "A," the call is transported to tandem switch "B," which end office A subtends. The

call is then trunked to a second tandem switch "C" and then switched to end office "D," where the call would be completed. The signaling message information and AMA record only provide information that is normally necessary to complete the call – it will identify end office A, tandem switch B and the terminating end office D. But there will be no billing information with regard to tandem switch C. Accordingly, the service provider that owns tandem switch C will not be able to recover tandem switching charges from the service provider that owns end office A.

ILECs engage in inter-tandem switching for intra-LATA toll traffic, but billing methods have been developed to allow the recovery of tandem switching. Specifically, ILECs recover the cost of inter-tandem switching through the use of various "clearinghouse" systems. In these systems, the end office of the ILEC originating an intraLATA toll call creates an Electronic Message Record ("EMR") call record which contains information such as the originating number, terminating number, time and date of the call. These records are forwarded by the ILEC to the clearinghouse. The clearinghouse then identifies the terminating number from the EMR call record as being served by a specific terminating ILEC and, based on the most probable pathway for the call, returns billing information to the ILECs identified as service providers of portions of the call route.

Unless a new entrant is willing to enter into an arrangement like the one described above, there would be no way for GTE to recover the costs of traffic switched by its tandems. This result would run directly contrary to the Act, which requires that GTE recover the costs of interconnection. See 47 U.S.C. § 252(d)(1)(A)(I). Therefore, GTE

requests that the Commission should reject Sprint's request for inter-tandem switching unless Sprint agrees to an appropriate billing process.

V. SPRINT'S REQUEST FOR "OPERATIONAL PARITY"

Sprint requests "operational parity" – which appears to encompass access to GTE's operations support systems[16] – by way of an "efficient electronic interface." Sprint claims it is entitled to operational parity under § 251(c)(2)(C) of the Act, but neither this section nor any other section of the Act requires ILECs to design, develop and deploy facilities to put new entrants at parity. In fact, the word "parity" is mentioned only once in the Act, and only in the context of dialing parity. See 47 U.S.C. § 251(b)(3).

The section of the Act relied upon by Sprint governs interconnection to an ILEC's network for the transmission and routing of exchange service and exchange access, and has nothing to do with operational parity:

> (2) INTERCONNECTION - The duty to provide, for the facilities and equipment of any requesting telecommunications carrier, interconnection with the local exchange carrier's network -
>
> (A) for the transmission and routing of telephone exchange service and exchange access;
>
> (B) at any technically feasible point within the carrier's network;
>
> (C) that is a least equal in quality to that provided by the local exchange carrier to itself or to any subsidiary, affiliate, or any other party to which the carrier provides interconnection; and

---

[16] These systems include, for example, systems and arrangements for pre-ordering, ordering, repair, billing and branding.

> (D) on rates, terms and conditions that are just, reasonable, and nondiscriminatory, in accordance with the terms and conditions of the agreement and the requirements of this section and Section 252.

47 U.S.C. § 251(c)(2)(A)-(D) (1996) (emphasis added).

This section is quite clear: it requires ILECs to provide interconnection "for the facilities and equipment of any requesting telecommunications carrier," and this interconnection must be at least "equal in quality" to that provided by the ILEC to itself. Although Sprint relies on the phrase "equal in quality" to support its request for operational parity, the dispositive phrases are the ones underlined above, which speak of providing interconnection "for the requesting carrier's facilities and equipment . . . for the transmission and routing of telephone exchange service and exchange access." This section has nothing to do with operational parity.

Sprint also appears to rely on § 252(c)(3) of the Act in support of its request for operational parity. This section, however, only governs access to network elements:[17]

> [Incumbent LECs have] the duty to provide, to any requesting telecommunications carrier for the provision of a telecommunications service, nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory in accordance with the terms and conditions of the agreement and the requirements of this section and Section 252.

---

[17] "Network element" is defined in the Act as follows: "[A] facility or equipment used in the provision of a telecommunications service. This term also includes features, functions, and capabilities that are provided by means of such facility or equipment, including subscriber numbers, databases, signaling systems, and information sufficient for billing and collection or used in the transmission, routing, or other provision of a telecommunications service." 47 U.S.C. § 153(29) (1996).

47 U.S.C. § 251(c)(3) (1996).

In its First Report and Order, the FCC stated that operational support systems and the information they contain fall within the definition of "network element," and therefore must be unbundled upon request under § 251(c)(3). (First Report and Order at ¶ 265.) The FCC concluded that new entrants "must be able to perform the functions of pre-ordering, ordering provisioning, maintenance and repair, and billing for network elements and resale services in substantially the same time and manner that an incumbent can for itself." (Id. ¶ 266 (emphasis added)). In other words, ILECs are required to provide nondiscriminatory access to their operations support system functions (assuming, of course, that the FCC is correct in concluding that operations support systems are network elements).

GTE's operations support systems functions will be used to service Sprint the same way they are used to service GTE. In other words, GTE's use of these operations support systems for Sprint's resold services and unbundled elements will be the same as for GTE's own services. Furthermore, GTE is willing to interconnect its equipment and facilities to those of Sprint and to other competing local carriers. GTE is also willing to give Sprint access to GTE operations support systems functions so that Sprint's orders for resold local service and unbundled network elements can be processed in a nondiscriminatory manner. However, GTE is not willing to relinquish control of its operational support systems, nor is GTE willing to design, develop, and deploy electronic interfaces for Sprint free of charge.

GTE has agreed to explore the possibility of certain types of multi-level electronic interfaces to its systems functions, but only where Sprint agrees to pay all associated costs and only where GTE's systems and the data within them -- especially GTE's proprietary customer data -- are not compromised.

Sprint also appears to be requesting "operational parity" with respect to repair services and GTE's dealings with Sprint customers. GTE is willing to provide customer repair services associated with the facilities and services it provides to Sprint, and these services will be the same in quality and response time as those GTE provides for its own customers. In fact, these services will be provided by GTE's own Customer Care Centers. Sprint, however, appears to seek operational control over GTE's employees and business practices. For example, Sprint wants GTE employees to announce they are from Sprint when answering calls, and Sprint wants to be able to schedule GTE employees to conduct repair operations according to Sprint's scheduling plans. Moreover, when GTE employees are in the field responding to customer service requests, Sprint wants them to announce themselves as agents of Sprint and to use different uniforms without the GTE name. Sprint even wants GTE to repaint the trucks it uses to make service calls and eliminate the GTE logo.

This degree of control is unacceptable. The Act does not require ILECs to cede control of their networks and systems, nor does it require ILEC employees to wear different clothes and drive different trucks when making service calls for different ALECs. Furthermore, Sprint's request would create inefficiencies, because GTE employees would spend inordinate time trying to figure out for whom they are working and coordinating the

branding of GTE's various competitors. Also, if Sprint is given control of the work schedules of GTE's employees, service calls could not be efficiently scheduled to permit GTE employees to service a GTE customer on the same trip to a Sprint customer. In sum, Sprint's requests would reduce the productivity of GTE employees, adversely impact the quality of service GTE provides to its own customers, and dramatically increase the personnel and equipment costs associated with providing repair services.

The sole reason for Sprint's demands appears to be its unfounded fear that GTE will violate the law; i.e., GTE will unlawfully solicit Sprint's customers, and GTE's customer care representatives will ignore or respond differently to calls from Sprint customers. But Sprint has failed to submit any evidence supporting this claim. Obviously, GTE will not violate the law, nor will GTE discriminate against Sprint or any other new entrant that elects to purchase facilities or services from GTE.

For all these reasons, and for the reasons set forth in the accompanying testimony, GTE respectfully requests that the Commission deny Sprint's demand for "operational parity" and instead adopt GTE's proposals, which will enable Sprint to take advantage of GTE's economies of scale at appropriate prices and under appropriate terms and conditions.

VI. UNBUNDLED ELEMENTS

As discussed earlier, the Act allows new entrants to take advantage of existing ILEC facilities by purchasing the right to use certain "unbundled elements" of an ILEC's network,

which the new entrant may combine with its own facilities to offer local service. GTE has agreed to provide Sprint with the following unbundled elements:

(1) the loop, which is the transmission facility extending from a main distribution frame to the customer premises;

(2) the port, which is the line card and associated peripheral equipment at a GTE end office switch that serves as the hardware termination for the customer's exchange service on that switch, generates dial tone, and provides the customer a pathway to the public switched telecommunications network;

(3) the Network Interface Device (NID), which separates GTE's facilities from those of its customer;

(4) transport, which is the transmission facility extending from a main distribution frame (MDF) to either another MDF or to a meet point;

(5) signaling, which includes SS7 signaling and transport service; and

(6) certain GTE databases.

GTE's positions regarding unbundled elements are summarized in the attached matrix and are fully discussed in the accompanying testimony and exhibits. Here, however, we address two of the more significant unbundling issues: (1) whether Sprint should be permitted to "rebundle" or reassemble unbundled elements to replicate a GTE retail service offering; and (2) Sprint's request for an unbundled switch element that includes all the "features and functionalities" of the switch.

With respect to the first issue, GTE strongly believes that Sprint should not be permitted to "rebundle" unbundled elements to replicate a retail service offering. Indeed,

allowing Sprint to do so would eliminate the distinction the Act makes between resale and unbundled elements. For example, under the Act, rates for unbundled elements are cost-based, whereas rates for resold services are based on avoided costs. (Compare § 262((d)(1)(A) (unbundled element pricing) with § 252(d)(3) (resale pricing)). If Sprint were allowed to purchase unbundled elements and then simply rebundle them, then Sprint could engage in price arbitrage in making a decision to purchase unbundled elements or wholesale services. The Commission should reject Sprint's "virtual unbundling" proposal.

With respect to switch unbundling, GTE has submitted two proposals under which Sprint will be able to acquire all the "features and functions" of the switch it requests. First, Sprint can obtain access to all local switching elements by purchasing GTE's unbundled "line-side" port element and by purchasing on a wholesale basis all vertical features and other local switching "functions and features." Alternatively, Sprint can purchase all switch features on an unbundled basis. These two alternatives are described in the testimony of GTE's pricing witness.

With these two offerings, GTE will provide Sprint will all the switch features and functionalities it desires. Sprint, however, appears to believe that GTE must provide all features and functionalities at the FCC's proxy rate for unbundled switching. But this rate has been stayed by the Eighth Circuit, and for good reason: It is artificially low because it does not reflect the costs of all vertical features. This point is discussed in GTE's pre-filed testimony and is illustrated in GTE's chart comparing the FCC's proxy rates to GTE's costs and revenues, which we discussed above.

In sum, if Sprint wants all the "features and functionalities" of GTE's switch, it must pay for them. As with practically all the costing and pricing issues presented in this arbitration, GTE's prices are supported by testimony and cost studies, whereas Sprint has failed to provided any costing or pricing evidence.

VII. SERVICES GTE WILL MAKE AVAILABLE FOR RESALE

GTE has agreed to make all its retail services available for resale at wholesale rates except for the following: below-cost services; promotional offers; public pay phone lines; semi-public pay phone lines; all future AIN services; and individual case basis (ICB) services. GTE also will make the following services available for resale, but a wholesale discount shall not apply: nonrecurring charges; access services; operator services, and directory assistance services; and any other services already priced at wholesale rates.

Sprint, however, has requested that GTE make all its retail services available for resale, without any restrictions or conditions, and claims that GTE is required to do so by the Act. But § 252(c)(4) of the Act provides that ILECs shall not impose "unreasonable or nondiscriminatory conditions or limitations" on the resale of telecommunications services. Thus, the Act plainly recognizes that incumbent LECs may impose reasonable conditions or limitations on resale.

GTE believes that its conditions and limitations for below-cost services, promotional offers, individual case basis (ICB) services, and the other services described more fully in GTE's Resale Testimony are reasonable. With respect to below cost services, GTE cannot cover its costs through resale of below-cost services unless such services are first

repriced to cover their costs. Second, offering promotions and ICBs at wholesale discounts would prevent GTE from differentiating its retail services from those of its competitors. GTE believes that these restrictions are appropriate, and that the former restriction should apply until all the rates for GTE's below-cost services are rebalanced to reflect all their costs.

GTE's proposed prohibition on the resale of below-cost services will preclude the resale of most residential services, but competition will not flourish where one competitor is required to subsidize the offerings of others. GTE recommends that the Commission conduct a separate proceeding to consider whether and under what circumstances below-cost services should be made available for resale. For example, if rates cannot be rebalanced immediately, then GTE could recover any stranded costs or lost contribution through a separate charge.

GTE's non-recurring charges, operator services, and directory assistance services have no avoided costs; therefore, no avoided cost discount applies. Finally, with respect to access services, GTE already offers such services on a wholesale basis, therefore it need not offer any additional wholesale discount.

In sum, GTE believes its restrictions and conditions on the resale of services are reasonable and thus permissible under the Act.

VIII. POLES, DUCTS, CONDUITS AND RIGHTS-OF-WAY

Sprint appears to request almost unlimited, unconditional access to GTE's poles, ducts, conduits and rights-of-way. To appreciate the scope and import of the issues raised by Sprint's request, we will first provide a brief description of GTE's facilities.

GTE owns thousands of telephone poles and hundreds of miles of underground conduits. The poles and conduits -- which have been placed across public and private property over the span of several decades -- facilitate the provision of telecommunication service to GTE's end-user customers through the linking of transmission equipment between GTE's network and the customer's physical location. Facilities placed on poles or in conduits range from basic twisted pair copper wires to fiber optic cables.

Because of the significant investments in time, cost and effort required to place new poles and conduits, GTE must be able to satisfy both its current needs as well as its future space requirements. GTE forecasts its future space requirements on the basis of a five-year horizon. The need to anticipate future demand is particularly important with respect to conduits, which require GTE to excavate the public infrastructure, such as streets and roadways. The capital investment associated with the ongoing placement of poles and conduits is paid by GTE.

Once poles and conduits have been placed, GTE is responsible for using and maintaining them in a safe manner. This means, for example, that GTE must replace a pole if that pole is no longer able to support the facilities placed on it; that GTE must repair any of its poles that are downed for any reason (and typically must do so on an expedited basis); that GTE must repair conduits damaged by natural catastrophe or negligent acts

of excavators; and that GTE must comply with all applicable safety standards, such as those of the National Electric Safety Code and the Occupational Safety and Health Act

GTE has permitted some third parties, most notably cable television (CATV) companies, to attach their facilities to GTE's poles. But despite the addition of these facilities, GTE has retained sole responsibility for all of the burdens of ownership. GTE must still repair or replace a downed pole; must still excavate and repair a conduit that is struck and damaged; must still ensure the safe use of its poles and conduits; and must still respond and defend against all claims against it for personal injury or property damage involving its poles and conduits.

GTE's pre-filed testimony on Poles, Ducts, Conduits and Rights-of-Way sets forth GTE's positions on all the disputed issues, one of which we summarize here because of its significant effect upon public policy. Sprint claims that GTE cannot reserve space on its facilities for future use. GTE disagrees with Sprint, and does not believe Congress intended to eliminate GTE's rights as an owner of poles and conduits and relegate GTE to the status of a mere licensee. Instead, the Act requires an owner of poles or conduits to treat equally all companies seeking access. Thus, for example, an owner would not be permitted to provide access to a subsidiary or affiliate on terms and conditions more favorable than those offered to all other telecommunications companies.

As a public policy matter, GTE must always have reserve capacity, because GTE must be able to serve new customers readily to meet its obligations. Depriving GTE of the ability to maintain reserve capacity would impair service to the public and cause extraordinary cost increases. Moreover, depriving GTE of the ability to reserve space on

its own facilities will have a significant adverse effect on GTE's future investment in poles and conduits. If GTE cannot reserve space in its own facilities, it has no incentive to construct facilities sufficient to satisfy future needs.

GTE has agreed to treat Sprint in a nondiscriminatory fashion, and believes its proposals on access to poles, ducts, conduits and rights-of-way is consistent with the intent of the Act.[18]

---

[18] In contrast to GTE's proposals, many of Sprint's requests raise significant Fifth Amendment issues. These issues are addressed in GTE's Takings Report.

IX. CONCLUSION

GTE is committed to full and fair competition in the local exchange marketplace. Its proposals are fully consistent with the requirements of the Act, and will allow Sprint to compete on an equal basis with GTE and all other carriers. Furthermore, GTE has submitted evidence supporting all of GTE's proposals. In contrast, most of Sprint's proposals are based exclusively on FCC rules that have been stayed and thus have no legal effect. For these reasons, and for the reasons set forth in the accompanying testimony, GTE respectfully requests that this Commission adopt GTE's proposals and direct the parties to complete their negotiation in accordance with the arbitrator's rulings. Thereafter, the parties can submit their agreement to the Commission for approval under § 252(e) of the Act.

Respectfully submitted on October 21, 1996.

Anthony P. Gillman
Kimberly Caswell
P. O. Box 110, FLTC0007
Tampa, Florida 33601-0110
Telephone No. (813) 228-3087

Attorneys for GTE Florida Incorporated

TAB 2

United States Court of Appeals

FOR THE EIGHTH CIRCUIT

FILED

OCT 15 1996

MICHAEL GANS
CLERK OF COURT

No. 96-3321

Iowa Utilities Board,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3406

National Association of Regulatory Utility Commissioners,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3410

The Southern New England Telephone Company,

Petitioner,

v.

Order Granting Stay Pending Judicial Review

Federal Communications Commission; United States of America,

Respondents.

No. 96-3414

Bell Atlantic Corporation; Bellsouth Corporation; Pacific Telesis Group,

Petitioners,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3416

Ameritech Corporation,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3418

US West, Inc.,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3424

GTE Service Corporation; GTE Alaska, Incorporated; GTE Arkansas, Incorporated; GTE California, Incorporated; GTE Florida, Incorporated; GTE Midwest, Incorporated; GTE South, Incorporated; GTE Southwest, Incorporated; GTE North, Incorporated; GTE Northwest, Incorporated; GTE Hawaiian Telephone Company, Incorporated; GTE West Coast, Incorporated; Contel of California, Inc.; Contel of Minnesota, Inc.; Contel of the South, Inc.,

Petitioners,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3430

New York Telephone Company; New England Telephone and Telegraph Company,

Petitioners,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3436

Cincinnati Bell Telephone Company,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3444

People of the State of New York; The Public Service Commission of the State of New York,

Petitioners,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3450

SBC Communications, Inc.

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3453

Louisiana Public Service Commission,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3460

Florida Public Service Commission,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3507

South Dakota Public Utilities Commission,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3519

The People of the State of California; The Public Utilities Commission of the State of California,

Petitioners,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3520

United States Telephone Association,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3603

Rural Telephone Coalition,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3604

Competitive Telecommunications Association,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

No. 96-3608

Mississippi Public Service Commission,

Petitioner,

v.

Federal Communications Commission; United States of America,

Respondents.

Submitted: October 3, 1996

Filed: October 15, 1996

Before BOWMAN, WOLLMAN, and HANSEN, Circuit Judges.

HANSEN, Circuit Judge.

These cases have been consolidated in this circuit by the September 11, 1996 order of the Judicial Panel on Multidistrict Litigation, Docket No. RTC-31, pursuant to Rule 24 of the Rules of Procedure of the Judicial Panel on Multidistrict Litigation. See 28 U.S.C. § 2112(a)(3) (1994). Numerous petitioners have moved this court for a stay pending judicial review of the Federal Communications Commission's First Report and Order.[1] The FCC promulgated the rules and regulations in its First Report and Order pursuant to its reading of its statutory duty to implement the local competition provisions of the Telecommunications Act of 1996 (the Act).[2] This court granted a temporary stay on September 27, 1996, pending oral argument. After hearing oral argument on October 3, 1996, from representatives of the concerned parties, we have decided to stay the operation and effect of only the pricing

[1]First Report and Order, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, CC Docket No. 96-98 (Aug. 8, 1996) (hereinafter First Report and Order).

[2]Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (to be codified as amended in scattered sections of 47 U.S.C.).

provisions[3] and the "pick and choose" rule[4] contained in the FCC's First Report and Order pending our final determination of the issues raised by the pending petitions for review.

I.

In the Telecommunications Act of 1996, Congress enacted a plan to alter the monopolistic structure of local telephone service markets with an injection of competition. The Act effectively opens up local markets by imposing several new obligations on the existing providers of local telephone service in those markets. The Act refers to the current local providers as "incumbent local exchange carriers" (incumbent LECs). See 47 U.S.C.A. §§ 251(c), (h), 252(j) (West Supp. May 1996). Among other duties, the Act requires incumbent LECs (1) to allow other telecommunication carriers (such as cable television companies and current long-distance providers) to interconnect with the incumbent LEC's existing local network to provide competing local telephone service (interconnection); (2) to provide other telecommunication carriers access to elements of the incumbent LEC's local network on an unbundled basis (unbundled access); and (3) to sell to other telecommunication carriers, at wholesale rates, any telecommunications service that the incumbent LEC provides to its retail customers (resale). Id. § 251(c).

To accomplish these directives, the Act places a duty on incumbent LECs to privately negotiate, in good faith, comprehensive

---

[3]The pricing provisions refer to First Report and Order, Appendix B-Final Rules §§ 51.501-51.515 (inclusive), 51.601-51.611 (inclusive), 51.701-51.717 (inclusive) and to the default proxy range for line ports used in the delivery of basic residential and business exchange services established in the FCC's Order on Reconsideration, dated September 27, 1996.

[4]The "pick and choose" rule refers to First Report and Order, Appendix B-Final Rules § 51.809.

agreements with other telecommunication carriers seeking to enter the local market. See id. §§ 251(c)(1), 252(a). If the incumbent LEC and the carrier seeking entry are unable to reach a negotiated agreement, either party may petition the respective state utility commission to conduct a compulsory arbitration of the open and disputed issues and arrive at an arbitrated agreement. See id. § 252(b). The final agreement, whether arrived at through negotiation or arbitration, must be approved by the state commission. Id. § 252(e)(1). Certain portions of the Act also require the FCC to participate in the Act's implementation. See, e.g., id. §§ 251(b)(2), (d)(1), (e), 252(e)(5). The FCC's regulations pertaining to the Act form the heart of the controversies at bar.

On August 8, 1996, the FCC released its First Report and Order in which it published its comments and rules regarding the local competition provisions of the Act. The petitioners in this consolidated proceeding, consisting, at the moment, primarily of incumbent LECs and state utility commissions, argue that the FCC exceeded its authority in promulgating these rules. While several of the petitioners object to the FCC's regulations in their entirety, others specifically challenge the FCC's rules regarding the prices that an incumbent LEC may charge an incoming competitor for interconnection, unbundled access to network elements, and resale of its services.

Despite the different approaches, it is clear that all of the petitioners object principally to the FCC's pricing rules. One such rule is a mandate from the FCC that state commissions employ the "total element long-run incremental cost" (TELRIC) method to calculate the costs that an incumbent LEC incurs in making its facilities available to competitors. See First Report and Order, Appendix B-Final Rules §§ 51.503, 51.505. After applying the TELRIC method and arriving at a cost figure, the state commissions, acting as arbitrators, must then determine the price that an

incumbent LEC may charge its competitors, based on the TELRIC driven cost figure. See id.

Many of the incumbent LECs object to the TELRIC method for two reasons. First, it does not consider their "historical" or "embedded" costs (costs that an incumbent incurred in the past) in calculating the cost figure to be used to determine the rates. See id. § 51.505(d)(1). Second, it requires that an incumbent LEC's cost be measured as if the incumbent were using the most efficient telecommunications technology currently available, regardless of the technology presently employed by the incumbent and to be used by the competitor. See id. § 51.505(b)(1). The incumbent LECs argue that the TELRIC method underestimates their costs and results in prices that are too low. The incumbent LECs maintain that these low prices would effectively require them to subsidize their competitors and thereby threaten the viability of the LECs' own businesses.

For similar reasons, the petitioners also object to the FCC's proxy rates, which are to be used by the state commissions if they elect not to employ the TELRIC method to set prices. See id. §§ 51.503(b)(2), 51.513, 51.705(a)(2), 51.707. The incumbent LECs argue that these proxy rates do not accurately reflect their costs and are artificially low. In addition to the rules regarding TELRIC and the proxy rates, the petitioners object to several other FCC regulations that pertain to the pricing of intrastate telephone service.[5]

---

[5]The state utilities commissions take issue with the "deaveraging" rule requiring them to establish different rates in at least three different geographic areas within each state. See id. § 51.507(f). Many of the incumbent LECs also challenge the FCC's wholesale rate rules, asserting that the FCC's mandated method for calculating these rates, as well as its interim wholesale rates, result in rates that are also too low and threaten the incumbent LECs' viability. See id. §§ 51.607, 51.609, 51.611.

Some of the petitioners also seek to stay the FCC's so-called "pick and choose" rule, id. § 51.809, with which the FCC purports to implement § 252(i) of the Act. Section 252(i) requires an LEC to make available any interconnection, service, or network element contained in an approved agreement to which it is a party to any other telecommunications carrier upon the same "terms and conditions" as those provided in the agreement. Here again, price becomes a key issue. When the FCC promulgated its rule, it expanded the statutory language of § 252(i) to include "rates, terms, and conditions." Id. § 51.809 (emphasis added). The petitioners' objection is that the rule would permit the carriers seeking entry into a local market to "pick and choose" the lowest-priced individual elements and services they need from among all of the prior approved agreements between that LEC and other carriers, taking one element and its price from one agreement and another element and its price from a different approved agreement. Moreover, if an LEC and Carrier A, for example, reach an approved agreement, and then the LEC and a subsequent entrant, Carrier B, agree in their agreement to a lower price for one of the elements or services provided for in the LEC's agreement with Carrier A, Carrier A will be able to demand that its agreement be modified to reflect the lower cost negotiated in the agreement with Carrier B. Consequently, the petitioners assert that the congressional preference for negotiated agreements would be undermined because an agreement would never be finally binding, and the whole methodology for negotiated and arbitrated agreements would be thereby destabilized.

II.

We consider the following four factors in determining whether a stay is warranted: (1) the likelihood that a party seeking the stay will prevail on the merits of the appeal; (2) the likelihood that the moving party will be irreparably harmed absent a stay; (3) the prospect that others will be harmed if the court grants the

stay; and (4) the public interest in granting the stay. See Arkansas Peace Ctr. v. Dep't of Pollution Control, 992 F.2d 145, 147 (8th Cir. 1993), cert. denied, 114 S. Ct. 1397 (1994); Wisconsin Gas Co. v. F.E.R.C., 758 F.2d 669, 673-74 (D.C. Cir. 1985), cert. denied, 476 U.S. 1114 (1986). Applying these factors to the case at hand leads us to conclude that a stay pending final review of the FCC's pricing and "pick and choose" rules is justified.

A.

In evaluating the likelihood of the petitioners' success on appeal, we note that the petitioners "need not establish an absolute certainty of success." Population Inst. v. McPherson, 797 F.2d 1062, 1078 (D.C. Cir. 1986). Instead, as the actual terms of the test indicate, the petitioners must show that they are "likely" to succeed on the merits. Here, the petitioners allege primarily that the FCC exceeded its jurisdiction by imposing national pricing rules for what is essentially local service. They argue that the text and the structure of the Act give the States, not the FCC, authority over the pricing of intrastate telephone service. After evaluating the contentions of all of the interested parties, we believe that the petitioners present a strong argument that is sufficient to satisfy the first prong.

Historically, the state commissions have determined the rates for intrastate communications services. See Communications Act of 1934, § 2(b), 47 U.S.C. § 152(b) (1994). Subsection 252(d), which indicates that state commissions have the authority to determine "just and reasonable rates" necessary to implement the local competition provisions of the Act, appears consistent with that past practice. This subsection, entitled "Pricing standards," makes no mention of FCC rules on pricing. Moreover, subsection 252(c)(2) directs state commissions to "establish any rates for interconnection, services, or network elements according to

subsection (d) of this section." Again, no reference is made to FCC regulations regarding rates. By contrast, where Congress intended for the state commissions to follow FCC rules in arbitrations, it expressly said so. In subsection 252(c)(1), the Act requires state commissions to ensure that their resolutions of arbitrated disputes comply with both section 251 and with the regulations that the FCC is specifically authorized to issue under section 251. But nowhere in section 251 is the FCC specifically authorized to issue rules on pricing. The sections of the Act that directly authorize the state commissions to establish prices are devoid of any command requiring the state commissions to comply with FCC pricing rules (or, for that matter, authorizing the FCC to issue any pricing rules). This absence indicates a likelihood that Congress intended to grant the state commissions the authority over pricing of local telephone service, either by approving or disapproving the agreements negotiated by the parties, or, when the parties cannot agree, through compulsory arbitration, thereby preserving what historically has been the States' role.

We are mindful of the FCC's contrary interpretation of the Act. The FCC asserts that subsection 251(d)(1), when read together with subsection 252(c)(1), authorizes the FCC to establish rules regarding pricing. Subsection 251(d)(1) directs the FCC to complete the promulgation of regulations pursuant to its duties under section 251 by August 8, 1996. The FCC also urges us to read the general provisions of subsection 251(c) together with subsection 252(d) (the pricing standards) and conclude that these portions of the Act supply the FCC with the power to issue pricing rules.

We recognize that courts must give deference to an agency's reasonable interpretation of an unclear statute. See Chevron U.S.A., Inc. v. Natural Resources Defense Council, 467 U.S. 837, 843-45 (1984). In this case, however, we believe that the petitioners have a better than even chance of convincing the court

that the FCC's pricing rules conflict with the plain meaning of the Act, in which case the court would not be bound by Chevron deference and would be entitled to overturn the agency's interpretation. See id. at 842 ("If the intent of Congress is clear, that is the end of the matter, for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress."); id. at 844 (indicating that courts should not give controlling weight to regulations that are contrary to the statute). In this, our first look at the issue, we are skeptical that the FCC's roundabout construction of the statute could override what, at first blush, appears to be a rather clear and direct indication in subsections 252(c)(2) and 252(d) that the state commissions should establish prices.

Moreover, we have serious doubts that the FCC's interpretation of the Act constitutes the straightforward or unambiguous grant of intrastate pricing authority to the FCC sufficient to qualify as an exception to the provisions of subsection 2(b) of the Communications Act of 1934, 47 U.S.C. § 152(b) (1994). See Louisiana Pub. Serv. Comm'n v. FCC, 476 U.S. 355, 377 (1986). Subsection 2(b) provides that "nothing in this Chapter shall be construed to apply or to give the [FCC] jurisdiction with respect to . . . charges, classifications, practices, services, facilities, or regulations for or in connection with intrastate communications service." 47 U.S.C. § 152(b) (1994). In Louisiana, the Supreme Court determined that in order to overcome subsection 2(b)'s limits on the FCC's jurisdiction with respect to intrastate communications service, Congress must "unambiguously" or "straightforwardly" either modify subsection 2(b) or grant the FCC additional authority. 476 U.S. at 377. We acknowledge that portions of the Telecommunications Act of 1996 expressly grant the FCC authority over some aspects of intrastate telephone service. See, e.g., 47 U.S.C.A. § 251(e) (West Supp. May 1996) (FCC authority regarding numbering administration). We have been unable, however, to find such an express grant of authority to the FCC over the pricing of

intrastate telephone service, nor does there appear to be a modification of subsection 2(b).[6] The combination of these omissions indicates a sufficient likelihood that the petitioners will succeed on the merits of their appeal. We, of course, remain open to being persuaded that the FCC's read is the correct one when full briefing and argument on the merits have been concluded.

Because we believe that the petitioners have demonstrated that they will likely succeed on the merits of their appeals based on their argument that, under the Act, the FCC is without jurisdiction to establish pricing regulations regarding intrastate telephone service, we think that it is unnecessary at this time to address the remaining theories which the petitioners use to challenge the legality of the FCC's pricing rules.

B.

With respect to the likelihood of irreparable harm, the petitioners initially assert that their interest in productive ongoing negotiations and arbitrations regarding the implementation of the Act will be irreparably harmed if the FCC's pricing regulations are not stayed. They argue that the competitors seeking entry into the local phone markets will refuse even to consider prices that are higher than the FCC's proxy rates and will simply hold out for the proxy rates that the States will feel obligated to impose in their arbitrations. In this manner, the proxy rates effectively establish a price ceiling, an observation recognized by the FCC itself, which inevitably confines and restricts the give and take characteristic of free negotiations and arbitrations. The state commissions specifically argue that the FCC's pricing regulations effectively undermine their authority,

---

[6]In fact, we are told that a provision which specifically modified subsection 2(b) was expressly rejected by Congress before the bill was passed. See S. 652, 104th Cong., 1st Sess. § 101(c) (1995).

and if not stayed, the rules will disrupt the predictability and continuity of the existing regulatory system. The state commissions explain that the FCC pricing rules essentially handcuff their discretion in determining the just and reasonable rates in arbitrations required under subsection 252(d)(1).

In order to demonstrate irreparable harm, a party must show that the harm is certain and great and of such imminence that there is a clear and present need for equitable relief. See Packard Elevator v. I.C.C., 782 F.2d 112, 115 (8th Cir. 1986), cert. denied, 484 U.S. 828 (1987) (quoting Wisconsin Gas, 758 F.2d at 673-74). The FCC asserts that the petitioners' allegations of irreparable harm are merely speculative and that there is no certainty that its proxy rates will ever be applied to the petitioners. We are persuaded, however, by the petitioners' evidence that the negotiations preferred by the Congress are already breaking down due to the competitors' desire to hold out for the FCC's proxy rates. Moreover, given the time constraints under the Act, some state commissions have already felt obliged to impose the proxy rates in their arbitrations. These experiences indicate that the FCC's pricing rules will derail current efforts to negotiate and arbitrate agreements under the Act, and the "pick and choose" rule will operate to further undercut any agreements that are actually negotiated or arbitrated. The inability of the incumbent LECs and the state commissions to effectively negotiate and arbitrate agreements free from the influence of the FCC's pricing rules, including the "pick and choose" rule, will irreparably injure the interests of the petitioners. If the FCC's rules are later struck down, it will be extremely difficult for the parties to abandon the influence of their previous agreements that were based on the national pricing rules and to recreate the atmosphere of free negotiations that would have existed in the absence of the FCC's dictated presumptive prices. Without a stay, the opportunity for effective private negotiations will be irretrievably lost. We initially believe that this result would be

contrary to Congress's intent that these matters be resolved through negotiation and/or arbitration.

The petitioners also argue that the FCC's pricing rules will force the incumbent LECs to offer their services to requesting carriers at prices that are below actual costs, causing the incumbent LECs to incur irreparable losses in customers, goodwill, and revenue. The FCC contends that its pricing rules, in particular its proxy rates, are merely an option for the parties and the state commissions to consider, and consequently the petitioners cannot make a showing that the harm is certain and imminent, as required in Packard Elevator, 782 F.2d at 115. As we explained above, we are persuaded that, absent a stay, the proxy rates would frequently be imposed by the state commissions and would result in many incumbent LECs suffering economic losses beyond those inherent in the transition from a monopolistic market to a competitive one. We are mindful of the precedents that declare that "economic loss does not, in and of itself, constitute irreparable harm," Wisconsin Gas, 758 F.2d at 674, and that "revenues and customers lost to competition which can be regained through competition are not irreparable." Central & S. Motor Freight Tariff Ass'n v. United States, 757 F.2d 301, 309 (D.C. Cir. 1985), cert. denied, 474 U.S. 1019 (1985). Both of these propositions, however, rest on the assumption that the economic losses are recoverable. The threat of unrecoverable economic loss, however, does qualify as irreparable harm. See Baker Elec. Coop., Inc. v. Chaske, 28 F.3d 1466, 1473 (8th Cir. 1994); Airlines Reporting Co. v. Barry, 825 F.2d 1220, 1227 (8th Cir. 1987). In this case, the incumbent LECs would not be able to bring a lawsuit to recover their undue economic losses if the FCC's rules are eventually overturned, and we believe that the incumbent LECs would be unable to fully recover such losses merely through their participation in the market. Moreover, the petitioners' potential loss of consumer goodwill qualifies as irreparable harm. See

Multi-Channel TV Cable Co. v. Charlottesville Quality Cable Operating Co., 22 F.3d 546, 552 (4th Cir. 1994) (holding that the possibility of permanent loss of customers to a competitor or the loss of goodwill satisfies the irreparable injury prong). For the foregoing reasons, we believe that the petitioners have adequately demonstrated that they will be irreparably harmed if a stay of the FCC's pricing rules is not granted.

C.

In assessing whether others will be harmed if the court grants the stay, we acknowledge that our decision, either way, will unavoidably adversely affect the interests of either the incumbent LECs or their potential competitors. If we decide to grant the stay, we recognize that the companies seeking entry into the local telephone markets will have to negotiate and arbitrate their agreements without the added leverage of the FCC's pricing rules, and assuming that the FCC's rules were later upheld, they would likely renegotiate the terms of their agreements. The inconvenience of this scenario, however, is outweighed by the harm and difficulties of its alternative, discussed in the previous section. In other words, we think that it would be easier for the parties to conform any variations in their agreements to the uniform requirements of the FCC's rules if the rules were later upheld than it would be for the parties to rework agreements adopted under the FCC's rules if the rules were later struck down. Consequently, we conclude that any harm that other parties may endure as a consequence of imposing a stay is outweighed by the irreparable injury that the petitioners would sustain absent a stay.

D.

The FCC argues that a stay would not promote the public interest because it would not maintain the status quo and it would

block the road to competition in local telephone service markets. We reject both contentions. Before the FCC published its regulations pursuant to the Act, several incumbent LECs, potential competitors, and state utility commissions were all working together to implement the local competition provisions of the Act. The Act's system of private negotiation backed by state-run arbitration was operating without the input from the FCC. A stay would preserve the continuity and stability of this regulatory system -- a system that has initially proved to be successful. The FCC asserts that without its pricing regulations in effect, the incumbent LECs will be able to exert their superior bargaining power over their potential competitors and impose unreasonable rates for their services. This argument ignores the empirical success that private parties and the state commissions have had in implementing the local competition provisions of the Act.[7] It also denigrates the proven ability of the state commissions to prevent incumbent LECs from charging excessive rates for their services. The Act requires rates to be just and reasonable and it authorizes state commissions to enforce these requirements. Presently, we have no reason to doubt the ability of the state commissions to fulfill their duty to promote competition in the local telephone service markets and thus conclude that the public interest weighs in favor of granting a stay.

III.

Having concluded that the petitioners satisfy the four

---

[7]We note that some states, Connecticut, Florida, and Iowa in particular, have already established rates based on local conditions and are already involved in opening up their local markets to competition under both the federal Act and state statutes which foreshadowed the new federal law. Moreover, the FCC-imposed rate for Iowa is substantially higher than the state-set rate which was based on the full record from a contested case proceeding, while in Florida, the FCC proxy rate is substantially lower than the state-set rate.

requirements for granting a stay, we grant the petitioners' motion to stay the FCC's pricing rules and the "pick and choose" rule contained in its First Report and Order[1] pending a final decision on the merits.

Upon the filing of this order, the stay imposed by our order of September 27, 1996, is dissolved, and is replaced by the stay imposed by the terms of this order.

A true copy.

Attest: Michael E. Gans

CLERK, U. S. COURT OF APPEALS, EIGHTH CIRCUIT.

---

[1]The stay pertains only to §§ 51.501-51.515 (inclusive), 51.601-51.611 (inclusive), 51.701-51.717 (inclusive), § 51.809, and the proxy range for line ports used in the delivery of basic residential and business exchange services established in the FCC's Order on Reconsideration, dated September 27, 1996.

TAB 3

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Rulemaking on the Commission's Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks.	)	**R.93-04-003**
Investigation on the Commission's Own Motion Into Open Access and Network Architecture Development of Dominant Carrier Networks.	)	**I.93-04-002**

TESTIMONY OF DAVID S. BREVITZ ON BEHALF OF SPRINT COMMUNICATIONS COMPANY L.P. (U-5112-C)

Lesla Lehtonen, Senior Attorney
Sprint Communications Company L.P.
1850 Gateway Drive, 7th Floor
San Mateo, CA 94404-2467
Telephone: 415-513-2712
Facsimile: 415-513-2737

Dated: June 14, 1996

TABLE OF CONTENTS

	Subject	Page
I.	Pricing Policy Summary	6
II.	TSLRIC	7
III.	TSLRIC Estimates Include Profit	9
IV.	Joint and Common Costs	10
V	Contributions to Joint and Common Costs	11
VI.	Price Structures	20
VII.	No Restrictions on Use of Interconnection and Network Elements	21
VIII.	Network Elements	22
IX.	Costing and Pricing	25
X.	Loop Pricing	30
XI.	Switching Pricing	31
XII.	Remote Call Forwarding Pricing	36
XIII.	Non-Recurring Charges	37
XIV.	Price Floors for ILEC Services	41
XV.	Wholesale Rates for Resale of Retail Services	42
XVI.	Summary of Recommendations	48

TESTIMONY OF DAVID S. BREVITZ
ON BEHALF OF
SPRINT COMMUNICATIONS COMPANY L.P. (U-5112-C)

Q. Please state your name and business address.

A. David Brevitz. 4152 SW 6th Street, Topeka, Kansas.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of Sprint Communications Company L.P.

Q. Please outline your background in telecommunications.

A. I have been active in telecommunications public policy matters for over 15 years. I earned a Bachelor of Arts Degree in Justice, Morality and Constitutional Democracy from James Madison College at Michigan State University in 1979. I studied at the Institute of Public Utilities in the Economics Department at Michigan State University, which manages and administers the two week NARUC program every summer, and also the annual Williamsburg conferences, among others. Upon graduation in 1980 from the MBA program (with an emphasis in Finance) at Michigan State University, I accepted the Economist position within the Special Projects Division of the Kansas Corporation Commission, beginning in April 1981. In that capacity I worked on the staff "Telephone Task Force" that the Commission had created to deal with the major federal changes (e.g., deregulation of CPE and Inside Wire, depreciation matters, access charges) that were occurring. In early 1984 I accepted the position of Chief Rate Analyst-Telecommunications with the Arizona Corporation Commission. I returned to the Utilities Division of the KCC late that year as Chief Telecommunications Analyst, and served in that capacity until January, 1987. I was then employed as the Director-Regulatory Affairs of Kansas Consolidated Professional Resources (KCPR). KCPR was organized by and for the independent telephone companies in the state of Kansas, primarily to gain a focused presence before state policy makers, and to have a centralized organization for industry relations and

negotiations. In February 1994 I began work as an independent consultant in telecommunications. Since then I have performed a variety of assignments and tasks related to formulation of telecommunications policy for the Kansas Corporation Commission, the Georgia Public Service Commission and the Wyoming Public Service Commission. In sum, I have fifteen years of experience in the telecommunications industry, and its public policy issues and deregulatory trends.

Q. Have you previously addressed issues similar to those in this proceeding, and your testimony here?

A. Yes. I have addressed competition, interconnection, and alternative regulation plan issues. In Kansas, I was the lead witness for KCC staff in "Phase I" of the generic competition proceedings, and proceedings to certificate competitive access providers. After the Phase I order, I actively assisted staff and the Commission in the continuation and conclusion of this docket. In addition, I was designated to represent the KCC on the Kansas Legislature's Telecommunications Strategic Planning Committee. I was also actively involved in the review, negotiation, and stipulated agreement between KCC staff, and Southwestern Bell Telephone Company (which the Commission adopted) to implement educational interactive video tariffs, and other aspects of a legislative extension of SWBT's alternative regulation plan ("TeleKansas"). I have worked in Georgia providing assistance to the Commission and Commission staff, on matters related to the implementation of pro-competitive legislation and the transition to competitive markets. I have also worked for the Wyoming Public Service Commission in a similar role, which has included the drafting of comprehensive, pro-competitive interconnection rules.

Q. Have you addressed issues regarding costing and pricing?

A. My work as the lead KCC staff person on competitive issues included substantive work at all procedural steps, culminating in testimony as the lead witness for the KCC staff in November 1994 hearings, and participation in industry work groups

required by the Commission in its May 1995 Order. A substantial portion of my testimony was regarding cost study issues, including a recommendation that the Commission require Total Service Long Run Incremental Cost (TSLRIC) studies based on the TSLRIC rules and processes being used by the Texas PUC. This recommendation was made after reviewing the Texas rules, cost study work plans, and related cost study issues. Subsequent to the Phase I Competition hearing and Commission order, I was the lead KCC staff representative on the Cost Study Work Group that the Commission ordered. The objective of the Work Group was to achieve consensus among the industry participants regarding cost study principles and methodologies, similar to the result of the consensus achieved in the California workshop (as filed August 23, 1995)

Q. Do you have professional designation as a CFA?

A. Yes. I was designated as a Chartered Financial Analyst by the Institute of Chartered Financial Analysts ("ICFA") in 1984. The ICFA is the organization which has defined and organized a body of knowledge important for all investment professionals. The general areas of knowledge are ethical and professional standards, accounting, statistics and analysis, economics, fixed income securities, equity securities, and portfolio management.

Q. What is the focus of your responsibilities in this matter?

A. On behalf of Sprint, my responsibilities are to:

1. Review the cost studies submitted by Pacific Bell and GTEC, along with related California Telecommunications Coalition comments, and the replies of other parties;
2. Provide testimony to the CPUC regarding the extent to which unbundling of network elements should occur;
3. Provide testimony to the CPUC regarding the applicability of the cost studies, in their current form, for use in setting price floors and actual prices for Pacific Bell and GTEC services and recommended network

elements;

4 Provide testimony to the CPUC regarding Sprint's recommended pricing standard for interconnection and network elements, including specific prices wherever possible, and,

5. Review and provide testimony on the resale avoided cost studies of Pacific Bell and GTEC

Ms. Joni Siplon is testifying for Sprint on local transport

Q. What is your understanding of the CPUC's overarching policy goal in this proceeding?

A. The CPUC has a statutorily mandated deadline of January 1, 1997 to open all telecommunications markets under its jurisdiction to competition. The Commission is to take steps to ensure that competition in telecommunications markets is fair and that the state's universal service policy is observed. The purpose of this case is to unbundle LEC network functions and capabilities into network elements that network users want to purchase and use; to price these unbundled network elements in a non-discriminatory manner, based on properly conducted TSLRIC studies; to use the TSLRIC studies as a tool to detect and prevent any attempt by the LECs to engage in anticompetitive cross subsidies; and to open all telecommunications markets to competition on a fair and competitively neutral basis, pursuant to CPUC, California legislative and Congressional requirements.

Q. What does this mean for the network unbundling and pricing issues at hand in this matter?

A. The Commission has correctly determined that it would be implementing PU Code Section 709.5 in name only if we were to hold that the mere lifting of legal restrictions on facilities based competition would be enough to satisfy the statute. An important reason for requiring network unbundling is that even for the largest prospective competitive entrants, building a local network that can compete with

decided that Advanced Digital Network service is the "most reasonable predictor of the ILNP non-volume sensitive costs".

Q. How should the Commission set permanent rates for DNCF, as it provides interim number portability for customers who choose to take service from competitors?

A. The Commission should require corrections to the DNCF cost studies as recommended by the Coalition. These results should be subject to a maximum 15% markup for recovery of shared and common costs. Similar DNCF costs should be expected for both GTEC and Pacific. If the Commission chooses not to require cost study corrections, the maximum price is indicated by taking 115% of the volume sensitive TSLRIC costs obtained by rationalizing any disparities between existing Pacific and GTEC results.

Q. Pacific's costing incorporates FGB usage costs as a cost of DNCF for interim number portability. Is this cost appropriate to include in DNCF rates?

A. No. It is not included in the above maximum price recommendation, nor should it be. Calls using DNCF will transit trunk facilities between the ILEC and the competitor's switch. These trunk facilities will exist under the terms of a reciprocal interconnection and compensation arrangement. Accordingly the usage on those trunks will be provided for by that arrangement. Including FGB usage costs in the DNCF rates would "double-dip" the cost recovery associated with those trunks. The direct DNCF costs include the cost of the switch. There is no cost left unaccounted for that FGB should be applied to cover.

XIII. NON-RECURRING CHARGES

Q. Are there any issues regarding the pricing of non-recurring charges?

A. Yes. The primary issue stems from the fact identified in Coalition Comments that Pacific's cost study process for non-recurring charges yields substantially higher costs to be charged to competitors, than that to be charged to Pacific's customers

for the same outcome.

Q. Please explain.

A. As estimated by Pacific's studies, the cost of establishing a residential line is four times less than the cost of establishing a residential link for a competitor. Also, the cost of establishing remote call forwarding for a residence customer is three times less than establishing remote call forwarding for a competitor's use in providing interim number portability to its customers. This total difference in service establishment NRCs (Pacific versus competitors) is well into three digits on a per link basis.

Q. Is this substantial difference in cost warranted?

A. The Coalition Comments describe why this difference is not warranted. Sprint concurs in that description. It appears that Pacific has decided it will handle competitors requests in a more time consuming and elaborate way than it handles its own service requests. The Coalition Comments indicate that Pacific ascribes longer task times, higher probabilities of tasks occurring, and higher labor rates to the non-recurring charges Pacific proposes be charged to competitors.

Q. Should the Commission sanction Pacific's intended use of a more complicated, time consuming and elaborate processes for handling competitors requests, than for Pacific's own requests?

A. No. The Commission should in no way encourage Pacific to differentiate how it treats competitors' requests versus how it treats its own requests. The Commission should encourage and require Pacific to apply the efficiencies, experience, and personnel it has available for its own service connection requests to the similar requests competitors will be making. This is consistent with the outcome sought by Cost Study Principle number 6--the use of least cost, most efficient technology.

Q What is the best way to achieve this result?

A The best way to do that is through price--the Commission should require Pacific to charge competitors no more than the non-recurring charges it charges its own retail customers. Now is the time for the Commission to indicate to Pacific that it is at its own risk if it continues on a path of establishing more costly and elaborate service connection processes for competitors. Pacific now has the maximum latitude to bring those processes closely back in line with the processes it uses for its own customers. If Pacific continues down the path indicated in its cost study methodology in the face of a Commission requirement that it charge the same rates to competitors, it's losses will widen in the future.

Q. Are the differential extra costs Pacific proposes to charge competitors substantial in the aggregate?

A. Yes. Using assumptions on the penetration of the market by competitors a number of total competitor access lines can be computed. Multiplying this number by the cost differential advanced by Pacific yields total additional dollar costs to competitors in the hundreds of millions. With the churn that is certain to occur in the marketplace, this figure could easily double. For a Commission that is serious about achieving a competitive outcome in the telecommunications marketplace, it would be extremely counterproductive to allow the incumbent provider to levy anti-competitive charges to competitors totaling into the hundreds of millions. These charges would be out of pocket of the competitors, diluting resources that could be applied in a competitively meaningful way--building facilities, offering new features and services, and attracting new customers. The (anti) competitive impact is doubled since those dollars go into the pocket of the incumbent as cash available for any competitive use desired by Pacific.

Q. How else would reflecting the inappropriate "cost differential" identified by Pacific in rates charged to competitors have a negative impact on competition?

A. In the situation of a new customer checking prices of competitors for local

telephone service, a substantial three digit dollar differential would exist under Pacific's proposed costing between the up-front charges of Pacific versus the up-front charges of any competitor. This will have a chilling effect on competition, as the customer will have an up-front substantial dollar incentive to choose Pacific rather than any competitor. Competitors could choose to "eat" the difference but this would not change the ultimate anti-competitive impact. The competitor will have to recover those dollars somewhere else, through higher rates.

Q. How does Sprint recommend that non-recurring charges be established for the basic network elements of Pacific and GTEC?

A. Those NRCs should be tied to the NRCs of the related retail service of the LEC. For example, relating the NRC for retail residential service to the NRC for a residential unbundled loop is appropriate for several reasons. First, the LEC is not allowed the incentive to differentiate processes, costs, and prices it applies to competitors versus those which it applies to itself. Pacific appears to have acted on this incentive and inflated tasks, task times and occurrences for provisioning to competitors versus to itself. The dollar difference is very large and damaging to competition. Relating like NRCs for pricing purposes directly eliminates any incentives the LEC has to differentiate. Eliminating this incentive is directly beneficial to consumers--prices will be lower, and competition will develop faster without uneconomic, anti-competitive pricing.

The second benefit of this approach is that it is entirely consistent with price cap regulation. Price cap regulation is intended to provide incentives to operate in the most efficient manner. Pacific appears to be taking advantage of the BNF costing process to suggest the establishment of a separate group for handling competitors' requests, utilizing more cumbersome procedures and processes. This is a natural place for the Commission to use the incentives of price regulation. Pacific is now developing its planned handling of competitors' requests, and the Commission should set a ceiling for what that handling process may cost competitors. Setting the ceiling at the NRCs charged for Pacific's retail services

will require Pacific to apply processes for competitors that are at least as efficient as it applies for handling its own retail customers.

Adoption of this recommendation would prevent the LEC from unduly affecting the prices charged by its competitors for a service the LEC also provides at retail.

XIV. PRICE FLOORS FOR ILEC SERVICES

Q. How does Sprint recommend that price floors be set for Pacific and GTEC, in order to facilitate competition but prevent cross subsidization of competitive services?

A. The Commission should apply the network element prices it determines to be appropriate in this proceeding to relevant volumes to create aggregate price floors (or revenue floors). In addition to the network elements, the price floors should include TSLRIC costs for any LEC-specific additional costs caused by the service (e.g., marketing). Thus, the revenue floors should be calculated for Pacific's and GTEC's services by combining the appropriate network elements and any service specific TSLRIC costs not included in the network elements, and multiplying by relevant volumes.

Q. What does the dependence of volume (or demand) on price imply for the calculation of price floors?

A. It implies that price floors must be recalculated whenever any significant price changes are made. This is necessary since the price changes, depending on their direction will have a positive or negative effect on demand. If price is reduced, and demand is stimulated, continuing use of the previously calculated price floor is inappropriate. It may leave to others the responsibility for recovery of costs caused by the increased demand associated with the reduced price of the service.

XV. WHOLESALE RATES FOR RESALE OF RETAIL SERVICES

Q Is resale of local exchange services important for local exchange competition?

A Yes. Resale is important for four reasons. First, it is unreasonable to expect every service provider to own all of the production facilities necessary to assemble and sell packages of communications services. Resale allows service providers to offer full packages of communications services. Second, resale allows new entrants the opportunity to provide service to customers where they have not yet built their own networks. This provides new entrants an opportunity to establish markets before having to make considerable investments in facilities. Third, resale limits a company's ability to engage in price discrimination. A discriminatory pricing strategy cannot work in a market where competitors can purchase and resell a dominant firm's offerings. Fourth, resale allows new entrants to innovate and improve efficiency for retail functions.

Q. What does the Telecommunications Act of 1996 state regarding restrictions on resale?

A. Section 251(b)(1) in the Act states that it is the duty of all LECs "not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of its telecommunications services". Section 251(c)(4)(A)-(B) in the Act states that incumbent LECs shall offer at wholesale rates any telecommunications services sold to retail customers that are not telecommunications carriers, and shall not impose any unreasonable or discriminatory conditions or limitations on the resale of such services. However, state commissions may prohibit a reseller that obtains service at wholesale rates from selling that service to a category of subscribers that is different from the category that can buy the retail service.

Q How do you recommend that these provisions of the Act be implemented in California?

A I urge the Commission to prohibit all restrictions on resale. The only exception to this general prohibition on resale restrictions should be the restriction on resale between classes of local service--e.g., resale of residential local exchange services to business customers.

Q What is the purpose of restricting resale between classes of local service?

A. The rationale for this restriction is due to concerns about the possibility of arbitrage between business and residential service and unrestricted resale of residential service to business customers. For example, even though the costs and functionality of providing service to a residential customer and a small-to-medium sized business are similar, the prices of residential and business local telephone service are often very different. Typically, business users pay more for local service to support residential service in order to encourage universal service objectives. If resale is unrestricted, a reseller could arbitrage this pricing differential simply by buying lower priced residential service and reselling it to business customers. The price differential between business and residential customers would collapse unless resale between these classes is restricted or until local rates are rebalanced to eliminate the differential between business and residence customers.

In addition, in many states residential local service is sold at prices that are residually set. Residential prices are set to recover revenue requirements after prices are set for other services and revenues from these other services determined. This can result in prices for residential local service that are below or very near the cost of providing service which is designed to promote the regulatory objective to set residential rates that encourage as many people as possible to subscribe to telephone service. If unrestricted resale is allowed, a reseller might be able to buy residually-priced residential services below cost and resell them at business rates.

Q What does the Act state with respect to setting wholesale prices?

A Section 252(d)(3) states that " 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".

Q How should this provision be implemented in California?

A A service's wholesale price should be equal to the service's retail price less the sum of the avoided costs of each of the cost items such as marketing, billing and collection. I will refer to these items as cost categories. Each category's avoided cost is the sum of costs that are avoided plus the new costs that are incurred because of wholesale. This avoided cost includes both changes in fixed costs and changes in volume sensitive costs, to the extent that either or both are avoided.

Q. Why should avoided costs be calculated for each category?

A. This is the most unambiguous reading of the Act. The Act states that wholesale prices shall exclude costs avoided for specified categories. This means that the focus should be categories where costs are avoided, not on the service as a whole. It also means that the focus should be on cost changes per category. In other words, the costs avoided in billing should be calculated as the cost decrease from not billing retail net the cost increase from now billing wholesale.

Q. Why should avoided costs be calculated as the net between cost decreases and cost increases in each category?

A. This is the most unambiguous meaning of the term avoided cost. For example, if someone were to ask you how much parking expense you avoided by parking in a lot that charges $20 per day versus one that charges $15 per day, you would answer that you avoided or saved $5. It would be misleading to say that you had avoided $20 in costs.

Q Why should both fixed and volume sensitive costs for the categories identified in the Act be considered in the calculation of avoided costs?

A. Including both types of costs for the categories identified in the Act insures that the calculation covers all costs that will be avoided. Costs are either fixed (meaning unaffected by volumes) or volume sensitive (meaning determined by volumes). If fixed costs are avoided by or caused by selling at wholesale instead of retail, they should be included in the calculation of avoided costs. The same is true for volume sensitive costs.

Q. Do the avoided cost studies presented in this proceeding by Pacific Bell and GTEC provide a reasonable representation of avoided costs for use in calculating a resale discount?

A. The results indicate that GTEC is much closer to presenting a reasonable representation than Pacific Bell. GTEC's calculations yield an avoided cost discount that is at least well into the single digit percentages. The avoided costs identified by Pacific are exceedingly small on a per unit basis.

Q. How do the calculated resale discounts compare?

A. Following are the percent differences of the Pacific versus GTEC resale discounts. For purposes of comparison, the Pacific non-volume sensitive costs have been unitized based on Pacific's OANAD volumes.

1FR	GTEC discount is 269% higher than Pacific's
1MR	GTEC discount is 247% higher than Pacific's
1MB	GTEC discount is 3330% higher than Pacific's
Centrex	GTEC discount (line and features) is 233% higher than

Q Do GTEC's avoided cost estimations comport with similar estimations in other states?

A Yes. United Telephone-Southeast recently filed in Tennessee a detailed avoided cost analysis that indicate net avoided costs of $.91 per month per access line (5.71% of retail revenues) and 10.41% of retail revenues for other services.

Q. Why are the net avoided costs identified by Pacific very small on a per unit basis?

A. Several reasons lead to this result. In general, Pacific may have underestimated the avoided costs, overestimated the "replacement" costs of resale, or a combination of the two. The "replacement" costs of resale in the study are dependent on a forecast of lines lost to resale. If differing assumptions are used to calculate avoided costs versus replacement costs, economies of operation may not be correctly reflected on net. This issue would be neutralized by assuming 100% of the retail business goes away for purposes of calculating the avoided costs per unit, and is replaced 100% by resale business for purposes of calculating the replacement costs.

Q. What do you recommend the Commission do to establish resale discounts in this proceeding for Pacific and GTEC?

A. Resale discounts of the size identified by GTEC and the United/Tennessee studies are appropriate for the Commission to adopt. Comparisons of results of "the same" studies performed by different companies is one of the most effective tools regulators have for analyzing cost studies. To the extent results are substantially disparate, the validity of study assumptions, methods and procedures is reasonably called into question for the "outlying" study. Compared to the GTEC and United studies, Pacific's study results are excessively low. For Pacific, the Commission may take the time to sift through Pacific's study to "correct" it, or adopt resale discounts based on the GTEC and United information.

Q. Does Pacific propose to set up a separate LISC (Local Interexchange Service Center) to handle contacts and interactions with competitors?

A. Yes. Pacific has identified a multimillion dollar expense amount, some of which it has already incurred, for "Resale channel implementation costs". Pacific intends to charge this in some fashion to resellers, along with additional but not yet estimated costs.

Q. Should the Commission sanction this approach?

A. No. The most compelling reasons to me not to sanction this approach are that similar to the earlier discussion on pricing philosophy for non-recurring charges—Pacific should not be presented with the lack of a dollar incentive to treat competitors requests, interactions and contacts in the most efficient, automated way. Also, new local competitors are setting up their own operational facilities and systems, and incurring costs. These local competitors are not seeking to bill Pacific for these costs. Neither should Pacific expect to be able to bill competitors for its costs (whatever they might be) of revamping for local competition. Lastly, these costs are purportedly being incurred to serve resellers and local competitors. If that were the case it would be logical for Pacific to contact the users (local competitors) of this Center and "channel" to ask what their needs were, and how they could best be met. At least as far as one major local competitor is concerned—Sprint—I am not aware that Pacific has made such a contact.

Q. Should resold local service as provided by the ILECs include all elements as provided to their customer at retail, that are not eliminated via the marketing, billing and collection avoided costs?

A. Yes. The local service made available for resale should include all elements (such as a directory listing), that are not eliminated via the avoided cost requirements of the Act.

XVI. SUMMARY OF RECOMMENDATIONS

Q. Would you please summarize the recommendations provided above in your testimony.

A. Yes. Sprint has the interests of a corporation that is involved in all aspects of common carrier communications, including competitive and incumbent local exchange service, long distance service, and wireless communications. As such, Sprint must reach internal policy consensus on issues whose solutions at times appear to conflict. This balancing of interests is very similar to the task the CPUC faces in this proceeding--how to balance conflicting interests to ensure that customers receive the services they need and want at the best possible prices, at the earliest possible date.

A summary of my recommendations is as follows:

1. The Commission's overarching, most basic criteria for its pricing decisions should be to do no harm to competition, and to do no harm to consumers.

2. The Commission's pricing decisions in this matter should precipitate a beginning of the lower prices that customers are entitled to expect in this period of intensifying competition and dramatic technological advances. The pricing decisions for network elements should allow the development of competition, and promote the realization of lower telecommunications prices by California's citizens.

3. The Commission's pricing decisions are necessarily a "first cut". As a practical matter, it is extremely unrealistic to have an expectation that these prices would be precisely those existing when some level of competitive equilibrium exists in the telecommunications markets. Equilibrium prices in telecommunications are not known, and will be affected by a number of imponderables regarding technology,

customer choice, and market structure.

4. All competitors should have the incentive to build their own network facilities to serve customers. This requires that the pricing of network elements of the incumbent be balanced--network elements do not have to be overpriced to provide that incentive. Neither should prices for network elements should be so unreasonably low that the incentive for each competitor to build its own facilities as it builds its customer base is blunted.

5. The level of contribution to joint and common costs from pricing of network elements and interconnection should be a uniform loading that is reflective of an economically efficient local exchange carrier, but not to exceed 15%. The profit level for the cost of capital should be the most recent authorized intrastate rate of return or prescribed interstate rate of return.

6. Incumbents should impute in the aggregate the same interconnection and network element prices as are charged to their competitors, plus the costs of other services and functionalities actually used by the incumbent. It is recognized that services targeted for universal service may not pass an imputation test absent explicit universal service support.

7. There should be no restrictions on how interconnections and network elements can be used. All telecommunications carriers have the right to request and purchase interconnections and network elements and to use them for any telecommunications service.

8. The network elements to be unbundled and separately priced and provided are: Loop; Port; Signal Links; Signal Transfer Points (STPs)/Signal Control Points (SCP); Network Access Channel Connection; and elements related to Local Transport basic network functions (Entrance Facility, Direct Trunked Transport,

and Tandem Switched Transport). The SCP and STP should not be disaggregated.

9. There should be no blanket requirement for subloop unbundling at this time. The better process is to leave sub-loop unbundling to later determinations based on bona fide requests.

10. The Commission should require Pacific and GTEC to re-run cost studies to address the most material concerns in the time the Commission believes it has available. Also, the Commission should consider public costing information to the extent it becomes available through the course of this hearing. The Commission should not rely solely on the cost study results to direct pricing decisions, without making some sort of compensating adjustments based on the record evidence. These adjustments could be based of required re-runs of studies, estimates of the impacts a cited deficiency could have on existing cost study results, and any credible publicly available cost information.

11. If the Commission chooses to use Pacific's and GTEC's cost study results for the loop, as presented, those costs should be marked up by no more than 15%. In no event should the Commission set prices for unbundled loops which exceed that level.

12. Cost calculations should be modified to express switching costs on a capacity basis. Capacity costs should be calculated for both end office switching and tandem switching, as separate unbundled elements. These cost results should then be marked up no more than 15% for overhead and shared costs, and attributed to price floors for services and network elements based on their use of the network during the peak period. Similar price floors should be constructed for off-peak usage.

13. The Commission should require corrections to the DNCF cost studies as recommended by the Coalition. These results should be subject to a maximum 15% markup for recovery of shared and common costs. Similar DNCF costs should be expected for both GTEC and Pacific. If the Commission chooses not to require cost study corrections, the maximum price is indicated by taking 115% of the volume sensitive TSLRIC costs obtained by rationalizing any disparities between existing Pacific and GTEC results.

14. The total difference in service establishment NRCs (Pacific access line versus competitor's link plus DNCF) is well into three digits on a per link basis. This cost differential would yield an aggregate additional dollar costs to competitors in the hundreds of millions. With the churn that is certain to occur in the marketplace, this figure could easily double. This would have a significant anti-competitive impact. The Commission should in no way encourage Pacific to differentiate in how it treats competitors' requests versus how it treats its own requests. The Commission should encourage and require Pacific to apply the efficiencies, experience, and personnel it has available for its own service connection requests to the similar requests competitors will be making. Those NRCs should be tied to the NRCs of the related retail service of the LEC. The Commission should therefore require Pacific and GTEC to charge no more than the non-recurring charge of its related retail service, to competitors for unbundled elements.

15. Revenue floors should be calculated for Pacific's and GTEC's services by combining the appropriate network elements and any service specific TSLRIC costs not included in the network elements, and multiplying by relevant volumes. Since costs are influenced by volume, floors must be recalculated whenever any significant price changes are made. This is necessary since the price changes, depending on their direction will have a positive or negative effect on demand. For example, if price is reduced, and demand is stimulated, continuing use of the previously calculated price floor is inappropriate.

16. Resale discounts of the size identified by GTEC and the United/Tennessee studies are appropriate for the Commission to adopt. Compared to the GTEC and United studies, Pacific's study results are excessively low. For Pacific, the Commission may take the time to sift through Pacific's study to "correct" it, or adopt resale discounts based on the GTEC and United information.

17. The Commission should not sanction Pacific's proposal to charge competitors multimillions of dollars for setting up a "resale service channel. Pacific should not be presented with the lack of a dollar incentive to treat competitors requests, interactions and contacts in the most efficient, automated way. Also, new local competitors are setting up their own operational facilities and systems, and incurring costs. These local competitors are not seeking to bill Pacific for these costs. Neither should Pacific expect to be able to bill competitors for its costs (whatever they might be) of revamping for local competition.

Q. Does that conclude your testimony at this time?

A. Yes.

RATIO OF CORPORATE OVERHEADS TO TOTAL OPERATING EXPENSES
ARMIS Report 4302 (USOA) - Tier 1 Companies
April 1996

Appendix B
Testimony of David Brevitz

	1991			1992			1993			1994			1995		
	Corporate Overhead Expenses	Total Operating Expenses	Ratio*	Corporate Overhead Expenses	Total Operating Expenses	Ratio*	Corporate Overhead Expenses	Total Operating Expenses	Ratio*	Corporate Overhead Expenses	Total Operating Expenses	Ratio*	Corporate Overhead Expenses	Total Operating Expenses	Ratio*
Ameritech	1,314,805	7,083,288	22.67%	1,284,876	7,380,882	21.15%	836,644	7,331,170	14.61%	1,478,940	8,279,600	21.75%	878,930	7,598,375	13.07%
Bell Atlantic	1,228,574	8,881,884	17.84%	1,027,164	8,112,089	14.99%	1,101,639	8,333,491	15.23%	997,129	8,486,638	13.32%	1,208,897	8,780,583	15.949
Bell South	1,140,844	8,881,839	14.72%	1,046,412	8,847,582	13.44%	1,155,880	9,188,055	14.37%	1,199,185	9,640,780	14.21%	1,525,850	10,171,221	17.651
NYNEX	1,837,420	9,104,638	27.03%	1,208,433	8,241,179	17.18%	1,381,866	8,825,324	18.56%	2,180,808	9,887,801	28.37%	1,832,481	9,657,611	23.429
Pacific	1,086,821	6,481,888	19.42%	944,442	6,380,348	17.37%	1,200,886	6,626,859	22.13%	1,011,208	6,521,201	18.35%	1,352,899	6,895,400	24.419
Southwestern	887,845	5,341,202	19.39%	832,852	5,547,104	17.69%	986,125	5,878,145	19.68%	731,204	6,016,589	13.83%	817,736	6,350,532	14.789
US West	1,109,013	5,948,384	22.70%	1,062,467	6,209,569	20.64%	1,132,189	6,573,561	20.81%	1,141,755	7,105,248	19.15%	1,105,602	7,367,372	17.661
Total RBOCs	8,636,422	50,801,049	20.43%	7,406,446	50,699,825	17.11%	7,872,708	52,764,405	17.54%	8,740,329	55,916,863	18.53%	8,721,495	56,831,094	18.139
GTE / Contel	1,221,886	7,834,834	18.48%	1,277,670	7,924,074	19.22%	1,414,340	8,387,468	20.28%	1,469,353	8,528,490	20.81%	1,651,765	8,980,302	22.941
United / Contel	317,409	2,152,851	17.29%	388,258	2,514,842	18.87%	682,384	2,955,988	20.47%	498,799	3,165,855	18.70%	442,999	3,078,967	16.811
Cincinnati Bell	91,888	462,872	26.48%	83,754	433,737	23.63%	94,232	420,258	28.90%	99,884	451,395	28.42%	166,442	507,003	48.879
Lincoln	15,387	103,117	17.54%	15,657	104,894	17.56%	15,813	111,311	16.56%	16,696	121,127	15.99%	17,782	122,850	16.929
Rochester	30,417	182,110	18.81%	28,911	183,886	17.51%	30,368	204,089	17.47%	44,621	213,102	26.48%	28,701	203,219	16.459
Southern New England	158,771	1,075,882	17.44%	143,730	1,020,120	16.48%	148,210	1,074,840	15.99%	173,525	1,119,708	18.34%	256,833	1,212,935	26.869
GRAND TOTAL	10,473,181	62,712,386	20.05%	9,367,426	62,880,378	17.48%	10,078,026	66,818,369	18.05%	11,043,207	69,516,540	18.89%	11,266,017	70,936,370	18.929

* Ratio = Corporate Overhead Expenses / (Total Operating Expenses - Corporate Overhead Expenses)

Appendix D
Testimony of David Brevitz

GTEC BASIC LEVEL LOOP COSTING

	Cost	Weighted Cost	Statewide Average
High Density	$ 16.17	$ 10.01	
Medium Density	$ 18.84	$ 6.76	
Low Density	$ 30.29	$ 0.68	
			$ 17.44
Maximum Price Including 15% Mark-up			$ 20.06

Notes:
1. Source of deaveraged cost is LS-2.
2. Weighting is proportion of Res and Bus lines in S-1 for density zones, as ratio of total.

COST INFORMATION IS STATED BY GTEC TO BE PROPRIETARY

TAB 4

TAKINGS REPORT

TABLE OF CONTENTS

		Page
Introduction		1
(i)	Incremental Costs.	2
(ii)	Joint and Common Costs.	2
(iii)	Cost of Subsidies.	2
(iv)	Costs of Unbundling or Resale.	3
(v)	No Overstated Avoided Costs.	3
Discussion		4
I.	This Commission Is Not Bound by the FCC's Pricing Rules.	4
A.	The FCC Lacks Authority to Promulgate National Pricing Standards Governing Agreements Under Section 251 of the Act.	4
1.	Only the Commission Was Granted Pricing Authority.	5
2.	The FCC Has No Pricing Authority.	6
B.	Even if the FCC Had the Authority to Set Prices, Both Its Pricing Methodology and Its Default Proxy Rates, if Followed, Would Effect a Taking.	9
1.	The FCC's Pricing Methodologies Would Effect a Taking.	9
2.	The FCC's Default Proxy Rates for Unbundling, Interconnection and Resale Are Procedurally Defective and Effect a Taking.	9
II.	The Takings Clause Prohibits GTE from Being Required to Sell Elements or Services Below Their True Costs.	10
A.	Regulatory Takings Analysis	11
1.	Regulators Cannot Force a Business to Operate at a Loss.	11
2.	The Commission Must Ensure GTE a Fair Rate of Return.	14

B. Physical Occupation Analysis. 16

1. Physical Collocation. 18
2. Unbundled Access to the Local Loop. 19
3. Access to Poles, Ducts, Conduits & Rights of Way. 20
4. Databases. 21

III. GTE Must Recover All Its Forward-Looking Costs and Earn a Fair Rate of Return on Its Historic Costs. 24

A. There Are Five Forward-Looking Costs that GTE Must Recover. 24

1. Incremental Costs. 24
2. All Forward-Looking Joint and Common Costs. 25
3. GTE'S Costs of Subsidizing Other Services. 26
4. GTE's Costs of Unbundling And Resale. 27
5. Prohibition Against Overstated Avoided Costs. 28

B. GTE Must Be Allowed a Reasonable Return on Its Historic Costs. 29

Conclusion 31

TAKINGS REPORT

Introduction

In determining the appropriate price for the sale of unbundled elements or the resale of services by GTE in response to Sprint's Arbitration Petition ("Sprint Petition"), this State Utilities Commission (the "Commission") must interpret the federal Telecommunications Act of 1996 (the "Act" or "1996 Act") to provide for the recovery of at least all of GTE's historic and forward- looking costs of unbundled elements or resold services plus a reasonable profit. As we demonstrate below, if the Act were interpreted to require GTE to sell unbundled elements or resell services at prices that do not cover all of GTE's costs associated with those elements or services, then the Act would effect a taking of GTE's property without just compensation, in violation of the Fifth and Fourteenth Amendments of the U.S. Constitution as well as Article 10, section 6 and Article 1, Section 9 of the Florida Constitution.

Under familiar principles of statutory construction, such an interpretation must be avoided because the Commission must read the Act to avoid serious constitutional questions. See, e.g., Rust v. Sullivan, 500 U.S. 173, 190-91 (1991); Ashwander v. Tennessee Valley Authority, 297 U.S. 288, 347 (1936) (Brandeis, J., concurring). Indeed, in the specific context of takings, the Supreme Court has admonished that if an "identifiable class of cases [exists] in which application of a statute will necessarily constitute a taking," then concerns for avoiding uncompensated takings properly require a narrowing construction of the statute. United States v. Riverside Bayview Homes, Inc., 474 U.S. 121, 128 n.5 (1985).

As we demonstrate below, under either a regulatory takings or physical occupation analysis, the Act would effect an unconstitutional taking if it were interpreted

to require GTE to sell its elements or services below their true costs to Sprint or to any competitive local exchange carrier ("CLEC"). Thus, to avoid constitutional infirmity, the Commission must read the Act to require prices that cover all of GTE's costs plus a reasonable profit. In the specific context of this arbitration, that principle requires at least two things:

First, at a minimum, the prices set for unbundled elements or resold services must cover at least the following five elements, which comprise GTE's true forward-looking costs:

(i) **Incremental Costs.** The prices set must cover GTE's total element long-run incremental cost of providing that service ("TELRIC"). Moreover, the principle that all of GTE's true costs must be recovered requires that TELRIC be calculated based on GTE's actual network architecture, not on some hypothetical, more efficient network that could now be constructed.

(ii) **Joint And Common Costs.** The principle that GTE must be allowed to recover all its costs further requires that prices be set to allow GTE to recover all of its forward-looking joint and common costs, not just a portion of those costs. Any pricing rule that denies GTE recovery for all its joint and common costs, or provides for the recovery of only a portion of those costs, necessarily requires GTE to sell below its true costs and thereby would effect an uncompensated and unconstitutional taking.

(iii) **Cost of Subsidies.** To the extent that the current price of an unbundled element or a resold service contains a subsidy, or "contribution" towards either the cost of the provision of a service that this state requires GTE to provide at regulated prices that are below cost or the cost incurred as a result of incumbent burdens that GTE

continues to bear after the advent of competition, then GTE must recover its costs unless and until this state allows GTE to rebalance its rates or eliminates the mandated subsidy.

(iv) Costs of Unbundling or Resale. Any price set under the Act must include any additional costs incurred to accomplish unbundling or resale.

(v) No Overstated Avoided Costs. With respect to resold services, GTE cannot be required to resell services below their true costs (considering all other elements listed here) or with a discount that exceeds GTE's truly avoided costs.

Second, even if the Commission were to allow GTE a recovery of its forward-looking incremental costs plus a reasonable profit, GTE still must be allowed to recover any portion of its historical costs not yet recovered and to earn a fair rate of return on that investment. Accordingly, the Commission must provide for some mechanism -- such as an end-user charge or surcharge -- by which GTE recovers the difference between the reasonable return that it was promised on its historical, embedded costs and what it will now receive under a regime of competition. For GTE, the transition from regulation to competition means that its market will be opened up to competition yet it will be saddled with the heavy costs of an incumbent local exchange carrier (like universal service and carrier of last resort), while its competitors will not only be free of those burdens but will also be allowed to purchase or lease GTE's services or network elements at heavily discounted prices -- which GTE itself will subsidize. The Takings Clause requires that GTE be allowed to recover the substantial investments it made under a regulated-monopoly regime in which the Commission promised GTE that it would be able to recover and earn a fair rate of return on its investments.

Discussion

I. THIS COMMISSION IS NOT BOUND BY THE FCC'S PRICING RULES.

As a predicate matter, it is important to point out that the Commission is not bound by the pricing rules set in the Federal Communications Commission's ("FCC's") First Report and Order for two wholly independent reasons.[1] First, the FCC had no statutory authority to set the pricing rules and default prices it did (see Part I.A below). Second, even if it did, the prices it did set would work an unconstitutional taking. (See Part II.B.) In either case, the Commission is not bound to follow the FCC's prices. Indeed, the Commission is under a statutory duty to interpret the Act for itself and a constitutional duty to ensure that GTE receives just compensation for opening up its network to unbundling and resale.

A. The FCC Lacks Authority To Promulgate National Pricing Standards Governing Agreements Under Section 251 of the Act.

The FCC's attempt to set national pricing standards to govern interconnection, unbundling, and resale agreements negotiated under Sections 251 and 252 of the Act is inconsistent with Congress' scheme to have the States (through arbitrations) and private parties (through negotiations) establish prices. It is clear -- both under the Act and under Section 2(b) of the Communications Act of 1934 -- that the FCC lacks the power to promulgate national pricing standards. See 47 U.S.C. § 152(d).

---

[1] In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, First Report and Order, CC Docket 96-98, CC Docket 95-185, FCC 96-325 (released Aug. 8, 1996) ("First Report and Order") ¶¶ 618-984.

1. Only The Commission Was Granted Pricing Authority.

In the event that the parties to a negotiation cannot agree on the price for interconnection, unbundled access or resale, the Act expressly assigns to State commissions, not the FCC, the power to determine those prices through the arbitration process. Section 252(c)(2) provides, in terms that could not be clearer, that "a State Commission shall . . . establish any rates for interconnection, services, or network elements according to subsection (d)." 47 U.S.C. § 252(c)(2) (emphasis added). Subsection (d)(1) then goes on to provide that "[d]eterminations by a State commission of the just and reasonable rate for . . . interconnection . . . and [access to unbundled] network elements" shall be based on "cost" and "may include a reasonable profit." 47 U.S.C. § 252(d)(1) (emphasis added). Similarly, subsection (d)(3), governing resale, expressly provides that "a State Commission shall determine wholesale rates . . . ." 47 U.S.C. § 252(d)(3) (emphasis added). These sections, in unambiguous terms, assign to the State commissions -- not the FCC -- the power to set prices for interconnection, unbundling, and resale.

If the explicit statutory text assigning the power to determine prices to State commissions were not clear enough, then the structure of the Act makes the point even clearer. Section 252(c)(1) provides, generally, that in imposing conditions on the parties to a negotiation, a State commission shall ensure that such conditions meet the requirements of both "section 251" and "the regulations . . . prescribed by the [FCC] pursuant to section 251." 47 U.S.C. § 252(c)(1). By contrast, the very next subsection -- § 252(c)(2), which governs pricing -- provides that a State commission shall establish rates for interconnection and unbundling "pursuant to subsection (d)." 47 U.S.C. § 252(c)(2).

There is no mention of any FCC regulations on pricing issues. Thus, where Congress wanted the State commissions to follow the FCC's regulations (§ 252(c)(1)), it said so explicitly; by contrast, with respect to setting prices, Congress expressly omitted any reference to regulations by the FCC, and referred instead only to the substantive requirements imposed on the State commissions by § 251(d) in determining prices.

2. The FCC Has No Pricing Authority.

The textual basis relied on by the FCC to assert jurisdiction to determine prices only highlights the weakness of its position. The FCC concedes that "we recognize that these sections [§§ 251 and 252] do *not* contain an explicit grant of intrastate authority to the [FCC]." First Report and Order ¶ 84 (emphasis added). The FCC finds purported textual authority to determine prices in the directive in § 251(d)(1) stating that "[w]ithin 6 months after the date of enactment of th[is Act], the [FCC] shall complete all actions necessary to establish regulations to implement the requirements of this section." 47 U.S.C. § 251(d)(1).

It is quite unreasonable for the FCC to rely on § 251(d)(1) as granting the FCC authority to determine prices. First, that section has nothing to do with granting the FCC the authority to do anything. It merely sets time deadlines for those tasks the FCC is otherwise given under the Act. Indeed, Section 251(d)(1) is a limitation on the FCC -- requiring it to act within sixth months -- not a grant of authority. Second, to the extent that § 251(d)(1) impliedly grants the FCC authority to issue regulations, it does so only with respect to certain specific tasks expressly assigned to it by the Act. It is not a general grant of authority for the FCC to establish prices. Thus, for example, § 251(e)(1) expressly directs the FCC to "create or designate one or more impartial entities to administer

telecommunications numbering." 47 U.S.C. § 251(e). That obviously has nothing to do with pricing.[2]

Section 2(b) of the Communications Act of 1934 (codified at 47 U.S.C. § 152(b)) provides that "nothing in this chapter shall be construed to apply or to give the [FCC] jurisdiction with respect to . . . charges, classifications, practices, services, facilities, or regulations for or in connection with intrastate communications service." The Supreme Court has held that this "congressional denial of power to the FCC" over prices and other matters regarding the provision of local telephone service can be overcome only if Congress includes "unambiguous" and "straightforward" language in the Act either modifying § 2(b) or expressly granting the FCC additional authority. See Louisiana Pub. Serv. Comm'n v. FCC, 476 U.S. 355, 374, 377 (1986).

Obviously, neither exception to § 2(b) is present here. Whatever else can be said of § 251(d)(1), it cannot be said that that section "unambiguously" or "straightforwardly" gives the FCC the authority to set the prices for interconnection and unbundling of the local telephone network or resale of local telephone service. Similarly, no provision in the 1996 Act expressly modifies § 2(b) in granting to the FCC authority to regulate either prices or other local matters under § 251. To the contrary, such a provision **was expressly rejected by Congress**, for while it was included in the Senate bill, it was

---

[2] If anything, § 251(d) confirms by implication that the FCC has no authority under the Act to determine the prices for interconnection, unbundling and resale. That is so because § 251(d)(2), while expressly articulating the substantive standards to govern the FCC's power to determine which network elements to unbundle, omits any reference to any substantive standards to govern the determining of pricing. 47 U.S.C. § 251(d)(2). Rather, the only place those substantive standards -- governing pricing -- are found are in § 252(d)(1), which expressly refers to the substantive standards governing the State commissions' determination of prices. 47 U.S.C. § 252(d)(1).

not included in the law as enacted. See Conf. Rep. No. 458, 104th Cong., 1st Sess. § 101(c) (1996). Indeed, even the FCC concedes that no provision of the 1996 Act "contain[s] an explicit grant of intrastate authority to the [FCC] . . . ." First Report and Order, ¶ 84.

In response to this fatal § 2(b) problem, the FCC contends that the 1996 Act supposedly "moves beyond the distinction between interstate and intrastate matters that was established by the 1934 Act" and that section 251 "should take precedence" over any "contrary implications" in § 2(b). First Report and Order ¶¶ 24, 83, 93. But that "reasoning" is plainly flawed on a number of different levels.

Most notably, there is simply no grant of authority over prices in § 251 to "take precedence" over the rule of § 2(b). In addition, the Supreme Court could not have been more clear that § 2(b) deprives the FCC of jurisdiction over intrastate communications services unless some later act expressly modifies § 2(b) or expressly grants the FCC power over intrastate communications services. See Louisiana Pub. Serv. Comm'n, 476 U.S. 355. The FCC's general "sense" that the 1996 Act impliedly "moves beyond the distinction between interstate and intrastate matters established by [§ 2(b)]" cannot overrule the explicit "congressional denial of power to the FCC" in § 2(b).

In sum, the plain language of the Act, the structure of the Act, the rule of construction specified by Congress in Section 2(b), and important policy concerns all demonstrate that the FCC has no authority to set the prices for interconnection, unbundling, and resale. That task is plainly and unequivocally given to the Commission.

B. Even If The FCC Had The Authority To Set Prices, Both Its Pricing Methodology And Its Default Proxy Rates, If Followed, Would Effect A Taking.

1. The FCC's Pricing Methodologies Would Effect A Taking.

Even if the FCC had the authority to set prices (which it does not), the standards it has chosen are an impermissible interpretation of the Act because they would not compensate GTE fully for its true costs. As we demonstrate below (Parts II-III), the FCC's pricing methodology is defective for a variety of reasons. Principally, though, it fails to allow GTE full recovery of its historic costs and fails to allow GTE its full measure of joint and common costs on a forward-looking basis. Both aspects of the FCC's defective pricing methodology only underscore why anything less than full recovery of GTE's costs, as discussed in more detail in the testimony of GTE company witnesses, would effect an unconstitutional taking without just compensation.

2. The FCC's Default Proxy Rates For Unbundling, Interconnection And Resale Are Procedurally Defective And Effect A Taking.

The FCC also erred in several respects in establishing the default proxy prices for interconnection, unbundled elements, and resale under the Act. See First Report and Order ¶¶ 767, 932. First, the FCC erred by circumventing the congressionally designed State-sponsored arbitration process by establishing default prices through a rulemaking -- and an abbreviated rulemaking at that. By design, the arbitration process was intended by Congress to allow the Commission to engage in the fact-specific decision making tied to the circumstances of each case. By attempting to arrive at default proxy rates through a rulemaking, the FCC usurped the role of the Commission and deprived parties of the fact-specific adjudicative process contemplated under the Act, violating both the Administrative Procedure Act and the Due Process Clause of the Constitution.

Further, the default proxy rates established by the FCC for interconnection and unbundled elements are defective because they are not only inconsistent with the FCC's own flawed pricing methodology but they also effect an unconstitutional taking. As we show in Part VIII, the FCC's proposed proxy rates fall well below the minimum that GTE must recover for resale and unbundled elements in order to recover its true costs and avoid an unconstitutional taking without just compensation.

In short, under the Act, the Commission -- not the FCC -- has the right and obligation to set the prices for unbundled elements and resold services. Moreover, the Commission is bound to read the Act in a manner that avoids constitutional infirmity, and it need not follow an interpretation by the FCC that raises such constitutional difficulties. Thus, the Commission should determine on its own what pricing rule the Act and the Constitution require without reference to the FCC's First Report and Order.[3]

II. THE TAKINGS CLAUSE PROHIBITS GTE FROM BEING REQUIRED TO PROVIDE ELEMENTS OR SERVICES BELOW THEIR TRUE COSTS.

Whether Sprint's Petition is analyzed as a regulatory takings issue because its proposed rates would be confiscatory and, therefore, unconstitutional (see Part II.A below) or as a physical per se taking because Sprint's Petition proposes a physical occupation of GTE's network without just compensation (see Part II.B below), the result is the same: The Fifth and Fourteenth Amendments simply prohibit Congress and the States from requiring GTE to sell elements or services at prices that do not cover all of their true costs, plus a reasonable profit.

---

[3] On October 15, 1996, the 8th Circuit Court of Appeals granted a stay of the FCC First Report and Order pending judicial review.

A. Regulatory Takings Analysis.

1. Regulators Cannot Force a Business to Operate at a Loss.

The Supreme Court's Brooks-Scanlon decision long ago established the rule that the Takings Clause of the U.S. Constitution forbids a regulator from forcing a utility to operate a segment of its business at a loss because the firm happens to be profitable elsewhere in another segment of its business. Brooks-Scanlon Co. v. Railroad Comm'n of Louisiana, 251 U.S. 396, 399 (1920). The Supreme Court concluded that

> [a] carrier cannot be compelled to carry on even a branch of business at a loss, much less the whole business of carriage . . . . The plaintiff may be making money from its sawmill and lumber business but it no more can be compelled to spend that than it can be compelled to spend any other money to maintain a railroad for the benefit of others who do not care to pay for it.

Brooks-Scanlon stands for the proposition that the Commission may not force a regulated entity to provide a regulated service below cost without providing compensation. See also Northern Pac. Ry. Co. v. North Dakota, 236 U.S. 585, 595 (1915) (to same effect, noting that "[t]he fact that the property is devoted to a public use on certain terms does not justify the requirement that it shall be devoted to other public purposes").[4]

---

[4] Many courts have reaffirmed Brooks-Scanlon's rule that a railroad may not be required to operate part of its business at a loss. See, e.g., Railroad Commission of Texas v. Eastern Texas R.R. Co., 264 U.S. 79, 85 (1924) (state regulators cannot require continued operation of railroad line at a loss); Bullock v. Florida, 254 U.S. 513, 520-21 (1921) (same); National Wildlife Fed'n v. ICC, 850 F.2d 694, 707 (D.C. Cir. 1988) (reaffirming "general rule" set forth by Brooks-Scanlon and Bullock that "[a] carrier cannot be compelled to carry on even a branch of business at a loss, much less the whole business of carriage"); Gibbons v. United States, 660 F.2d 1227, 1233 (7th Cir. 1981) ("Brooks-Scanlon and Bullock define the basic limitations upon a modern railroad's public service obligation in the face of financial loss. . . . The constitutional principle embodied in these decisions retains its vitality; a railroad cannot be compelled to continue unprofitable operations indefinitely") (citation omitted); In re New York, New Haven & Hartford R.R., 304 F. Supp. 793, 804 (D. Conn. 1969) ("This (continued...)

It is no answer to the Brooks-Scanlon principle that the firm may have an overall rate of return that covers its costs based on sales of other services. In Duquesne Light Co. v. Barasch, 488 U.S. 299 (1989), the Supreme Court carved out an exception to Brooks-Scanlon along those very lines, but that exception has no application here. Duquesne suggests that all that matters for purposes of the Takings Clause is the net effect of regulation on the enterprise. Duquesne involved two utilities that challenged a state statute prohibiting a utility from recovering in its rates an investment that was not used and useful. The $35 million investment at issue in Duquesne reduced the rate base for one of the utilities by 1.9% and reduced its revenue by 0.4%; for the other, it reduced the utility's rate base by 2.4% and its revenue by 0.5%. The Court reasoned that there was a negligible effect on the overall financial status of both utilities. The Court thus focused not on any one aspect of an order, but rather on the overall effect of regulation on the enterprise:

> Errors to the detriment of one party may well be canceled out by countervailing errors or allowances in another part of the rate proceeding. The Constitution protects the utility from the net effect of the rate order on its property.

Id. at 314. The Duquesne Court also made clear that there would have been a taking if the allowed rates had been "inadequate to compensate current equity holders for the risk

---

(...continued)
court . . . concludes that Brooks-Scanlon and subsequent cases, reaffirming the validity of its holding, are still applicable and determinative."), aff'd in part, vacated in part, 399 U.S. 392 (1970); New York, New Haven & Hartford R.R. v. United States, 289 F. Supp. 418, 440-41 (S.D.N.Y. 1968) (3-judge court) (Friendly, J.) ("We see no reason to question the validity of Justice Holmes' decision in [Brooks-Scanlon] . . . forbidding the State of Louisiana to require a railroad to continue its deficit operation with no hope for profits in the foreseeable future."), vacated, 399 U.S. 392 (1970) (citation omitted).

associated with their investments under a modified prudent investment scheme." Id. at 312.[5]

The central insight in Duquesne was that there was no need to analyze closely the method used by the regulator as long as it passed constitutional scrutiny by allowing the firm to earn a competitive rate of return on invested capital. **But, the premise of the decision -- which distinguishes it from Brooks-Scanlon -- was that the regulator could and did insulate the regulated utility from competition and thus guarantee a constitutionally acceptable outcome.** Thus, to the extent that the "end-result" test of Duquesne suggests that a regulator could force a utility to operate one segment at a loss, that reasoning has no application here. It may well be that GTE is still subject to "regulation" by the Commission, but that no longer means what it once did in a regulated monopoly regime. Now, under competition, GTE no longer is insulated from the competitive forces of the marketplace. This has nothing to do with whether competition, as a normative matter, is the best policy. It simply means that Sprint cannot rely on the exception in Duquesne to justify the Commission setting insufficient rates for resale, unbundled elements, and interconnection on the theory that GTE may be profitable elsewhere in its system. For these reasons, the Brooks-Scanlon rule governs this case, and the Commission cannot force GTE to operate any segment of its business at a loss.

---

[5] See also Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591, 603 (1944) ("[R]eturn to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."); Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n, 262 U.S. 679, 692-93 (1923) ("A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risk and uncertainties").

2. The Commission Must Ensure GTE A Fair Rate of Return.

Whether the Brooks-Scanlon or Duquesne model applies, a regulator must ensure the utility a fair, non-confiscatory rate of return. That requires a utility's investors to earn a return that is commensurate with investments having a similar risk. As the Supreme Court concluded in Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591 (1944):

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.

320 U.S. at 603 (emphasis added).

In Duquesne, as explained above, the Court reaffirmed that "the return investors expect given the risk of the enterprise" is always relevant to the constitutional adequacy of a rate. Duquesne, 488 U.S. at 314. In support of this point, the Court quoted with approval from its opinion in Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n, 262 U.S. 679 (1923), which held that a utility is entitled to rates that will enable it to earn a return "'equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties.'" Id. at 314-15 (quoting Bluefield Water Works, 262 U.S. at 692).[6] Thus, pursuant to the Takings Clause, the Commission must

---

[6] See also Illinois Bell Tel. Co. v. FCC, 988 F.2d 1254, 1263(D.C. Cir. 1993) (test to be applied in evaluating a rate order is "whether the 'end result' meets the Hope standards: attraction of capital and compensation for risk"); Jersey Central Power & (continued...)

interpret the Act to allow GTE sufficient recovery of its invested capital to maintain its credit, to attract capital, and to ensure an opportunity to earn a return that will be commensurate with investments of a similar risk. See also Tennoco Oil Co. v. Department of Consumer Affairs, 876 F.2d 1013, 1020 (1st Cir. 1989) ("To be just and reasonable, rates must provide not only for a company's costs, but also for a fair return on investment. Rates which fall below this standard are 'confiscatory'") (citation omitted), aff'd, 60 F.3d 864 (1st Cir. 1995); Medical Malpractice Joint Underwriting Ass'n v. Paradis, 756 F. Supp. 669, 676 (D.R.I. 1991) (holding unconstitutional an insurance rate that would have caused insurance companies to incur a loss).

It has also long been required that just compensation for a taking requires that the property owner be put in the same position as he would have been if the exchange had been voluntary – as opposed to involuntary (as here). Consistent with this principle, courts have held that the owner is "to be put in as good a position pecuniarily as if his property had not been taken." Olson v. United States, 292 U.S. 246, 255 (1934); see also United States v. Reynolds, 397 U.S. 14, 16 (1970); Hedstrom Lumber Co. v. United States, 7 Cl. Ct. 16, 27 (1984) (citing Foster v. United States, 2 Cl. Ct. 426, 445 (1983)) (to same effect); see generally Richard A. Epstein, Takings: Private Property And The Power Of Eminent Domain 182 (Harvard University Press 1985) ("In principle the ideal solution is

---

(...continued)
Light Co. v. FERC, 810 F.2d 1168, 1178, 1181 (D.C. Cir. 1987) (en banc) (utility's inability to pay dividends to common shareholders supported contention that FERC's rates were confiscatory) (citing Permian Basin Area Rate Cases, 390 U.S. 747, 792, 812 (1968)).

to leave the individual owner in a position of indifference between the taking by the government and retention of the property").[7]

Applying these takings principles here requires that GTE recover its full joint and common forward-looking costs as well as its historic costs. Anything less would jeopardize GTE's ability to continue attracting capital, would not afford its investors a return commensurate with the risk of similar investments, and would fail to place GTE in the position it would have been had its property not been taken through confiscatory pricing.

B. Physical Occupation Analysis.

The Commission must set prices for unbundled elements and resold services that allows GTE a recovery of its true costs and reasonable profit for yet another wholly independent but related reason. Sprint's proposals would amount to a per se taking by physical occupation of various parts of GTE's network.

In Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419 (1982), the Supreme Court held that a New York law requiring a landlord to permit installation of cable television equipment on rental property was a constitutionally compensable taking. The Court held that, while "no 'set formula' existed to determine, in all cases, whether [government regulation of private property constitutes a taking]," where the government

---

[7] See also Yancey v. United States, 915 F.2d 1534, 1542 (Fed. Cir. 1990) ("the fair market value of property under the Fifth Amendment can include an assessment of the property's capacity to produce future income if a reasonable buyer would consider that capacity in negotiating a fair price for the property"); Cloverport Sand & Gravel Co. v. United States, 6 Cl. Ct. 178, 188 (1984) (fair market value has been defined as the amount a "willing buyer would agree to pay a willing seller in cash, with neither party being under a compulsion to buy or sell"). Accord United States v. New River Collieries Co., 262 U.S. 341, 343 (1923); Seaboard Air Line Ry. v. United States, 261 U.S. 299, 304 (1923).

authorizes a permanent physical occupation of one's property by a third party, a taking is determinatively established. Id. at 426. The Court held that the law at issue in Loretto plainly amounted to a taking by a physical occupation because the "installation involved a direct physical attachment of" the cable company's equipment to the owner's property. Id. at 438.

The Supreme Court revisited the application of takings principles by permanent physical occupation to highly regulated industries in FCC v. Florida Power Corp., 480 U.S. 245 (1987). In that case, a utility company challenged on takings grounds the provisions of the Pole Attachments Act that authorized the FCC to set the rates that utility companies could charge cable television companies for using their utility poles for stringing television cable. The Court held that

> Loretto ha[d] no applications to the facts of [Florida Power -- and there was no taking by physical occupation – because while] the statute we considered in Loretto specifically required landlords to permit permanent occupation of their property by cable companies, nothing in the Pole Attachments Act as interpreted by the FCC . . . gives cable companies any right to occupy space on utility poles, or prohibits utility companies from refusing to enter into attachment agreements with cable operators.

Id. at 250-51 (emphasis added).

In other words, where, as in Florida Power, the property owner voluntarily invites the third party onto its property (by lease or otherwise), there is no permanent physical occupation mandated by the government and hence no taking for that reason, and the government is free to regulate the terms of the lease or other invitation (i.e., regulate the use of the property) without effecting a per se taking by physical occupation. Or, as the Supreme Court put it, the "element of required acquiescence is at the heart of the concept of [per se taking by physical] occupation." Id. at 252. See also Yee v. Escondido,

503 U.S. 519, 527 (1992) ("required acquiescence is at the heart of the concept of [taking by physical] occupation").

Applying these well-settled principles here, it is plain that the obligations imposed on GTE under section 251 -- collocation, unbundled network access to the local loop, pole attachments, and access to GTE databases -- constitute a taking by permanent physical occupation.

1. **Physical Collocation.**

Sprint has requested physical collocation (Sprint Petition at 27). As described in the testimony of Company witness Cantrell, physical collocation allows a CLEC to place certain equipment necessary for interconnection in a dedicated space at the facility of an incumbent local exchange carrier ("ILEC"), like GTE. See 47 U.S.C. §251(c)(6); First Report and Order ¶¶ 555-607. The Act obligates ILECs to allow for the physical occupation by the CLEC to establish a mini-facility on the property of the ILEC for an indefinite period with the further right to enter the ILEC's facility to install, maintain, and repair collocated equipment, as it deems necessary.

Physical collocation amounts to an installment and direct physical attachment to GTE's property. Cf. Loretto, 458 U.S. at 438. There is no question that a third party -- as opposed to GTE -- would have an exclusive property interest in the space on GTE's premises. See Id. at 440 n.19. And there is no question that, unlike in Florida Power and Yee, the Act requires an ILEC to allow third parties to physically occupy their premises. Thus, this case falls squarely within the per se takings rule of Loretto, as clarified in Florida Power and Yee.

The collocation issue has been squarely addressed by the Oregon Supreme Court, which held that physical collocation amounts to a taking by permanent physical invasion. In GTE Northwest Inc. v. Public Util. Comm'n of Oregon, 321 Ore. 458, 468-77, 900 P.2d 495, 501-06 (1995), cert. denied, 116 S.Ct. 1541 (1996), the Supreme Court of Oregon held that state-mandated collocation rules effected an unconstitutional physical taking. Id. The Court reasoned that when the government requires a physical intrusion into one's property that reaches the extreme form of a permanent physical occupation, a taking has occurred. Id.[8]

2. **Unbundled Access To The Local Loop.**

Sprint has requested access to the local loop on an unbundled basis. (Sprint Petition at 24-26). The Act provides CLECs with the right to unbundled access to the local loop. 47 U.S.C. § 251(c)(3); First Report and Order ¶¶ 226-541. As described in the testimony of Company Witness Wood, GTE is forced to transfer a property interest in the loop to Sprint. That interest is more akin to a forced lease than a sale. If a customer who elects Sprint as a local telephone provider decides to switch back to GTE, then GTE would again assume the property interest given to Sprint. Once Sprint or any other CLEC assumes an interest in the local loop, however, GTE cannot provide local exchange or any other service over that wire.

---

[8] The one federal court to address this issue has agreed that physical collocation "would seem necessarily to 'take' property regardless of the public interests served in a particular case." Bell Atlantic Tel. Cos. v. FCC, 24 F.3d 1441, 1446 (D.C. Cir. 1994). The D.C. Circuit did not, however, have to reach the taking issue because that court concluded that the FCC did not have the statutory authority to order physical collocation.

The physical occupation here is very similar to the taking in physical collocation. Here, GTE's turning over of the local loop to Sprint -- by compulsion from the government -- amounts to a direct physical occupation of its property by a third party, as it did in Loretto. 458 U.S. at 438. Nor is there a question that GTE owns this property. See id. at 440 n.19. And there is no question that, unlike in Florida Power and Yee, the Act requires GTE to allow Sprint and other third parties to physically occupy its premises. This case, just like physical collocation, falls squarely within the per se takings rule of Loretto, as clarified in Florida Power and Yee.

3. **Access To Poles, Ducts, Conduits & Rights Of Way.**

Sprint has requested access to GTE's poles, ducts, conduits and rights of way. (Sprint Petition at 43.) As described in the testimony of Company Witness Bailey, under Section 224, as amended by the Act, utilities are required to provide non-discriminatory access to any pole, duct, conduit, or right-of-way owned or controlled by a utility. 47 U.S.C. § 224 (1996). The FCC has interpreted Section 224 as requiring mandatory access to GTE's facilities. First Report and Order ¶¶ 1119-1240.

After Florida Power, there can be no question that forced access to poles is also a per se physical taking. The only issue left open in Florida Power was whether there had been a forced occupation. The Supreme Court made clear that the distinguishing factor in Florida Power was that unlike the forced access in Loretto, "nothing in the Pole Attachments Act as interpreted by the FCC in these cases gives cable companies any right to occupy space on utility poles, or prohibits utility companies from refusing to enter into attachment agreements with cable operators." 480 U.S. at 251. This distinguishing factor

has been eliminated by the Act and the First Report and Order, which undoubtedly require forced access to poles and thus effect a taking.

4. **Databases.**

Sprint has requested access to GTE's databases (Sprint Petition at 25). As described in the testimony of Company witnesses Morris and Drew, GTE has a protected property interest in its databases, yet Sprint's proposal would allow it to obtain forced access to GTE's intellectual property. That too would constitute a taking.

There can be no question that GTE's intellectual property -- if taken without just compensation -- would constitute a taking. Rights in computer software and computer hardware are "property" protected against uncompensated takings under the Takings Clause of the Fifth Amendment. Whether the nature of the property is the ownership of the tangible product itself, the intangible interest in the underlying data, the patent, copyright, trade secret rights, or any contractual right relating to the use of the software, each is independently protected by the Takings Clause. For example, in Ruckelshaus v. Monsanto Co., 467 U.S. 993 (1984), in which the Court held that property interests in trade secrets constituted compensable property for purposes of the Takings Clause, the Court observed:

> This general perception of trade secrets as property is consonant with a notion of "property" that extends beyond land and tangible goods and includes the products of an individual's "labour and invention." Although this Court never has squarely addressed the question whether a person can have a property interest in a trade secret, which is admittedly intangible, the Court has found other kinds of intangible interests to be property for purposes of the Fifth Amendment's Taking Clause . . . That intangible property rights . . . are deserving of the protection of the Taking Clause has long been implicit in the thinking of this Court[.]

Id. at 1003 (citations omitted); see also Lynch v. United States, 292 U.S. 571 (1934) (valid contracts are property within meaning of the Takings Clause).[9]

• • •

It is no response to the various physical takings here that somehow GTE's interest in its real property (facilities, network, poles, ducts, or conduits) or in its intellectual property (databases) should be accorded any less respect because GTE's local telephone exchange business has been regulated by the Commission. A long line of cases establishes that a utility's property -- even though subject to regulation -- remains the property of the utility, not the government. See Munn v. Illinois, 94 U.S. 113, 126 (1877); Delaware, L. & W. R.R. v. Morristown, 276 U.S. 182, 193 (1928); Northern Pac. Ry. v. North Dakota, 236 U.S. 585, 595 (1915). Therefore, regulation by the Commission may alter the use of property, but it cannot alter the underlying ownership of the property for purposes of a physical taking.

Put another way, there is nothing about the relationship between GTE, as a regulated entity, and the Commission that suggests that GTE has in any way bargained away its private property rights in exchange for a franchise that it has enjoyed up until now in the local exchange market in its service territory. Sprint has provided no evidence -- and it will be unable to provide any evidence -- of any agreement by GTE to give up its private property rights in its network facilities. The only bargain that GTE has entered into

---

[9] See also Leesona Corp. v. United States, 599 F.2d 958 (Ct. Cl. 1979) (where government infringed patent, it was deemed to have "taken" the patent license under an eminent domain theory and entitled to just compensation under the Fifth Amendment), cert. denied, 444 U.S. 991 (1979); Ladd v. Law & Technology Press, 762 F.2d 809, 813 (9th Cir. 1985) (observing that copyrighted materials constituted private property for purposes of the Takings Clause), cert. denied, 475 U.S. 1045 (1986).

has been to provide quality universal telephone service to the customers of this state in exchange for an exclusive franchise that would allow for a recovery of and a fair rate of return on its invested capital. Never has GTE turned over any part of its property rights to the State.

To the contrary, GTE has preserved all the traditional incidents of private ownership of its network property – including title, possession, and the right and obligation to incur debt to finance that property, to depreciate it, and to pay taxes on it. Any suggestion that GTE does not have a full property interest in its property would be news to state and federal taxing authorities, to GTE's creditors, and to its shareholders.

Therefore, GTE is entitled to just compensation for the physical occupation and taking of its property. While recovery of the fair market value is typically the measure of just compensation for a taking, see, e.g., United States v. 564.54 Acres of Land, 441 U.S. 506, 515-17 (1979), the Supreme Court has long recognized that there is no "rigid rule" requiring that standard. United States v. Commodities Trading Corp., 339 U.S. 121, 123 (1950). Thus, where a "market value", as here, would be "difficult to find," other standards may be appropriate. Again, the guiding principle is that the property owner should be put in "as good a position pecuniarily as if his property had not been taken." Olson, 292 U.S. at 255. Here, that means allowing GTE all of its forward looking costs pursuant to the "market-determined efficient component pricing rule" ("M-ECPR") (as discussed in greater detail in Part III.A below) and a recovery of and a fair rate of return on its historic costs of creating the network that has been taken (Part III.B below). Here, the measure of just compensation for a physical taking is no different from the

compensation owed GTE under the regulatory/confiscatory pricing analysis discussed above (Part II.A).

III. GTE MUST RECOVER ALL ITS FORWARD-LOOKING COSTS AND EARN A FAIR RATE OF RETURN ON ITS HISTORIC COSTS.

In Parts I and II above, we explained how Sprint's Petition would effect an unconstitutional taking and why the FCC's First Report and Order provides no safe harbor for that taking. In this Part, we apply these takings principles to this arbitration and demonstrate that GTE must recover its full forward-looking costs (Part III.A) and historic costs (Part III.B) to avoid an uncompensated and unconstitutional taking.

A. There are Five Forward-Looking Costs That GTE Must Recover.

1. Incremental Costs.

For any piece of GTE's network that is either leased or sold, it is commonly accepted that GTE is entitled to its long run incremental cost. In its First Report and Order, the FCC adopted this principle by establishing a pricing methodology for interconnection and unbundled elements based on the TELRIC of providing a particular network element plus a reasonable share of forward-looking joint and common costs. First Report and Order ¶¶ 674-703. Where GTE's incremental cost is higher than its retail rate (in the case of residential service, for example), forcing GTE to sell at "retail" would effect an unconstitutional taking in the absence of some other mechanism to make GTE whole. (Id.) That is to say, even the retail price does not fully cover GTE's incremental costs. Even worse, forcing GTE to sell at a price that is less than retail -- in the case of wholesale rates, for example -- would only make the taking more pronounced. (Id.)

2. All Forward-Looking Joint And Common Costs.

To the extent that Sprint's Petition allows for GTE to receive anything less than the full recovery of all forward-looking joint and common costs for any piece of GTE's network that is either leased or sold, it would be a taking without just compensation.[10] Even the "reasonable" portion of joint and common forward-looking costs that would be permitted under the FCC's interpretation, however, would be insufficient. The First Report and Order suggests two permissible methods of calculating the "reasonable" portion -- both of which would subsidize Sprint's entry into the market by ensuring that GTE earned only a portion of its forward-looking joint and common costs. First Report and Order ¶ 696. (Both methods are explained in more detail elsewhere in our submission.)

Under one method, GTE would only be entitled to a fixed markup, which would mean that GTE would be forced to forego a significant share of the contribution it otherwise would have earned. Under the other method, the FCC would "allocate" GTE's forward-looking common costs to the elements that are the most competitive and, therefore, least likely to recover their assigned costs. As explained in greater detail in the Doane Report at 6, both methods would foreclose the possibility that GTE would be able to achieve the recovery of forward-looking costs that the FCC purports to endorse, and would effect an unconstitutional taking without just compensation. Sprint has failed to explain how this basic constitutional defect would be rectified.

---

[10] A firm's "joint" costs are those costs incurred when two or more services are produced in fixed proportion. A firm's "common" costs are those costs incurred in the provision of some or all the firm's services that are not incremental to any individual service. Common costs can only be "avoided" by shutting down the entire firm or by not producing a particular group of services under review. (See Report attached to the Doane testimony.)

3. GTE's Costs Of Subsidizing Other Services.

It has long been a fundamental tenet of regulation of local telephone service that the incumbent LEC bears certain burdens -- notably, rate structures that reflect cross subsidies from universal service and carrier of last resort obligations. These burdens, unique to the incumbent, come at a tremendous cost. GTE has explained elsewhere in its submission (Doane Testimony and Report) that these costs are certain and quantifiable. Yet Sprint's Petition seeks to avoid any responsibility for paying for these costs. Instead, without any basis whatsoever, they would force the incumbent to bear these costs. If the Commission were to force GTE to bear these costs, that would constitute an uncompensated, unconstitutional taking.

The cost of the subsidy, or "contribution" is particularly severe when considering the sale or lease of an unbundled element (the local loop, for example). If the price of the loop is set too low, then GTE will not recover its full costs associated with the loop, as discussed in greater detail in the testimony of Company Witness Doane. But even worse, GTE will also lose the opportunity to sell other higher-margin services that provide contribution toward universal service and carrier of last resort obligations. So, when GTE sells/leases an unbundled loop to Sprint, for example, Sprint will likely self-provision the switching facilities necessary to provide higher-margin vertical services. Yet these are precisely the higher-margin vertical services that provide contribution to GTE's costs that traditionally served to keep basic telephone rates low. Thus, the more GTE and other ILECs lose the opportunity for contribution, the more compelling is the case that Sprint's proposal would effect a taking. By contrast, the market-determined efficient component pricing rule, as explained in detail by Company Witness Doane, derives a mechanism that

prices GTE components at their economic costs. This price rule, supplemented with a competitively neutral surcharge, is the proper -- and constitutional -- method for compensating GTE.

It is no answer to a taking that there may be alternate funding available at some later point through a universal service fund ("USF"). 47 U.S.C. § 254. Indeed, the very fact that Congress has recognized that there is a need for the USF only underscores why there would be an unconstitutional taking if Sprint's proposal were adopted. The whole point of the USF is that Congress recognized that local telephone service has been subsidized by allowing higher-priced services -- like toll calling, business service, vertical services (voice mail, caller identification, call forwarding etc.) -- to keep rates low for preferred classes of customers. Yet that is precisely what is at issue here. Moreover even if this were somehow an answer (and it is not), it would only be a partial answer because the USF is designed to recover only a limited portion of historical and forward-looking costs. And, in addition, the USF will not go into effect for quite some time -- which would leave GTE uncompensated until that time and wrongfully leave the burden on GTE to bring a separate action to recover those lost funds.

4. GTE's Costs Of Unbundling And Resale.

As described in more detail elsewhere in GTE's submission (See testimony of Company Witnesses Doane, Trimble, Wellemeyer and Wood), unbundling and resale entail economic costs -- both direct production costs and transaction costs. There is no justification for compelling GTE to bear these costs, and Sprint has offered no rational explanation for doing so. To be sure, Sprint would no doubt prefer GTE to bear these

costs, but the Constitution requires that GTE be compensated for these additional costs. These are real costs that will be no less if GTE bears them, as opposed to Sprint.

5. Prohibition Against Overstated Avoided Costs.

With respect to resale, the Takings Clause prohibits the use of overstated avoided costs to drive down the wholesale price. Under the Act, the Commission must establish a rate for the resale of telecommunications services pursuant to 47 U.S.C. § 251(c)(4). The Act provides for a pricing methodology based on the ILEC's wholesale rates, which are established by taking the retail rate less the avoided costs. 47 U.S.C. § 252(d)(3) (1996). The FCC has issued regulations in which it identifies a number of "avoided costs," but leaves to the States the application of this definition. First Report and Order ¶¶ 907-10.

As explained above (Part I), the FCC has also provided a default range of discount rates (17-25%) from the retail price. Id. And the FCC's proposed range would require GTE to sell its services below cost. As such, these proposed discount rates are insufficient to allow GTE to recover its costs associated with providing its various services subject to resale pursuant to the Act. Instead, the Commission should opt to implement a wholesale rate formula consistent with M-ECPR. (Doane Report.) Anything less would be an unconstitutional, confiscatory taking.

Sprint's "avoided cost" assumes (incorrectly) that GTE would leave the retailing business entirely and that any lost sale has a corresponding, equal per-unit reduction in avoided costs of retailing (marketing, advertising, and billing). Thus, under Sprint's method, for example, if GTE produced 100 units and its cost of retailing, marketing, and billing were $20, then Sprint would propose that the avoided costs on each

unit would be $0.20 (i.e., $20 ÷ 100 units = $0.20). Under Sprint's theory, if GTE sold 50 units at resale, its cost savings would be exactly ½ of $20 (or $10), and if it sold 100 units at resale, its avoided costs would be the full $20. That is to say, every unit of service has a corresponding, equal unit of retailing costs.

This does not, however, properly represent GTE's actual avoided costs. Consider, for example, one element of retailing costs -- advertising. Sprint's avoided-cost proposal would reduce GTE's advertising expenditures in direct proportion to the units of resale service provided. In reality, though, GTE's advertising dollars would probably be unaffected by the provision of resale services, unless of course GTE were to exit the retail business entirely -- which, of course, is not logical.

In fact, Sprint's position on resale appears to be motivated by its desire to take advantage of GTE's position as the incumbent and engage in "cream skimming" tactics -- choosing no doubt to build facilities in high-margin areas. Sprint will most likely leave the job of serving high-cost areas to GTE. That is to say, it will rely on resale to build out its system, while avoiding all of the costs associated with a facilities-based network in the low-margin areas while GTE will retain universal service and carrier-of-last-resort obligations. Congress no doubt did not intend for LEC competitors to be able to engage in such strategic behavior.

B. GTE Must Be Allowed A Reasonable Return on Its Historic Costs.

Sprint's proposal forbids the recovery by GTE of any return on its historic, or embedded costs in building the very network with which it now seeks interconnection. Yet, it has long been settled that the Takings Clause requires a fair rate of return for regulated utilities on their investments. See, e.g., Duquesne, 488 U.S. 299. The question

for regulators has traditionally been "On which investments is the utility entitled to a fair rate of return?" In his concurrence in Duquesne, Justice Scalia correctly concluded that for purposes of determining whether a taking has occurred, all "prudently incurred investment[s] may well have to be counted." Id. at 317. That is to say, at a minimum, the Commission must include all prudently incurred investments by GTE in constructing the very network that the government would now take from the Company for the use of third parties. Thus, GTE is entitled to recover that portion of its historic costs not yet recovered and to earn a fair rate of return on those investments.

Sprint has presented no evidence demonstrating that GTE's investments in constructing the local exchange network were not prudently incurred or should be excluded. Nor could it, for those very investments were the subject of close regulatory scrutiny by this very Commission. Thus, to the extent that Sprint now seeks access to GTE's network, it should have to either pay for an appropriate share of (and return on) those historic costs or GTE should otherwise be made whole through a rate rebalancing, end user charge, or one-time payment that would account for the monies prudently spent by GTE but now stranded by the transition from regulation to competition.

If the Commission were to afford GTE anything less than a fair rate of return on the very historic costs that the Commission induced GTE to spend to create the local exchange network, it would also run afoul of the principle that a regulator may not switch "back and forth between methodologies in a way which required investors to bear the risk of bad investments at some times while denying them the benefit of good investments at others". Duquesne, 488 U.S. at 315. Indeed, given that the "end result" test in Duquesne has no application where there has been a transition, as here, from regulation to

competition, then the Commission's close scrutiny of each element of GTE's expenditures -- including historic, sunk costs -- is compelled by longstanding case law requiring a fair rate of return for a regulated utility.

Thus, the Commission needs to adjust its calculations to either the rate base or to future rate of return to reconcile its obligations to GTE. Alternatively, it may prefer to address this issue in a franchise-impact proceeding. The central issue though remains the same -- GTE must receive fair compensation; the method by which that happens is secondary.

Conclusion

For all of the reasons described above and elsewhere in our response, the Commission must avoid an unconstitutional taking of GTE's property without just compensation by ensuring that GTE will recover its forward-looking costs and any portion of its historic costs not yet recovered and earn a fair rate of return on that investment.

TAB 5

SECTION III

GTE'S RESPONSE TO SPRINT'S TERM SHEET MATRIX

GTE responds to the "matrix" filed by Sprint. For the arbitration, Sprint has inserted text under the column "GTE Position." GTE presents this with reservation on certain points, including:

** GTE also has not been able to check or comment on the accuracy of citations to the FCC Order, due to constraints of time; and expressly reserves comment on those citations.

** Wherever GTE states in this Response to Sprint's Term Sheet Matrix that it believes it has reached agreement in principle with Sprint, that statement is based on the negotiation sessions and not upon agreement with the language proffered in this matrix by Sprint. GTE affirmatively disagrees with Sprint's phrasing of many issues in this document, and in some cases does not understand Sprint's point.

** GTE does not agree with the approach taken by Sprint in the first draft of its proposed interconnection agreement, and wherever GTE states in this following GTE Response to Sprint's Term Sheet Matrix that it agrees with a Sprint position, or that it believes an agreement in principle has been reached, GTE is not saying that it agrees with the draft agreement or with particular language of Sprint's position, but rather that arbitration of that issue at this time is not appropriate.

** GTE also points out that Sprint's "issues" are split so narrowly that they cannot be fully understood without being construed together with related issues. Thus, GTE's agreement to Sprint's apparent position on one issue often is conditioned on GTE's position on others.

** GTE also reserves all points of apparent agreement on account of the related cost and pricing issues. Compensation to GTE for all aspects of interconnection, unbundled elements, and resold services, including modification to GTE's network and system, must be just and reasonable and in accordance with the economic and pricing principles set forth in GTE's Response to the Petition.

GTE
TERM SHEET MATRIX

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
I.A.	**GENERAL** A master services agreement must be developed providing for all interconnection and electronic bonding. New contracts shall not be required as additional Points Of Interconnection ("POIs") are established, additional collocation arrangements are created, or additional electronic systems pass data to one another. Rather, schedules to the master services agreement detailing the inventory of POIs and other items subject to the master services agreement shall be updated.	A D	Sprint has been provided GTE's master interconnection, resale and unbundling agreement inclusive of, but not limited to, Appendices for OSS functions, and additions or changes for POIs. GTE should not be required to provide electronic bonding arrangements unless the costs are properly recovered. Electronic bonding is not a requirement of the Act for providing "nondiscriminatory access" to OSS functions.
I.B.	As required by the FCC's Order in Docket No. 96-98 ("the 96-98 Order"), any price, term and/or condition offered to any carrier by ILEC shall be made available to Sprint Communications Company ("Sprint") on a most favored nation's ("MFN") basis and ILEC shall immediately notify Sprint of the existence of such better prices and/or terms and make the same available to Sprint effective on the date the better price and/or term became available to the other carrier. The MFN shall apply to any unbundled element or service (e.g. directory assistance, basic residential service, intraLATA toll, Centrex, call waiting). Exceptions to the general availability of MFN should be very limited and include only volume discounts that reflect only cost savings, term discounts, significant differences in operations support (e.g. unbundled loops with maintenance as compared to unbundled loops without maintenance as compared to unbundled loops without maintenance or unbundled loops conditioned for data as compared to voice grade loops), and technical feasibility (e.g. local switching must be purchased to receive vertical features supported by the switch). If a state commission issues an Order setting price for all carriers, then this Agreement shall reflect this price as long as that is the only price offered by ILEC. If geographic zones are not uniform as applied to all carriers, Sprint may choose the lowest price available from the ILEC for the each specific area being served by Sprint.	D

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
I.C.	A required by the 96-98 Order, ILEC must geographically deaverage it's cost-based unbundled elements. However, geographic deaveraging must be accomplished in a manner such as Zone Density by office and not on specific routes or capacity dedicated to individual carriers. Deaveraging should reflect cost differences due to transmission facility size on ILEC facilities and on such facilities the price to each interconnecting carrier shall be equal per unit of traffic thus sharing the economics of scale equally with each interconnecting carrier. (e.g., a LEC could establish loop prices reflecting underlying cost differences, but the price per loop to a customer location should not vary by volume purchased by an individual carrier.)	D	GTE does not support deaveraging of wholesale and unbundled elements until a uniform and consistent set of pricing policies can be applied to the pricing of all of GTE's services - retail, wholesale, and unbundling. GTE will not price discriminate against any CLEC on a non-cost based difference, but will set price differences based upon variations in costs.
I.D.	ILEC will not charge Sprint any non-recurring charges incurred as a result of ILEC implementing network redesigns/reconfigurations or electronic system redesign/reconfigurations initiated by the ILEC to its own network or systems. However, any redesign or reconfiguration expenses required by a regulatory body where the regulatory body establishes a cost-sharing arrangement may be billed on an appropriate nondiscriminatory basis to Sprint.	A	GTE will not charge Sprint when GTE initiates it's own network or electronic system redesigns/reconfigurations. Requests by CLECs for systems redesign/reconfiguration/electronic bonding can be accomplished only if the costs are properly recovered by the cost causer or, in the alternative, commission mandated cost sharing arrangements.
I.E.	ILEC shall not discriminate against Sprint or Sprint customers and shall provide parity treatment (as compared to its own end-users or other carriers) to Sprint and Sprint customers in all regards to (by way of example and not limited to) ordering, provisioning, maintenance, call completion, pricing, numbering, restoration, directory, listing, data protection, service availability, signaling, interconnection, and compensation.	D	The Act requires that GTE not discriminate between competitive providers in providing services for resale and access to unbundled elements. GTE, therefore, will provide the services it is required to offer under the Act on a nondiscriminatory manner and at the same quality standards applicable to its other customers.
I.F.	ILEC shall protect Sprint CPNI and the CPNI of Sprint customers, including non-pub/non-list information, and shall not use this information for its own or other marketing purposes. ILEC shall not seek releases from Sprint customers for use of Sprint CPNI, as compared to customer CPNI which is subject to customer authorized release, (e.g. Sprint interexchange billings performed by ILEC on behalf of Sprint).	A	GTE shall protect Sprints' CPNI and their customer's CPNI.
I.G.	ILEC and Sprint shall negotiate implementation time frames for and work cooperatively to provide all requirements where current system capabilities are limited and/or additional development or hardware deployment is required before the requirement may be met.	A	GTE will work cooperatively with Sprint to provide requested system capabilities based upon agreed to timelines and cost recovery. GTE will continue to participate in industry fora to develop standard systems for all CLECs.

LEGEND
A = Agree
D = Disagree

T S REF.	SPRINT POSITION	STATUS	GTE POSITION
II.A.	**INTERCONNECTION GENERAL REQUIREMENTS** The ILEC shall interconnect its facilities with those of Sprint upon bona fide request at any technically feasible points within the ILEC's network that Sprint desires at rates, terms and prices that are just, reasonable and nondiscriminatory, via physical or virtual collocation when requested, in a timely manner, and in a manner that provides Sprint with at least interconnection quality equal to that which the ILEC provides to itself, its affiliate or third parties	A	GTE will interconnect its facilities with Sprint upon bona fide request and at an end office, tandem switch and meet points using the following types of network facility interconnection: a) a mid-span fiber meet, b) a virtual EIS arrangement or c) a special access arrangement. Interconnection at additional points will be reviewed on an individual case basis. Network interconnection will be provided on a nondiscriminatory basis at cost-based rates, in a timely manner and at the same quality standards applicable to its other customers.
II.B.1.	**POINT OF INTERCONNECTION** Sprint may designate at least one POI on the ILEC's network within an ILEC calling area for the purpose of routing local traffic.	D	Sprint must designate at least one POI on GTE's network within GTE's calling area for the routing of local traffic. Interexchange traffic may be routed via one POI per LATA. However, without connections to each tandem, terminating usage records will not be created. GTE will provide inter-tandem switching at such time as (a) Sprint has entered into one of the existing intraLATA toll compensation mechanisms or (b) signaling and AMA record standards support the recognition of multiple-tandem switching events.
	Interexchange traffic may be routed via one POI per LATA. Sprint has the responsibility for providing its own facilities (1) to route calls originating on its network and terminating on the ILEC's network to its POI, and (2) to route calls originating on the ILEC's network, but terminating on its network from that carrier's POI. Sprint need not interconnect at each tandem or end office to terminate calls to the entire local calling or toll call area of the ILEC.	D	
II.B.2.	As required by the 96-98 Order, Sprint's POIs may be at any technically feasible point within the ILEC network, including, but not limited to: tandem switches, end office switches or other wire centers. Collocation is not a requirement for establishing a POI. POIs can be established via meetpoint, collocation or other mutually agreed to methods, subject only to the limitation of technical feasibility.	A	Sprint's POIs may interconnect with GTE at any of the minimum technically feasible points required by the FCC. Interconnection at additional points will be reviewed on a individual case basis. POIs can be established via meet point, collocation or other mutually agreed to methods.
II.B.3.	ILEC and Sprint agree to install sufficient facilities to carry traffic (1) to route calls originating on their networks and terminating on Sprint's network to its POI, and (2) to route calls originating on Sprint's network, but terminating on its network from Sprint's POI, and will work cooperatively to ensure such.	A	GTE and Sprint will agree to install sufficient facilities to carry traffic to and from GTE's networks and Sprint's POI using mutually agreed to methods including any recovery of costs.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
II.B.4.	ILEC shall be responsible for provisioning 50% of the interconnection facilities or to the ILEC wire center boundary, whichever is less. Sprint shall be responsible for provisioning 50% of the interconnection facilities or to the ILEC wire center boundary whichever is greater.	D	GTE and Sprint must mutually agree to reciprocol compensation for internetwork facilities depending on facility type, (i.e., mid-span fiber meet or virtual EIS).
II.B.5.	ILEC may not impose any restrictions on traffic types delivered to/from the POI(s) but may require the development and reporting of a jurisdictional usage factor indicating local, intrastate interexchange, and interstate interexchange usage along with reasonable audit rights or Sprint may report its actual usage. ILEC and Sprint shall each have reasonable audit rights.	D	Ultimately, GTE intends to provide Sprint the ability to pass all traffic via a single trunk group. However until technically feasible a separate trunk group will be required for local/EAS/intraLATA toll from interLATA access and Switched Access Service to IXCs. GTE does not agree to permitting all traffic types. Only traffic originated by Sprint end user customers is to be exchanged. Other types of traffic, e.g. wireless, third party traffic, will not be permitted. GTE and Sprint may conduct an audit of books and records, no more frequently than once per twelve (12) month period in accordance with the signed agreement.
II.B.6.	Sprint may make any modifications or additions to its designated POIs in order to add capacity or establish new POIs. Such changes should not require a new contract, but should be covered by the master service agreement.	A	GTE's master interconnection, resale and unbundling agreement includes Appendices to be utilized for additions or changes for POIs.
II.B.7.	Once traffic is delivered to the POI, it is the terminating carrier's responsibility to terminate the traffic to its end-users or to route transit traffic to Sprint utilizing the tandem function of Sprint, (e.g., subtending ILECs, CMRS carriers and IXCs). Calls should be routed or terminated using the same network, ensuring the same quality of service, as Sprint provides its own end-users. Tandem and transport cost, if any, between tandem and end office shall be recovered from the originating carrier.	A	Once traffic is delivered to the POI, it is the terminating carrier's responsibility to terminate the traffic to the end-user. GTE tandem and transport costs between the tandem and non-GTE end office(s) shall be recovered from Sprint or where mutual arrangements exists, from either Sprint or the non-GTE end office LEC, depending upon which entity originated the traffic. Sprint has responsibility for providing compensation to the non-GTE end office company.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
II.C.1.	**COLLOCATION** When interconnection or access to unbundled elements is provided where collocation is utilized, Sprint must be allowed to lease transport from the collocation facility to any other point on ILEC network and to directly connect via ILEC facilities with other collocators.	A	GTE will provide collocation for purposes of interconnection or access to unbundled network elements pursuant to the terms and conditions in the applicable GTE federal and state collocation tariffs. Sprint can purchase GTE special access service to connect a Virtual EIS arrangement to a distant GTE wire center or connect between Virtual EIS arrangements in different wire centers. GTE will provide interconnection between carriers when those carriers are both located at a GTE premises through this purchase of a GTE unbundled network element.
II.C.2.	Sprint collocation equipment must include any equipment used for interconnection or access to unbundled elements. FCC Rules 51.323.	A	Sprint collocation equipment is limited to transmission equipment and equipment to terminate basic transmission facilities per FCC Rules 51.323.
II.C.3.	The ILEC should generally meet a minimum 90-day interval for establishing new collocation arrangements. A full explanation of required delays past 90-days for installation of new collocation arrangements must be provided by ILEC.	D	Physical collocation arrangements cannot be automatically provided within 90-day intervals. Each collocation is different with numerous variables that factor into any given construction. GTE must properly secure each central office when it receives a physical request. This can include some building modification work in order to segregate GTE's network from the collocation space. Building permits may be required, even in the case of minor construction; therefore, the placement of a generic 90-day interval is not reasonable.
II.C.4.	COMPENSATION. The cost of providing collocation shall be at TELRIC plus a forward-looking allocation of reasonable joint and common costs, but in the absence of a cost study the interim price shall be set, subject to that under investigation in CC Docket 91-141 Expanded Interconnection.	A	GTE will provide collocation for purposes of interconnection or access to unbundled network elements pursuant to the terms and conditions in the applicable GTE federal and state collocation tariffs.
II.D.1.	**TRUNKING** Trunking should be available to any switching center designated by either carrier including end offices, local tandems, access tandems, 911 routing switches, directory assistance/operator services switches, or any other feasible point in the network. Two-way trunking should be used where technically feasible.	A	GTE will provide trunking at its switching centers, e.g., end offices, access tandems, as applicable., to handle their end users' different traffic types. Reciprocal traffic exchange arrangement trunk connections shall be made where technically available.

LEGEND
A = Agree
D = Disagree

T S REF.	SPRINT POSITION	STATUS	GTE POSITION
II.D.2.	Local, intraLATA toll, interLATA access and other traffic should not be required to be separated across trunk groups without good technical reason. ILEC should accept percentage of use factors or Sprint traffic measurements of traffic delivered to ILEC. Sprint should accept ILEC percentage of use factors or ILEC traffic measurements of traffic delivered to Sprint. Reasonable audit rights shall be granted each party.	D	GTE and Sprint shall agree to route traffic only over the proper jurisdictional trunk group(s). A single trunk for transporting all Sprint traffic is not technically feasible. However, GTE does agree to work towards this capability. See II.B.5.
II.D.3.	Sprint should offer B8ZS Extended Super Frame ("ESF") facilities, where technically feasible, to each other, and make these facilities available to allow for transmission of voice and data traffic.	A	Where available, GTE and Sprint will offer B8ZS facilities to each other to allow for transmission of voice and data traffic.
II.D.4.	Interconnection should be available at any technically feasible point that is used in the transmission of voice, data or other types of traffic.	A	Sprint may interconnect with GTE at any of the minimum technically feasible points required by the FCC. Interconnection at additional points will be reviewed on an individual case basis.
II.E.1.	**TRAFFIC TYPES** ILECs should provide the necessary facilities and equipment to allow for the exchange of Local Exchange, Exchange Access, Transit functions (the ILEC must provide intermediary tandem switching and transport services for Sprint's connection of its end-user to a local end-user of the ILEC served by a distant local switch, other CLECs, ITCs, CMRS providers and IXCs), and Other Services (the ILEC must provide connection and call routing for 911, directory assistance, and operator assistance services) between the ILEC and Sprint.	D	Sprint must order dedicated trunks for 911/E911 to GTE's 911 tandem offices. GTE requires separate trunk groups from Sprint to terminate interLATA calls and to provide Switched Access Service to IXCs. Cellular traffic or traffic of any third party is not to be exchanged without an agreement specific to that arrangement.
II.F.1.	**SIGNALING** Where available, the ILEC shall provide and implement all defined and supported Sprint Signaling System 7 ("SS7") mandatory parameters as well as procedures that are defined in the ANSI standards. When available for its own use, the ILEC shall also provide all defined and supported optional parameters.	A	SS7 Common Channel Signaling will be used to the extent that such technology is available. All SS7 signaling parameters will be provided in conjunction with traffic exchange trunk groups, where and as available.
II.F.2.	Sprint shall have the option for Multi-frequency ("MF") signaling, but only when either party does not have the technical capacity to provide SS7 facilities.	A	Where SS7 Common Channel Signaling is not available, in band Multi-frequency (MF) signaling, wink start, and E&M channel associated signaling with ANI will be provided by GTE and Sprint.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
II.F.3.	To the extent available in its network, the ILEC shall provide CIP (CIC within the SS7 call set-up signaling protocol). Sprint presumes there is no incremental recurring cost associated with this request and believes no charge is appropriate. If, after performing a TELRIC study, incremental costs are identified, Sprint will pay those costs for delivery of this information to Sprint. If chargeable, Sprint will likewise perform a cost study to identify this cost when it provides this information to ILEC and shall charge ILEC in a similar manner. At the option of Sprint, the ILEC must provide SS7 functionality via GR-394 SS7 format and/or GR-317 SS7 format.	A	See II.F.2. All SS7 signaling parameters, including parameters relating to network signaling information, such as CIP, wherever such information is needed for call routing or billing, will be provided where available. GTE will provide SS7 via GR-394-SS7 and/or GR-317-SS7 format. GTE agrees that a charge for the CIP is not appropriate.
II.F.4.	The ILEC must support inter-company 64 KBPS clear channel.	A	GTE and Sprint will support intercompany 64kbps clear channel where available.
II.F.5.	Sprint will cooperate in the exchange of TCAP messages to facilitate full inter-operability of SS7 - based features between their representative networks, including all CLASS features and functions, to the extent each carrier offers such features and functions to its own end-users.	A	Appropriate TCAP messages will be exchanged by GTE to facilitate interoperability of CLASS, where GTE offers CLASS services to its end users.
II.F.6.	Inter-network connection and protocol must be based on industry standards developed through a competitively neutral process, consistent with Section 256 of the Federal Telecommunications Act of 1996, open to all companies for participation. All carriers must adhere to the standard.	A	Inter-network connection and protocol must be based on industry standards developed through a competitively neutral process, consistent with Section 256 of the Federal Telecommunications Act of 1996.
II.F.7.	The standards and ILEC-developed requirements/ specifications for the ILEC network-user interface must be compatible with the network-network interface utilized between the ILEC and Sprint. Specifically, the ILEC should not develop products and services with proprietary network interfaces that inhibit or restrict the ability of Sprint to utilize the product or service in the provisioning of Sprints' services.	A	GTE agrees to provide advanced notification and will work with Sprint for the introduction of new products, services, and technologies that would be available to Sprint and its users.
III.A.1.	**BUSINESS PROCESS** **ORDER PROCESSING** The ILEC and Sprint will work cooperatively to provide or establish the following: The ILECs should establish dedicated CLEC ordering centers.	A	GTE has established a dedicated CLEC national ordering work group.

LEGEND
A = Agree
D = Disagree

T.S REF.	SPRINT POSITION	STATUS	GTE POSITION
III.A.2.	Industry standardized electronic interfaces for the exchange of ordering information must be adopted and made available using industry standard order formats and methods that are developed, (e.g. EDI). Electronic Data Interfaces ("EDI") should be established to provide access to the ILEC order processing database. Prior to industry standards being established, ILEC shall develop interim electronic interface arrangements with their systems.	D	GTE will participate in industry fora and work with Sprint to establish standard electronic interfaces or gateway access for the exchange of ordering information at an appropriate cost recovery. GTE will provide nondiscriminatory access to GTE's operation support systems functions that are available to GTE, but it need not provide on-line access to the GTE systems themselves.
III.A.3.	The ILEC is responsible for ordering facilities to terminate traffic to Sprint.	A	Sprint shall make available to GTE trunks over which GTE shall terminate traffic to end users of Sprint-provided exchange traffic, or EAS traffic originated from end user of GTE-provided exchange traffic.
III.A.4.	When two-way trunking is employed, the parties will select a mutually agreeable automated ordering process.	A	GTE and Sprint, where applicable, will make reciprocally available, by mutual agreement, the required trunk groups via an agreed upon ordering process.
III.A.5.	Appropriate ordering/provisioning codes should be established for each identified service and unbundled combination.	A	Appropriate standardized ordering/provisioning codes will be established for each resaleable service and unbundled combination (e.g. NC/NCI, SOSC).
III.A.6.	When combinations are ordered where the elements are currently interconnected and functional, those elements will remain interconnected and functional without any unnecessary interruption in service.	D	Sprint may combine unbundled network elements with it's own facilities. Sprint shall not combine unbundled network elements purchased from GTE to bypass resale offerings. For resold services, Sprint will purchase those retail products required by the Act. Provisioning is the responsibility of Sprint.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
III.A.7.	When Sprint purchases switching capabilities from ILEC, until such time as numbering is administered by a third party, Sprint requires the ability to obtain telephone numbers on-line from the ILEC, and to assign these numbers with the Sprint customer on-line. This includes vanity numbers. Reservation and aging of numbers remain the responsibility of the ILEC. Until such time as electronic access to numbering resources is available, ILEC shall pre-assign blocks of numbers in sufficient quantity to meet the needs of Sprint.	A	GTE will provide an 800 number to connect Sprint to GTE's National Open Market Center (NOMC). With Sprint's customer on hold, the NOMC will provide to Sprint the next available due date and telephone number. Vanity numbers will be handled in the same manner unless extensive time will be required, in which case the NOMC will work with Sprint off line. Sprint must submit a confirming local service request (LSR) in order to retain the number and quoted due date.
		A	GTE will continue to manage telephone numbers until a third party administrator is assigned.
		D	GTE does not agree to pre-assign block of numbers for Sprint. GTE will assign numbers to CLECs in a nondiscriminatory manner.
III.A.8.	When purchasing switching capabilities, Sprint requires the ability to order all features on that switch (e.g., calling block of 900, 976, or 976-like calls by line or trunk on an individual case basis) and ILEC shall provide high usage reports to Sprint as needed, so that Sprint may provide any regulatory-required or currently available to ILEC high usage reports to its end-users. Examples of high usage reports include those used with toll-cap service and fraud detection where customer service is suspended when usage reaches a certain level.	A	When purchasing switching capabilities, Sprint may order features on that switch (e.g., call blocking of 900/976), by trunk at an agreed price or by line as Services at the appropriate wholesale rate.
		D	GTE shall provide Sprint daily usage records that will enable Sprint to monitor and develop report(s) within their own systems and processes. GTE has, as an option to Sprint, Advanced Credit Management (ACM) to manage end user toll-cap and fraud detection and provide toll block when usage reaches a certain level. ACM is a usage based service arrangement and is only available in those states where tariffed and only when GTE is contracted as a third-party to process Sprint's end user customer billing.
III.A.9.	Sprint and the ILEC will adopt an industry standard service order/disconnect order format.	A	GTE will continue to participate in the industry fora for developing service order/disconnect order formats and will incorporate appropriate industry standards

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
III.A.10.	When necessary and available, Sprint requires the "real time" ability to schedule installation appointments with the customer on-line and access to the ILEC's schedule availability.	D A	Interaction will occur with electronic interface availability. GTE will move towards an electronic interface ability with development of gateways for access to information on mutually agreeable terms and conditions and cost recovery. For the interim, Sprint can contact GTE's NOMC for due date scheduling or can submit the LSR with the DDD. GTE will attempt to meet the DDD however, if DDD cannot be met, GTE will assign the next available due date.
III.A.11.	ILEC should provide "real-time" response for: firm order confirmation, due date availability/scheduling, dispatch required or not, identify of line option availability by LSO (such as Digital Copper, Copper Analog, ISDN, etc.), order completion with all service order and item and cost related fees, rejections/errors on service order data element(s), jeopardy against the due date, missed appointments, additional order charges (construction charges), order status, validation of street address detail, and electronic notification of the local line options that were provisioned, at the time of order completion, by the ILEC for all Sprint local customers. This applies to all types of service orders and all elements.	D A D A A	Interaction response will occur with electronic interface availability. GTE will move towards an electronic interface ability on mutually agreed to terms and conditions and cost recovery. GTE is agreeable to EI for firm order confirmation, due date, dispatch, completion notification, rejections/errors, jeopardies, validation of street address detail. GTE is not agreeable to line option availability by LSO, time and cost related fees, missed appointments, order status, local line options upon completion. See III.A.7. for interim process of number assignment and due date. Number assignment and due date schedules for services other than single line service will be assigned using the standard FOC report sent electronically to Sprint over network data movers (NDM). In the interim, it will be the responsibility of Sprint to validate street address detail via the SAG updates provided to Sprint.
III.A.12.	At all times, the ILEC will direct customer to Sprint for inquiries or actions concerning their Sprint service. ILEC should either migrate from N11 dialing to its business office and repair centers to seven digit numbers or 800 numbers so that Sprint customers have dialing parity to similar centers or ILEC should make N11 dialing available so that Sprint customers are directed to Sprint.	A D	GTE business office and repair centers will direct Sprint customers to Sprint for inquiries or actions concerning their Sprint service. Sprint shall provide GTE with the referral telephone number on the account profile request form. GTE does not intend to change N11 dialing arrangements or make N11 dialing available directly to Sprint.

LEGEND
A = Agree
D = Disagree

T.S.REF	SPRINT POSITION	STATUS	GTE POSITION
III.B.1.	**PROVISIONING & INSTALLATION** The ILEC will provide all test and turn-up procedures in support of the unbundled elements/combinations/services ordered by Sprint.	A	Resold Services - GTE will provide repair and maintenance services in accordance with the same standards used for such services provided to GTE end user customers. GTE will initiate a maintenance call or response to a trouble report once the trouble is reported to GTE by Sprint. Unbundled - GTE will perform repair and maintenance once trouble is identified by Sprint. Intervals that apply to the bundled services will apply to unbundled loops. GTE will not perform routine testing of the unbundled loop for maintenance purposes.
III.B.2.	Within 48 hours of any disconnect, the ILEC will notify Sprint of the disconnect of any Sprint unbundled element/ combination/service.	A	GTE thinks Sprint is asking for notification when a Sprint end user changes to another local service provider. GTE will notify Sprint when such activity occurs the day after completion or within 48 hours of such disconnect.
III.B.3.	All notices, invoices, and documentation provided on behalf of Sprint to the customer at the customer's premises by the ILEC's filed personnel shall either be branded Sprint or non-branded. ILEC shall not market its services during such calls thereby misusing CPNI from Sprint. Sprint will provide or pay for notices used in its behalf.	A	GTE field personnel will leave behind generic (unbranded) notices at Sprint end user locations. GTE field personnel will not market GTE services during such calls (Should the customer at the customer's premises request Inside Wire assistance, GTE field personnel will provide such assistance.)
III.B.4.	ILEC shall provide the ability for Sprint to mechanize test or will test all elements/combinations.	A	See III.B.1. Sprint will not be allowed to use GTE test facilities.
III.B.5.	ILEC will provide a system to mark Sprint emergency and trunking circuits and elements.	D	GTE will not provide a system to mark Sprint emergency trunking circuits and elements. GTE will process Sprint's restoral services based on national/state TSP requirements. Both parties shall agree to work toward industry standards for definition of essential services.
III.C.1.	**TROUBLE RESOLUTION, MAINTENANCE, CUSTOMER CARE** ILEC must work toward dedicated service centers available 7 days a week, 24 hours a day, and in the interim must handle Sprint calls as well as other customer calls in a non-discriminatory manner.	D A	GTE will not dedicate service centers to any particular use or CLEC. GTE will handle Sprint calls in a non-discriminatory manner and will be available to Sprint in the same manner as is available to GTE end users. Repair centers are available on a 7 x 24 basis.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
III.C.2	ILEC and Sprint shall develop a process for the management or misdirected service calls, to be used to refer/transfer calls from customers to Sprint for action. N11 dialing to ILEC repair centers should be discontinued, or N11 call routing to the appropriate carrier should be available.	A D	GTE will refer misdirected repair calls to a telephone number provided by Sprint. GTE does not intend to change N11 dialing arrangements or make N11 dialing available directly to Sprint.
III.C.3.a	Sprint must have read and write access to the ILEC's maintenance and trouble report systems including the following systems and/or functionality: Trouble reporting/dispatch capability - access must be real time.	D	GTE will work with Sprint's request to provide for electronic interfaces at an appropriate cost recovery. Trouble report entry. No dispatch capability.
III.C.3.b	Repair status/confirmations; maintenance/trouble report systems.	D	Repair status will only provide for pending, dispatched, closed.
III.C.3.c	Planned/unplanned outage reports	D	Reports at a central office level and for broadcast.
III.C.3.d	Mechanized line testing.	D	See III.B.4.
III.C.4	Each carrier has the duty to alert the other(s) to any network events that can result or have resulted in service interruption, blocked calls, changes in network performance, on a real time basis.	A	GTE will treat Sprint in a nondiscriminatory manner equal to GTE's established business practice. Status of network event with blocked calls or lost features within one hour.
III.C.5	ILEC and Sprint shall develop an escalation process to assist in problem resolution.	A	GTE will work with Sprint to develop an escalation process to assist in problem resolution.
III.C.6	Each carrier must work cooperatively to plan and implement coordinated repair procedures for local interconnection trunks and facilities to ensure trouble reports are resolved in a timely and appropriate manner.	A	GTE will work with Sprint to plan procedures that are in agreement with GTE's EIS product as provided in GTOC federal and state access tariff(s)
III.C.7	Cooperative practices and processes for law enforcement and annoyance call handling must be specified. Sprint should not be charged for compliance with court ordered trap and trace, subpoenas and court ordered wire tap orders on ILEC resold lines	A D	Sprint end user Call Trace requests are processed through the NOMC on an LSR. GTE will work with Sprint on existing procedures and where appropriate or mutually agreed, make modifications. GTE does not include the cost(s) for court orders, subpoenas, etc. in the retail end user charge(s) for Call Trace. Sprint will be responsible for these processes and charges for Sprint end user customers.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
III.C.8.	The ILEC shall provide progress status report so that sprint will be able to provide end-user customers with information and an Estimated Time To Repair ("ETTR"). The ILEC will close all trouble reports with Sprint. Sprint will close all trouble reports with the end-user.	D A	GTE in the interim is not agreeable to providing the requested ETTR report. Estimated repair time will be given when trouble report is received. GTE shall move towards developing an electronic interface for trouble report entry. GTE will close all trouble reports with Sprint.
III.C.9.	A non-branded, customer-not-at-home card shall be left at the customers premises when a Sprint customer is not at home for an appointment. Sprint will provide or pay for cards used in its behalf.	A	See III.B.3.
III.C.10.	The ILEC will ensure that all applicable alarm systems that support Sprint customers are operational and the support databases are accurate so that equipment that is in alarm will be properly identified. The ILEC will respond to Sprint customer alarms consistent with how and when they respond to alarms for their own customers.	A	GTE shall work with Sprint to establish reciprocal responsibilities for network outages and reporting. (e.g. Sprint shall be responsible for network outage as a result of termination of its equipment in GTE wire center or access tandem. Sprint shall be responsible for notifying GTE of significant outages which could impact or degrade GTE switches and services.)
III.C.11.	Sprint shall receive prior notification of any scheduled maintenance activity performed by the local supplier that may be service affecting to Sprint local customers (e.g., cable throws, power tests, etc.).	A	See III.C.4.
III.D.1.	**BILLING.** ILEC and Sprint agree to conform to MECAB and MECOD guidelines. They will exchange Billing Account Reference and Bill Account Cross Reference information and will coordinate Initial Billing Company/Subsequent Billing Company billing cycles.	A	Sprint and GTE will exchange all information necessary to accurately, reliably and promptly bill via the meet-point arrangement for the interconnection of facilities. GTE conforms to MECAB and MECOD guidelines.
III.D.2.	Meet point billing arrangements should be made available to Sprint as a CLEC on the same terms and conditions as made available to other independent LECs engaged in meet point billing arrangements with the ILEC.	A	GTE will make MPB arrangements available to Sprint on the same terms and conditions as made available to other incumbent LECs.
III.D.3.	There should be no discrete development charges imposed on Sprint for the establishment of meet point billing arrangements.	A	No discrete development charge will be imposed on Sprint.
III.D.4.	Sprint and the ILEC should implement industry standard CARE records for correct provisioning and billing to IXCs.	A	GTE will implement industry standard CARE records for correct provisioning and billing to IXCs.
III.D.5.	Where the ILEC provides transit functions, the ILEC will prepare and transmit Inward Terminating call records for the appropriate IXC to Sprint.	A	Agreed.
III.D.6.	The ILEC and Sprint will exchange the appropriate records to bill access charges to the IXC.	A	Agreed.

LEGEND
A = Agree
D = Disagree

T S REF	SPRINT POSITION	STATUS	GTE POSITION
III.D.7.	The ILEC must agree to capture inward terminating call records and send them to Sprint in an agreed upon industry standard format (e.g., EMR).	A	GTE will record terminating access records and provide them to Sprints in industry standard format, i.e. EMR.
III.D.8.	Sprint and ILEC agree to capture EMR records for inward terminating and outward originating calls and sent them to ILEC or Sprint, as appropriate, in daily files via an agreed upon media (e.g., Network data movers ("NDM")), at no additional charge.	D	GTE and Sprint will record terminating access and originating intraLATA toll calls and provide them to each other, as appropriate, at existing rates, terms and conditions, via an agreed upon media, e.g. NDM, on a cycle basis. Movements to daily feeds of data will require further consideration.
III.D.9.	ILEC must agree to exchange test files to support implementation of meet point billing prior to live bill production.	A	GTE agrees with Sprint's request.
III.D.10.	When Sprint owns the end-office, the ILEC will not bill a RIC to Sprint, the IXC, or a Sprint end-user for access minutes crossing the facilities or both the ILEC and Sprint.	A	GTE will bill the RIC only when GTE is the end-office company.
III.D.11.	To the extent that Sprint is liable to any toll provider for fraud and to the extent that Sprint could not have reasonably prevented such fraud, the ILEC must indemnify Sprint for any fraud due to compromise of ILEC's network that could have been reasonably prevented by ILEC action (e.g., Clip-on, missing information digits, missing toll restriction, etc.).	D	GTE should not be required to insure collection of all revenues lost as a result of alleged failures in the GTE network or systems. The rates and cost studies presented by GTE do not include the cost of insuring against Sprint's risks of doing business.
III.E.1.	**QUALITY OF SERVICE** ILEC shall work cooperatively to provide Sprint provisioning, repair and maintenance support 7-days a week, 24 hours a day.	D A	GTE will provide Sprint order processing support 5-days a week from 8 am to 5 pm for each time zone. Repair and maintenance support is available to Sprint 7-days a week.
III.E.2.	ILEC shall provide Sprint with at least the same intervals and level of service provided by the ILEC to itself or another party at any given time to ensure parity in treatment.	A	GTE shall provide Sprint equal treatment for due date intervals and quality of service as it provides to itself on a nondiscriminatory basis. GTE generally agrees subject to LSR time constraints.
III.E.3.	ILEC shall provide Sprint services on resale lines and on unbundled facilities in a manner that is timely, consistent and at parity with service provided to ILEC end-users and/or other carriers.	A	GTE shall provide Sprint resold services and unbundled facilities in a manner that is equal to providing to its self and on a nondiscriminatory basis.
III.E.4.	Interconnection quality of service should be no less than that provided by the ILEC for its own services.	A	GTE will provide to Sprint at no less than provided for its other customers. GTE is not responsible for the design, engineering, or performance of Sprint's equipment, customer designated termination equipment and customer provided facilities for virtual interconnection arrangements.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
III.E.5.	ILEC must agree to specified design objectives on local interconnection facilities. Sprint's standard is P.01 in the busy day busy hour.	A	GTE and Sprint shall jointly engineer to an objective P.01 grade of service.
III.E.6.	Sprint and ILEC must agree on a process for circuit and unbundled element provision and restoration whereby certain identified Sprint circuits will be afforded emergency treatment. General trunking and interconnection should take priority over any other non-emergency ILEC network requirement.	A	Sprint emergency circuit restoration will be handled in the same manner as GTE emergency circuit restoration. See III.B.5. GTE and Sprint shall agree to work toward industry standard for definition of essential services.
III.E.7.	ILEC should adhere to competitive intervals for installation of POIs. The objective in no case should be longer than 30 calendar days, absent extenuating circumstances.	D	GTE will not commit to a specific guideline of intervals for installation of POIs. Based on the configuration (e.g. mid-span meet, collocation, special access) the installation timeline will vary considerably between 30 days to 6 months. GTE will work with Sprint in all circumstances to install in an expeditious manner.
III.E.8.	Sprint and ILEC must agree to a process to expedite network augmentations and other orders.	A	GTE can agree to a process for accomplishing expedited network augmentations and other orders.
III.E.9.	Sprint and ILEC must agree upon a mechanism whereby ILEC will improve performance when it is in breach of commission imposed or agreed upon quality-of-service standards. ILEC shall indemnify Sprint for any forfeitures or civil penalties or other regulator-imposed fines caused by ILEC failure to meet commission imposed service standards or agreed to service standards.	D	GTE should not be required to meet differing quality standards for different customers, or to meet standards different than those established by a commission for GTE or those adhered to by GTE in its regular course of business. GTE's liability must continue to be limited only to include the standard provision that limits GTE's liability to the charges associated with the time out of service.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
III.E.10.	Sprint must be at parity with the ILEC (or its affiliates or third parties) in provision of unbundled elements. This must at a minimum include: a. Switch features at parity b. Treatment during overflow/congestion conditions at parity c. Equipment/interface protection at parity d. Power redundancy at parity e. Sufficient spare facilities to ensure provisioning, repair, performance, and availability at parity f. Standard interfaces g. Real time access to integrated test functionality	A D	GTE will provision Sprint unbundled elements on an equal and nondiscriminatory basis as GTE would provide to other customers. Equal to and nondiscriminatory. Equal to and nondiscriminatory. Equal to and nondiscriminatory. GTE will provision power and facility redundancy as ordered by Sprint with applicable charges. GTE shall provide availability of facilities on a nondiscriminatory basis. GTE shall utilize industry standard interfaces as appropriate. GTE does not agree to provide real time access to integrated test functionality.
III.E.11.	Sprint and ILEC will mutually develop operating statistical process measurements that will be monitored monthly to ensure that a specific quality of service is maintained.	D	GTE will meet state commission quality of service standards. GTE will work with Sprint on the development of GTE proposed quality measures.
III.F.1.	**INFORMATION** Completion confirmation must be provided to ensure that all necessary translation work is completed on newly installed facilities or augments.	A	GTE will provide completion confirmation on newly installed facilities or augments.
III.F.2.	ILEC and Sprint will periodically exchange technical descriptions and forecasts of their interconnection and traffic requirements in sufficient detail to assure traffic completion to and from all customers within the appropriate calling areas.	A	GTE and Sprint will periodically exchange technical descriptions and forecasts of their interconnection and traffic requirements in sufficient detail to assure traffic completion to and from all customers within the appropriate calling areas.
III.F.3.	ILEC must provide and update an electronic copy of their switch Network ID Database including a complete list of features/functions by switch, NPA/NXXs, rate centers, etc.	D	GTE will provide this information as discussed in III.F.4 and III.F.6. GTE will work with Sprint to establish an electronic interface for the exchange of this information on mutually agreed terms and cost recovery. GTE will not provide a dump of customer information.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
III.F.4.	The ILEC must provide a list/description of all services and features with availability down to street address detail, including: Type of Class 5 Switch by CLLI, line features availability by LSO, and service and capacity availability by LSO. Sprint further requires a complete layout of the data elements that will be required to provision all such services and features.	A D	GTE will provide to Sprint upon request the Street Address Guide containing by address the serving CLLI. Two companion files will be provided with the SAG which lists all services and features at all LSOs; and lists services and features that are available in a specific LSO. GTE's Customer Guide For ALEC Establishment of Local Services: Resale and Unbundling provides the necessary information and processes for ordering, billing and servicing. GTE does not provide information of type of Class 5 Switch by CLLI.
III.F.5.	The ILEC must provide detailed description of the criteria and process used for handling facility and power outages on an agreed upon severity and priority basis.	A	GTE will provide procedures that will be followed in case of facility and power outages.
III.F.6.	The ILEC must provide an initial electronic copy of the Service Address Guide ("SAG"), or its equivalent, on a going forward basis. Updates are expected as changes are made to the SAG.	A D	GTE agrees to provide initial copy of SAG. Updates will be provided upon request from Sprint and a charge will be assessed on a per request basis.
III.F.7.	Parity with the ILEC regarding knowledge of any engineering changes associated with the incumbent's network elements and deployment of new technologies is required. Sprint shall receive notice of the availability of new features (e.g. both ILEC and Sprint should be notified that a given ILEC switch is now capable of offering a given feature or service or that a hybrid fiber/coaxial network is replacing copper loops in a given area) at the same time so that ILEC and Sprint marketing personnel have parity in network information availability.	D	Sprint will receive information as appropriate to maintain network efficiencies. Other items such as Sprint initiated network optimization or training may be made available at a charge.
III.F.8.	ILEC shall provide Sprint with a list of emergency numbers (e.g. same digit PSAP numbers, police, fire, etc.).	A	Information requested is available in directory.

LEGEND
A = Agree
D = Disagree

T S REF	SPRINT POSITION	STATUS	GTE POSITION
IV A 1.	**ACCESS TO NETWORK ELEMENTS** **INITIAL UNBUNDLED ELEMENTS** Sprint expects that the unbundled elements initially available will conform ro the minimum standards contained in FCC Rule 51.305 and subject to the provisions of CC Docket No. 96-98 First Report and Order ("First R&O") released August 8, 1996. LOCAL LOOPS including two-wire and four-wire analog and digital loops and cross-connects to either other unbundled elements or Sprint facilities.	D	GTE will provide the following as unbundled network elements: a. Loop Elements b. Port Elements (access to switch plus usage. Switch features and functions are priced separately) c. Network Access Cross Connection d. Network Interface Device Transport elements, Signaling elements, SS7, and LIDB and DB800/888 will be made available in accordance with GTE's interstate access tariff. GTE will provide 3 general categories of loops: 1. 2-wire analog voice grade 2. 4-wire analog voice grade 3. DS-3 Sprint may also lease 2-wire or 4-wire loops that have been conditioned to transmit digital signals. Sprint may purchase an unbundled element to cross connect to Sprint facilities or other collocators as noted in II.C.1 but may not cross connect or combine other unbundled GTE elements.
		D	
IV A 2.	NETWORK INTERFACE DEVICE	A	GTE will permit Sprint to connect directly to GTE's NID or Sprint can opt to choose a NID to NID connection.
IV A 3.	LOCAL SWITCHING including all features and functions as described in the First R&O at ¶¶ 412 & 418. a. Line-side switching includes connection to an MDF where cross-connect to a loop may be obtained and a switch card with connection to the card. b. Trunk-side switching includes connection to trunk cross-connect and trunk card with features and functions.	D	GTE will provide two basic types of port elements, line-side ports and trunk-side ports, that provide for interconnection of individual loops ("subscriber lines") to the switching components of GTE's network such as dial tone, basic switching, and custom calling features. The ports further provide access to transport facilities, OS, databases, SS7 capability, and some AIN, which are offered as separate features from the resale tariff. There are 4 types of Ports available as unbundled network elements: 1. 2-wire analog line port 2. 2-wire ISDN digital line port 3. DS-1 digital trunk 4. 4-wire ISDN digital DS-1 trunk port.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
IV.A.4.	TANDEM SWITCHING including all features and functions (e.g. recording and customized routing including those features and functions identified in the First R&O).	A D	GTE will provide tandem switching capability at GTE access tandems for traffic between Sprint and GTE end-offices subtending the GTE access tandem and for traffic between Sprint and non-GTE end offices subtending GTE access tandems. GTE will provide the features and functions that are centralized in tandem switches including but not limited to call recording, the routing of calls to operator services, and signaling conversion features. Any technically feasible customized routing functions are generally provided through the local switch and GTE should not be required to provide "routing elements" as part of an unbundled switch until issues of system modifications and cost recovery have been solved.
IV.A.5.	INTEROFFICE TRANSMISSION FACILITIES, both dedicated and shared between, ILEC offices and the offices of others. a. DS1, DS3 and Optical capabilities shall be provided where available. b. Digital Cross-Connect usage in the same manner such as is provided to IXCs	A	GTE will provide unbundled transport elements which extends from a GTE end office to another GTE end office or tandem or to a meet point with transport facilities of Sprint or another carrier. Dedicated and Common transport is available from GTE's interstate access tariff. The NACC/EISCC unbundled element will provide cross connect from the loop to the collocator facilities or between collocators in the same office. GTE will provide access to the Digital Cross Connect System (DCS) in the same manner such as is provided to each IXC. See II.B.1 for tandem-tandem transport.

LEGEND
A = Agree
D = Disagree

T S REF	SPRINT POSITION	STATUS	GTE POSITION
IV A 6	SIGNALING AND CALL-RELATED DATABASES. a. SS7 signaling links and STP access must be provided. b. SS7 functionality for signaling within the ILEC network and to any network with which the ILEC is connected must be provided. c. All call-related databases must be unbundled and available for query by Sprint including LIDB, Toll Free Calling and Number Portability through physical access at the ILEC STP related to the database. d. All AIN databases must be unbundled and available for access by Sprint through either purchase of the ILEC local switching element or through SS7 connection with the switch of Sprint. e. All Service Management Systems should be available to Sprint so that Sprint may create, modify and update information in call-related databases in the same manner as ILEC.	D	a. Signaling links may be self-provisioned by Sprint. GTE STP access is achieved by contracted STP port interconnection. Sprint must pay for the work and access. b. Intral.ATA signaling for exchange access traffic to/from interconnected networks will be provided. c. LIDB and DB800/888 database queries can be provided through the GTE STP connected to the SCP related to the database. d. GTE will offer for resale existing GTE retail AIN services and allow Sprint to create its own services. e. GTE will offer to Sprint SMS/SCE access so that Sprint may create, modify, and update information in support of AIN services offered to Sprint customers. Service management system for LIDB is not offered in order to protect end user CPNI.
IV A 7	OPERATOR SERVICES shall be available on both a wholesale basis and an unbundled basis to Sprint. Sprint shall be the brand on Sprint calls when technically feasible. Custom routing shall be provided when technically feasible. Sprint rates shall be quoted when technically feasible.	D	GTE will resell those OS items that it sells now at retail and it is not required to unbundle portions of OS that are not sold separately at retail. GTE will provide those aspects of OS that it currently offers at retails along with local service. Switch routing capability is not an unbundled network element offered by GTE. GTE would agree on a short term, interim basis to implement certain customized routing if Sprint agrees to pay all associated costs. Ultimately a long term standard industry solution must be established.
IV A 8.	DIRECTORY ASSISTANCE shall be available on both a wholesale basis and an unbundled basis to Sprint. Sprint shall be the brand on Sprint calls when technically feasible. Sprint data shall be included in the ILEC database. The ILEC database shall be available to Sprint. Custom routing shall be provided when technically feasible.	D	See VII A 8 and VII B

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
IV.A.9.	OPERATIONS SUPPORT SYSTEMS including all systems used in pre-ordering, ordering, provisioning, maintenance and repair, billing, telephone number assignment, service interval information, and maintenance history, including any gateway system, shall be available on an unbundled basis by January 1, 1997.	D	GTE will provide a description of the operations support system that GTE will use and the related functions that are available to Sprint for ordering, provisioning and billing effective 1/1/97. GTE will provide a description of the processes to be used for service interval information, telephone number assignment, pre-ordering, maintenance and repair effective 1/1/97. GTE will continue to work towards appropriate gateway access and electronic interfaces for many of these functions but the timing of implementation and the responsibility of cost remain open issues. All costs and expenses for any new or modified electronic interfaces that Sprint requests and GTE determines are technically feasible will be borne by Sprint.
IV.B.	**COMPENSATION** All unbundled network elements including their functionality shall be priced at TELRIC plus reasonable allocation of forward-looking joint and common costs as outlined in FCC Rule 51.505.	D	The FCC rule has been stayed. GTE is not in total agreement with the FCC's Order on compensation for unbundled network elements, including their functionality. The prices should be cost-based, as required by the Act, but should be set to allow recovery of GTE's actual costs of its actual network and not be based on the theoretical costs of a network that has never been built. The pricing of the individual pieces of the network should be the incremental cost plus a share of joint and common costs. Sprint's proposed joint/common cost allocation of less than or equal to 15% is not appropriate for GTE.
V.A.1.	**ACCESS TO POLES, DUCTS, CONDUITS, RIGHT-OF-WAY ACCESS** Where facilities are available, ILEC must provide any telecommunications carrier requesting access with equal and non-discriminatory competitively neutral access to, by way of example and not limitation, any pole, pole attachment duct, conduit, and ROW on terms and conditions equal to that obtained by the ILEC. Other users of these facilities cannot interfere with the availability or use of these facilities by Sprint.	D	Where facilities are available, GTE will provide any telecommunications carrier requesting access with non-discriminatory access to any pole, duct, conduit or ROW owned or controlled by GTE subject to the terms of the agreement between the two companies. GTE is not in a position to police the actions of other users relative to Sprint's facilities.
V.A.2.	ILEC shall allow Sprint the same access to the network interface device as it allows to end-users.	A	Not a pole, duct, or ROW issue, but GTE will connect Sprint's loop to GTE's unbundled NID.

LEGEND
A = Agree
D = Disagree

T.S REF.	SPRINT POSITION	STATUS	GTE POSITION
V.A.3.	Any ILEC having poles and/or ducts on, over or under public or private property, to the extent allowed by law, must permit the use of such facilities by any other telecommunications carrier on an equal and non-discriminatory basis.	D	Where facilities are available, GTE will treat equally all telecommunications carriers requesting access to any pole, duct, conduit or ROW owned or controlled by GTE subject to the terms of the agreement between the two companies.
V. A. 4.	Any authorization to attach to poles, overlashing requirements, or modifications to the conduit system or other pathways to allow access to and egress from the system shall not be unreasonably restricted, withheld, or delayed.	D	Authorization to attach to poles and modifications to conduit systems are subject to review and approval by GTE, but will not be unreasonably hindered, restricted, withheld or delayed. Overlashing onto GTE facilities is not allowed. Overlashing onto Sprint's own facilities is allowed subject to notification to and approval from GTE (additional pole attachment charges would apply), but will not be unreasonably restricted, hindered, withheld or delayed. Sprint needs to define other pathways before GTE can state its position.
V.A.5.	ILEC should agree to take no action to intervene against, or attempt to delay, the granting of permits to Sprint for use of public ROWs or public access with property owners.	A	GTE will not interfere with Sprint's attempts to gain permission for use of public ROWs or access to private premises.
V.B.1.	**COMPENSATION** Fees related to engineering surveys for potential right-of-way use shall be based, on TELRIC plus a reasonable allocation of joint and common costs be consistent with the provisions in the Act.	D	The costs for surveys, make-ready work, rearrangements, or expansion of capacity will be paid by the company requesting the attachment that creates the need and will be based on the actual cost of performing the activity.
V.C.1.	**INFORMATION** ILEC should provide routine notification of changes to poles, conduits, ROW, etc., related to Sprint's network utilizing these facilities.	A	GTE will provide notification on any changes to poles, conduits, ROW that affect Sprint's facilities.

LEGEND
A = Agree
D = Disagree

T.S.REF	SPRINT POSITION	STATUS	GTE POSITION
V.C.2.	ILEC must provide access, as needed, to current pole-line prints, conduit prints, and make available maps of conduit and manhole locations, and allow manhole/conduit break-outs, and audits to confirm usability.	A	GTE will make available pole and conduit key maps that show the routing of the pole line or conduit system and where manholes are located. Conduit breakouts are not allowed. Manhole breakouts, where a precast knock-out exists, will be allowed subject to review by GTE. Where a precast knock-out does not exist GTE will study the structural integrity of the manhole prior to making a determination on whether to allow. Audits will be allowed once a conduit occupancy request (COR) or pole attachment request (PAR) is approved for a specific request. GTE will provide an escort at Sprint's expense if GTE believes it is required.
V.C.3.	ILEC must provide information on the location of, and the availability to access conduit, poles, etc., to any telecommunications carrier requesting such information, within 10 working days after the request.	D	GTE will attempt to provide information on the location of and the availability of poles, ducts, conduit and ROW within 30 business days of an inquiry by a telecommunications carrier. This time period could be longer because of the number of requests GTE is attempting to process with limited resources, the unavailability of a specific property owner, or the size of the ALEC's inquiry.
VI.A.1.	**ACCESS TO 911, DA, OPERATOR SERVICES 911** **GENERAL REQUIREMENTS.** ILEC must provide interconnection to 911 selective routing switch to route calls from Sprint network to correct Public Safety Answering Point ("PSAP").	A	Sprint must install dedicated trunks to GTE's 911/E911 selective routers (911 tandem offices) that serve the areas in which Sprint provides Exchange Services for the provision of 911/E911 services and for access to all subtending PSAPs.

LEGEND
A = Agree
D = Disagree

T S REF	SPRINT POSITION	STATUS	GTE POSITION
VI A 2	ILEC will provide identification of default arrangements.	D	GTE interprets Sprint as addressing default arrangements as to which PSAP each interconnected trunk should be routed if there is AIN failure. The responsibility for default routing decision rests with the 911 district. Where GTE is the lead 911 telco in a 911 district, GTE will maintain current at the 911 district a list of PSAPs and the default ESNs for GTE's office. Should Sprint's coverage go beyond GTE's coverage area, Sprint will be expected to meet with the 911 district to negotiate an ESN or default routing code for each trunk that will connect to GTE's selective router. GTE has no responsibility in default routing assignments where GTE is not the lead telco. Sprint will have to meet with the 911 district to get a current list of default ESNs for each central office in the district.
VI A 3	ILEC will maintain and ultimately provide an automated interface to Automatic Location Identification ("ALI") database.	A	GTE and Sprint will work together to develop the process by which the 911/E911 database will be updated with Sprint end user 911/E911 information.
VI A 4	ILEC must identify any special routing arrangements to complete overflow.	D	If Sprint requires transport from GTE to the GTE 911 selective routers, Sprint may purchase such transport from GTE at the rates set forth in GTE's intrastate switched access tariff or in GTE's intrastate special access tariff.
VI A 5	Ultimately, ILEC must identify any requirements for emergency backup number in case of massive trunk failures.	D	There is no emergency backup number in case of massive trunk failure. For 911 districts that are concerned about this, GTE offers for sale the "alternate routing" service.
VI A 6	ILEC must provide sufficient planning information regarding anticipated move to the use of SS7 signaling within the next 12 months.	A	GTE has not completed its plans to move to SS7 but will provide such information as appropriate when available.
VI A 7	ILEC must identify any special default ESN requirements.	D	Special default ESN requirements are the responsibility of the 911 district and will be communicated to Sprint during the negotiation to establish default ESNs.
VI A 8	ILEC must adopt NENA standards for street addressing and abbreviations.	A	GTE currently uses the NENA standards for street addressing and abbreviations.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
VI.A.9.	ILEC must adopt use of a carrier code (NENA standard 5-character field) on all ALI records received from CLCs; carrier code will be useful when remote call forwarding is used as an interim "solution" to local number portability, and will be even more important when a true local number portability solution has been implemented.	D	NENA has not yet assigned the codes. This process is still under review by GTE. GTE is currently able to pass the codes that are received from Sprint to the 911 district's ALI database.
VI.B.	**QUALITY OF SERVICE** ALI database must be updated with Sprint data in a time interval that is no longer than what is experienced by the ILEC customer's data.	A	If Sprint provides its update data to GTE as frequently as does GTE's internal systems, the update process will be as timely. In any case, GTE will not update the ALI database any later than one working day subsequent to receipt of data from Sprint.
VI.C.1.	**INFORMATION** Where permitted by law, ILEC will make available to Sprint the mechanized Master Street Address Guide ("MSAG") and routine updates.	D	It shall be the responsibility of Sprint to ensure that the address of each of its end users is included in the MSAG.
VI.C.2.	ILEC will provide mapping of NXXs to Selective Routers and PSAPs.	A	GTE currently does this in California and is developing a procedure to make them available elsewhere.
VI.C.3.	ILEC must provide reports to identify the locations of E911 tandems with CLLI codes.	A	GTE will provide Sprint with the appropriate CLLI codes and specifications of the tandem office serving area and the 10-digits POTS number of each PSAP.
VI.C.4.	ILEC must provide reporting to identify rate center to wire center to Central Office relationships, which 911 tandems serve which NXXs, primarily or exclusively.	A	GTE agrees to provide this information to Sprint.
VI.C.5.	ILEC must provide access to NXX overlay maps and detailed NXX boundaries, as well as network maps to identify diversity routing for purposes of 911 service provisioning. Sprint shall not use information provided under this section for other purposes.	A	GTE will make available to Sprint maps to the same level of detail as are used by GTE network design engineers.
VI.C.6.	ILEC must provide reports to identify which databases cover which states or areas of the state.	A	GTE's databases are not defined by state or areas of state but by 911 district, which may be a city, county or a set of a few counties. GTE will provide this information.
VI.C.7.	Sprint requires and ILEC shall provide a point-of-contact for each database administrator.	A	GTE currently has points-of-contact established. For customers west of the Mississippi, call 1-800-494-4911; for customers east of the Mississippi, call 1-800-829-1057.
VI.C.8.	ILEC must identify any special operator-assisted calling requirements to support 911.	D	GTE does not consider 911 service as a network element but supports provision of this service. GTE does not believe it has such procedures but will work with Sprint to determine requirements.

LEGEND
A = Agree
D = Disagree

T S REF	SPRINT POSITION	STATUS	GTE POSITION
VI D 1	**BUSINESS PROCESSES** ILEC must establish an automated Access Service Request ("ASR") process for 911 trunk provisioning	A	GTE is establishing the automated ASR in its NAOC
VI D 2	ILEC must provide emergency restoral of all trunk or network outages on the same terms/conditions it provides itself	A	GTE will provide Sprint with a level of performance that will provide the same grade of service as that which GTE provides to its own end users
VI D 3	ILEC must provide notification of any pending tandem moves, NPA splits, or scheduled maintenance outages in advance, providing enough time for Sprint to react	A	GTE plans to provide this information via its Data Base Management Centers but desires to negotiate the procedures to mutual satisfaction
VI D 4	ILEC and Sprint shall negotiate a mutual aid agreement to assist with disaster recovery planning	A	GTE does not consider 911 service as a network element but supports provision of this service GTE does not believe it has such procedures but will work with Sprint to determine requirements
VI D 5	Ultimately, ILEC must establish automated interface and access to the ALI database to enable Sprint to maintain and update records on a timely basis	A	GTE and Sprint will work together to develop the process by which the 911/E911 database will be updated with Sprint's end user 911/E911 information
VI D 6	ILEC must implement a process to identify and correct errors to the ALI database to ensure that the accuracy of data entered by ILEC for Sprint is no less accurate than its own data. Sprint is responsible for record data provided to ILEC for entry or entered by Sprint	A	GTE and Sprint will work together to develop a process that provides the same grade of service as that which GTE provides to its own end users
VI D 7	ILEC must identify process for handling of "reverse ALI."	A	Since GTE's ALI databases are stand-alone, whether or not reverse ALI is available depends on local procedures as established by the 911 district GTE allows reverse ALI on the stand-alone ALI computers where the 911 district requests it The search is for one ALI record only and there must be an audit tracking procedure installed on the computer
VI D 8	ILEC must identify process for management of NPA splits as well as NXX splits	A	GTE currently has a process It will be provided to Sprint
VI D 9	ILEC must indemnify Sprint for ILEC-caused errors in the maintenance, updating and processing of customer information to the ALI database	D	GTE does not consider 911 service as a network element but supports provision of this service GTE will work with Sprint to determine requirements for error corrections
VII A 1	**DIRECTORY ASSISTANCE GENERAL REQUIREMENTS** ILEC shall make Sprint's data available to anyone calling the ILEC's Directory Assistance ("DA"), and the ILEC's data available to anyone calling Sprint's DA	D	GTE will include Sprint local end users in our database GTE will not provide GTE end user data to Sprint. The Act at Section 222(e) limits the obligations of the ILEC to providing subscriber lists for the purposes of publishing only

LEGEND
A = Agree
D = Disagree

T S REF	SPRINT POSITION	STATUS	GTE POSITION
VII A 2	ILEC should store proprietary customer information provided by Sprint in their DA database, such information should be able to be identified by source provider in order to provide the necessary protection of Sprint or Sprint customer proprietary or protected information.	D	GTE requires further clarification in order to state its position
VII A 3	Sprint may limit the ILEC's use of Sprint's data to directory assistance or, pursuant to written agreement, grant greater flexibility in the use of the data after receipt of proper compensation	A	GTE agrees with Sprint's position
VII A 4	ILEC must allow wholesale resale of DA service	D	GTE will resell those DA items that it sells now at retail and it is not required to unbundle portions of DA that are not sold separately at retail. GTE will provide those items of DA that it currently offers at retails along with local service
VII A 5	ILEC shall provide data and processed directory assistance feeds in accordance with agreed upon industry format.	A	GTE will participate in industry fora and move towards implementing appropriate national standards. GTE will advise Sprint of format for processing directory assistance data. Sprint can transmit data via magnetic tape, or cartridge, or NDM.
VII A 6.	Sprint should be able to buy unbundled directory database and sub-databases and utilize them in the provision of its own DA service.	D	GTE does not agree to unbundle portions of DA that are not sold separately at retail. GTE would have to modify the database to provide access by multiple users.
VII A 7.	ILEC shall make available to Sprint all service enhancements on a non-discriminatory basis	D	GTE requires further clarification of "service enhancements" as it applies to DA before GTE can state its position.
VII A 8.	ILEC Sprint branded DA should be available to Sprint for resale. Sprint will pay any additional trunking costs necessary to obtain this service. If ILEC cannot satisfy all demand for Sprint branded DA service, ILEC must save capacity to provide an unbranded option for multiple CLEC's.	D	GTE does not agree to Sprint's branding request for DA. Current switch limitations would require adding new capacity and conditioning existing switches. GTE would agree on a short-term, interim basis to implement certain customized routing where Sprint agrees to pay all associated costs. Ultimately, a long-term industry standard solution must be established
VII A 9.	When technically feasible and requested by Sprint, ILEC should route Sprint customer DA calls to Sprint DA centers.	D	See VII A 8 above.
VII B	**COMPENSATION** ILEC must place Sprint customer listings in its DA database. ILEC shall make its unbundled DA database available to Sprint. Prices should be reasonable and non-discriminatory at TELRIC plus reasonable forward-looking allocation of joint and common costs.	A D	GTE will include Sprint customer listings in its DA database except where exception exists as ordered by a state commission GTE does not agree to unbundle portions of DA that are not sold separately at retail nor access to the DA database.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
VII.C.1.	**QUALITY OF SERVICE** End-to-End interval for updating the database with Sprint customer data must be the same as provided for the ILEC's end-users.	A	GTE will make available updated listing data from Sprint at the same time it sends same data to its database
VII.C.2.	ILEC shall provide an automated capability (e.g. tape transfer or other data feed) to update ILEC database for updating and inquiries.	A	GTE will provide data via three sources, NDM, or magnetic tape, or cartridge.
VII.C.3.	ILEC and Sprint shall agree on speed-to-answer standards.	D	GTE will meet state commission requirements for Average Speed of Answer (ASA).
VII.D.1.	**BUSINESS PROCESS** The ILEC DA database must be updated and maintained with Sprint data for customers who Disconnect Change carrier Install "Change" orders Are Non-Published Are Non-Listed Are Non-Published/Non-Listed	A	GTE will comply so long as GTE receives the data from Sprint on a timely basis. A "change carrier" would require a disconnect from Sprint. GTE will not modify Sprint's end user data until order is received.
VII.D.2.	Sprint bills its own end-users.	A	GTE will pass traffic back to Sprint for their end user billing or may bill on behalf of Sprint in conjunction with agreed upon terms and conditions.
VII.D.3.	Sprint shall be billed in an agreeable format but prefers a CABS format.	A	GTE will provide end user billing information to Sprint in a CBSS format (same system GTE uses for its end users)
VII.D.4.	ILEC and Sprint shall develop intercompany procedures to correct errors when they are identified in the database.	A	GTE will work jointly with Sprint to identify and develop procedures for database error corrections.
VIII.A.1.	**OPERATOR SERVICES** **GENERAL REQUIREMENTS** ILEC and Sprint shall jointly develop a process to conduct Busy Line Verification ("BLV") and Emergency Interrupt ("EI") when Sprint provides its own operator services	A	GTE will work cooperatively with Sprint on this issue. GTE has a current process that can be utilized. The issue of cost recovery for implementing this functionality at the end office switch would have to be discussed and resolved.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
VIII.A.2.	ILEC shall allow resale of Operator Services. Until such time that ILEC may route Operator Traffic to the Operator Service provider of Sprint's choice, ILEC resold Operator Service shall be branded Sprint and ILEC operators shall, where technically or operationally feasible and requested by Sprint, quote Sprint's rates for both Card and Operator Services functions and shall provide service that is at least at parity for services delivered to ILEC end-users. To the extent that separate trunk groups are needed to provide this functionality, Sprint agrees to pay the costs of necessary trunking. If the ILEC cannot meet all of the Sprint demand for branded operator services, the ILEC must save capacity to provide an unbranded option for all other CLEC's.	D	GTE will resell those OS items that it sells now at retail and it is not required to unbundle portions of OS that are not sold separately at retail. GTE will provide those items of OS that it currently offers at retail along with local service. Switch routing capability is not an unbundled network element offered by GTE. GTE would agree on a short term, interim basis to implement certain customized routing if Sprint agrees to pay all associated costs. Issues of system modifications, cost recovery and technical limitations on providing facilities necessary to enable GTE to meet branding demands would have to be resolved
VIII.A.3.	ILEC shall provide operator service deliverables to include the following: a. Local call completion - 0+ and 0-, billed to Calling Cards, collect and third Party b. Billable - Time and Charges, Etc	A	GTE and Sprint would have to solve LIDB access issues before full provisioning of Calling Cards, Collect and Third Party
IX.A.1.	**WHITE/YELLOW PAGE DIRECTORY LISTING GENERAL REQUIREMENTS *(NOTE: IN THIS SECTION ILEC MEANS ILEC AND/OR ITS DIRECTORY PUBLISHING AFFILIATE).*** A separate directory publishing agreement may be required with ILEC's directory publisher which ILEC will assist Sprint in obtaining under the general terms which follow.	A	A separate Telephone Directories Agreement is required between GTE and Sprint for the provisioning of GTE-published white and Yellow Page directories.
IX.A.2.	ILEC shall include Sprint specific information in the information pages of the directories.	A	GTE shall provide Sprint specific information in accordance with GTE guidelines specified in the Directories Agreement.
IX.A.3.	ILEC shall publish Sprint subscriber listings in ILEC directories (main listing in White and Yellow pages).	A	GTE shall publish Sprint subscriber listings in the appropriate sections of GTE directories.
IX.A.4.	ILEC shall distribute white and yellow pages to Sprint subscribers on a non-discriminatory basis.	A	GTE shall distribute telephone directories to Sprint subscribers.
IX.A.5.	ILEC should provide non-discriminatory List Rentals to Sprint.	A	GTE will provide Sprint upon request List Rentals in the same manner as provided to other third parties request. Upon signature of the Telephone Directories Agreement, GTE's directory publication company will provide Sprint listing extracts to third parties on behalf of Sprint. GTE will charge to Sprint a processing fee for the list.

LEGEND
A = Agree
D = Disagree

T.S REF.	SPRINT POSITION	STATUS	GTE POSITION
IX.A.6.	ILEC shall contact Sprint business customers and offer them directory advertising.	A	GTE agrees to contact Sprint business customers for purposes of directory advertising.
IX.B.1.	**TYPES OF DIRECTORY LISTINGS** Primary White Page Listings	A	GTE will make these types of directory listings available to Sprint.
IX.B.2.	Primary Yellow Page Listings	A	GTE will make these types of directory listings available to Sprint.
IX.B.3.	Additional White Page Listings	A	GTE will make these types of directory listings available to Sprint.
IX.B.4.	Additional Yellow Page Listings	A	GTE will make these types of directory listings available to Sprint.
IX.B.5.	Non-Pub/Non-List	A	GTE will make these types of directory listings available to Sprint.
IX.B.6.	Foreign Listings	A	GTE will make these types of directory listings available to Sprint at rates, terms and conditions of the foreign company tariffs.
IX.C.1.	**ORDER PROCESSING** Order processing procedures must be established to update directory database on a defined, regular basis with Sprint customer information.	A	GTE will work with Sprint to establish order processing procedures in conjunction with the Directories Agreement.
IX.C.2.	When available, an industry standard electronic format must be adopted for exchange of Sprint customer data.	A	GTE will work with Sprint to establish a mutually agreed to electronic process for exchange of Sprint data (e.g. NDM) and format as defined in Agreement.
IX.D.1.	**PROVISIONING/DISTRIBUTION** Initial and secondary distribution arrangements must be available. Sprint distribution by ILEC shall be at parity with ILEC distribution.	A	GTE will provide initial and secondary distribution for Sprint customers at terms and conditions that are equal to those provided to its customers. A charge for secondary distribution will be applicable which is the same as GTE pays for secondary distribution.
IX.D.2.	Intercompany procedures need to be established to prevent errors, and to correct them when they do occur.	A	GTE will establish procedures with Sprint for error prevention and correction.
IX.D.3.	ILEC and Publisher shall protect Non-Pub/Non-List information and not disclose it to others or use it for marketing purposes.	A	GTE agrees to protect Non-Pub/Non-List information and will not disclose it to others without prior notification and authorization from Sprint.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
IX.E.1.	**BILLING** At ILEC's option, the Yellow Pages advertising bill will be rendered separately to Sprint customers by Publisher or shall be rendered by Sprint as agent of Publisher. A Sprint customer's yellow pages bill may not be combined with an ILEC bill or be billed by the ILEC in a manner that allows the ILEC to utilize this billing media for local customer win back messages.	D	Prior to conversion of end users from GTE to Sprint, any existing directory advertising billing will continue to be billed by GTE until expiration of yearly directory. Thereafter, GTE's directory publication company will render a bill for directory advertising directly to Sprint customers.
IX.E.2.	At ILEC's option, the Directory Publisher shall invoice Sprint subscriber directly for white page advertising, white page bolding, white page color or shall utilize Sprint as agent for billing these services.	A	GTE's directory publication company will not utilize Sprint as agent for billing these services.
IX.F.1.	**COMPENSATION** Distribution to Sprint Customers and end-user charges for directories should be made on the same terms and conditions as the ILEC uses for its own customers.	A	GTE will provide directory distribution to Sprint customers and charge for directories on a nondiscriminatory basis on the same terms and conditions as GTE uses for its own customers.
IX.F.2.	Sprint should be treated in a non-discriminatory manner (e.g. if ILEC receives payment for its listings Sprint should receive payment for its listings, if ILEC pays for white pages publication Sprint should pay for its share of white pages publication, if ILEC receives a share of white pages or yellow pages revenue including list rentals Sprint should likewise share in revenues). In the alternative, at the option of ILEC, Sprint is willing to forego payment for listings and a share of white and yellow pages revenues if Sprint receives a no charge information page in the directories, no charge publication of all appropriate accounts in the directories, and free directory distribution to Sprint customers. Additional information pages should be available for a reasonable, cost-based charge.	A	GTE directory publication company will act as a service bureau for Sprint, providing services such as listing extracts. Fees for such services will be incurred by Sprint. Payments for the sale of listings will be the responsibility of Sprint to collect. GTE directory publication will not share directory advertising revenues with Sprint. GTE has the right to control the content of its own publication. GTE would agree to an additional information page for a reasonable, cost-based charge.
IX.F.3.	Any additional charges that are made to Sprint customers should be on the same basis as the ILEC charges its own customers.	D	Any additional charges will be as agreed between Sprint and the GTE directory publications company.
IX.G.1.	**INFORMATION** Publishing cycles and deadlines need to be provided to Sprint to ensure timely delivery of Sprint information.	A	GTE will provide Sprint with information appropriate to ensure timely delivery of Sprint orders.
IX.G.2.	Sprint shall provide its customer service location information if directory publisher is to deliver books. This data shall be used by ILEC/Publisher to deliver books or sell yellow pages advertising only and not for other purposes.	A	GTE agrees to use this information for the activities associated with publishing a directory only.

LEGEND
A = Agree
D = Disagree

T.S REF.	SPRINT POSITION	STATUS	GTE POSITION
IX.G.3.	ILEC shall provide a description of calling areas covered by each directory. This means that ILEC shall provide a list of all exchanges appearing in the directory and the local and EAS calling scope of the area covered by a directory or combination of directories as well as a list of all directories necessary for coverage of the local calling and EAS area.	A	GTE agrees to provide Sprint with the appropriate information to ensure timely receipt and accuracy of Sprint orders.
X.A.1.	**ACCESS TO TELEPHONE NUMBERS GENERAL REQUIREMENTS** Administration and assignment of numbers should be moved to a neutral third party. In the interim, while ILECs are still administering numbering, the following should apply: The ILEC must assign NXXs to Sprint on a non-discriminatory basis and on the same basis as to itself.	A A	Except in the Tampa, Florida LATA and in Hawaii, where GTE is the NANP Number Plan Administrator, GTE shall not be responsible for the requesting or assignment of number resources to Sprint. GTE will treat Sprint on a non-discriminatory basis. Access to telephone numbers is through Bellcore. Only for resale, GTE will provide telephone numbers.
X.A.2.	No restrictions should exist on ability to assign NXX per rate center.	A	Any restrictions applying to a code request will follow industry guidelines.
X.A.3.	ILEC testing and loading of Sprint's NXXs should be the same as its own.	A	The testing of new codes to external networks is limited to the extent of Sprint's test plan. Sprint must provide test numbers.
X.A.4.	ILEC cannot discriminate in the allocation of numbers and types of NXXs assigned to new entrants.	A	GTE will comply with code administration requirements as prescribed by the FCC, the Commission, and accepted industry guidelines.
X.B.	**COMPENSATION** The ILEC must assign NXXs to new entrants without the imposition of charges that are not imposed upon itself.	A	Central Office (NXX) Codes are provided pursuant to the Central Office Code Assignment Guidelines. Any request for numbering resources by Sprint shall be made directly to the NANP Number Plan Administrator(s). Terms and conditions pursuant to the Guidelines will be applicable.
X.C.	**QUALITY OF SERVICE** ILECs must load NXXs according to industry guidelines, including the terminating LATA in which the NXX/rate center is located.	A	GTE will load Sprint NXXs pursuant to the Local Exchange Routing Guide (LERG) guidelines to recognize and route traffic to Sprint's assigned NXX codes at all times. Sprint shall not request number resources to be assigned to any GTE switching entity.
X.D.1.	**INFORMATION** Until such time that number administration is moved to an independent third party, ILEC must provide to Sprint routine reporting on NXX availability, fill rates, and new assignments.	D	GTE will not provide reports on NXX availability, fill rates and new assignments. Annually, Bellcore produces a COCUS report with inputs from all code holders NXX projects, to estimate exhaust of the NPA.

LEGEND
A = Agree
D = Disagree

T.S REF.	SPRINT POSITION	STATUS	GTE POSITION
X.D.2	The ILECs must describe the details and requirements on handling NPA-NXX splits.	D	GTE will abide by state commission orders concerning the handling of NPA-NXX splits.
XI.A	**INTERIM LOCAL NUMBER PORTABILITY VIA RCF, DID OR OTHER ARRANGEMENTS GENERAL REQUIREMENTS** ILEC shall immediately implement interim number portability solutions to permit end-users to change to Sprint without changing their telephone numbers. Such interim solutions include Remote Call Forwarding ("RCF") and flexible Direct Inward Dialing ("DID"). Sprint preferred interim solution is RCF.	A	GTE and Sprint will provide each other with service provider number portability (SPNP) for allowing end user customers to change service provider without changing their telephone number. GTE will provide its SPNP to Sprint using remote call forwarding. Sprint may purchase DID service from GTE at wholesale rates.
XI.B.1.	**COMPENSATION** Sprint and ILEC will establish reasonable cost recovery for RCF/DID. Existing retail call forwarding rates are not considered reasonable for this purpose. Sprint proposes that interim number portability be priced at TELRIC cost less a 55% discount which recognizes that interim number portability solutions degrade network performance to Sprint customers. Should a lower interim number portability price be offered by ILEC to others or ordered by a regulatory body, Sprint may adopt the lower price.	D	GTE's position is that cost recovery should be at the time portability is provided and it is best provided through either the filing of tariffs for nonrecurring charges and monthly recurring charges or the inclusion of such nonrecurring and monthly recurring charges in contracts between the carriers. These charges should be reciprocal, each carrier requiring Interim Number Portability paying the portability-providing carrier on a per-path basis. Sprint's proposal to reduce cost by 55% because INP solutions degrade network performance is totally erroneous in the context of number portability. All carriers, including ILECs, competing in the same market will utilize the same number portability solution(s) and disparity in the applications will not exist. GTE and all other carriers should be able to recover their tariffed rates to the extent such tariffs have already been filed or, alternatively, recover the costs of INP through a cost pooling system.

LEGEND
A = Agree
D = Disagree

T.S REF.	SPRINT POSITION	STATUS	GTE POSITION
XI B.2	For Sprint facilities-based services and services built with cost-based, unbundled elements, Sprint is entitled to both originating and terminating access charges associated with calls terminating to ported numbers assigned to Sprint subscribers. ILEC retains access charges when Sprint service is provided by a rebranded wholesale ILEC service. In addition, pursuant to 47 C.F.R. § 51.515 where ILEC switching is used prior to June 30, 1997, CCL and 75% of TIC charge will be paid by Sprint to ILEC.	D	When Sprint provides the switching function, Sprint is entitled to both originating and terminating access charges associated with access traffic terminating to number assigned to Sprint end users For access traffic terminating to ported numbers assigned to Sprint end users, GTE and Sprint will share access charges GTE retains full access charges on resold services Where GTE unbundled port with switching features is used to provide Sprint services, port and switching charges, CCL, and 100% of the RIC will be paid by Sprint to GTE for originating and terminating access traffic.
XI C.	**INFORMATION** The data required for interim local number portability and for billing access when interim local number portability is used must be provided to Sprint at no additional cost above that already paid for interim local number portability.	A	GTE requires further clarification from Sprint to ensure agreement on this issue.
XII A.1.	**ACCESS TO SUCH SERVICES OR INFORMATION NECESSARY TO ALLOW REQUESTING CARRIER TO IMPLEMENT DIALING PARITY** **GENERAL REQUIREMENTS** Upon the earlier of a valid local commission order to implement intraLATA presubscription, three years from the date the Telecommunications Act of 1996 was effective or when the ILEC (or its affiliate) is allowed into in region (e.g. states served by the ILEC) interLATA service, the full two-PIC option must be available for intraLATA and interLATA dialing parity.	A	GTE is already in compliance with the requirements. GTE has filed tariffs in all states in which it operates, except for Texas and Arkansas which are subject to state commission restrictions, to provide intraLATA equal access by March, 1997. All filings are subject to state commission approval. GTE is not bound by the same "in-region" requirements/check list as is the BOCs per the ACT.
XII A.2.	Any end-user should be able to access Sprint for services using the same dialing protocol that the end-user would use to access the same service on the ILEC network (e.g., intraLATA toll, operator assisted, directory assistance, and N11).	D	See III A.12, III C.2 and XII A.1.
XII A.3.	ILEC must provide routine reporting on local dialing plans by switching type and end office.	D	51.207 does not require routine reporting on local dialing plans by switch type and end office.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
XIII.A.1.	**RECIPROCAL COMPENSATION ARRANGEMENTS** **LOCAL SERVICE/MUTUAL TRAFFIC EXCHANGE** ILEC has the duty to provide reciprocal compensation arrangements for the transport and termination of telecommunications with Sprint. In order to implement this requirement in the most efficient manner, the specifically recognized option of "Mutual Traffic Exchange" (a/k/a "bill and keep") may be utilized where traffic is presumed to be in balance either because it has been measured and no significant balance different exist or because measurement has not yet been accomplished. Otherwise, default proxies contained in the 96-98 Order shall be used until TELRIC cost studies have been performed and the results implemented in permanent rates.	D	No usage compensation will be paid by either company if the local traffic exchanged between GTE and Sprint is roughly balanced. GTE would define "roughly balanced" as plus or minus ten percentage points, i.e., within a range of 40% to 60%. The FCC default proxies have been stayed. GTE and Sprint may request traffic studies be performed not more frequently than quarterly. Interstate access rate levels will apply to all local traffic when traffic becomes out of balance.
XIII.A.2.	ILEC and Sprint will each be responsible for originating/terminating traffic to/from the meet point with the other carrier.	A	GTE and Sprint will exchange traffic at established meet points between the two parties.
XIII.B.1.	**COST BASIS** Pursuant to 47 C.F.R. § 51.705(a) an ILEC's rates for transport and termination of local telecommunications traffic shall be established, at the election of the state commission, on the basis of: a. the forward-looking economic costs of such offerings using a cost study pursuant to 47 C.F.R. §§ 51.505 and 51.511; or b. default proxies, as provided in 47 C.F.R. § 51.707; or c. a "bill-and-keep" arrangement, as provided in 47 C.F.R. § 51.713.	D	The FCC rules have been stayed. Interstate access rates for end office switching and tandem transport will be utilized for the termination and transport of local telecommunications traffic.
XIII.B.2.	Pursuant to 47 C.F.R. § 51.715, in a state in which the state commission has neither established transport and termination rates based on forward-looking economic cost studies nor established transport and termination rates consistent with the default price ranges described in 47 C.F.R. § 51.707, the ILEC shall set interim transport and termination rates within the proxy ranges for switching and transport as described in 47 C.F.R. § 51.707(b)(2).	D	The FCC rules have been stayed. GTE will have filed cost studies and rates for transport and termination of local traffic in most jurisdictions and expects state commissions to review and approve these rates in an expeditious manner.
XIV.A.1.	**RESALE** **GENERAL REQUIREMENTS** All regulated telecommunications services offered to end-users of the ILEC must be available for resale by Sprint. This includes volume discounted products, grandfathered products, individual case basis products, operator services, directory assistance, vertical services and promotions.	D	GTE will make available end user retail services on a wholesale basis except for the following: below-cost residential services and promotional offers. The following services should be available for resale, but a wholesale discount shall not apply: nonrecurring charges, access services, operator services, directory assistance services, and ICB services.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
XIV.A.2.	Every retail service rate, including promotions of over 90- days, discounts plans, and option plans must have a corresponding wholesale rate. Non-recurring charges associated with resold accounts shall also have an appropriate wholesale discount. New services shall have a wholesale rate established at the same time the new service becomes available.	D	See XIV.A.1 defined above GTE shall, when new retail services are introduced, make available a wholesale version of the service for resale on the date that such new retail service is approved by the state commission.
XIV.A.3.	No conditions may be placed on the resale of any retail service except for the single provision within the Act which allows a state commission to restrict resale between certain categories of subscribers and pay phone providers as Order by the FCC. Sec. 251(c)(4)(B), FCC Rule 51.613.	D	The Act requires ILECs not to impose "unreasonable or nondiscriminatory conditions or limitations" on resale. Thus GTE thinks reasonable conditions or limitations on resale are appropriate. GTE's conditions and limitations for below-cost residential services and promotional offers are reasonable. Further, GTE's nonrecurring charges, operator services, directory assistance services, and ICB services have no avoided costs therefore no discount applies. As for access services, GTE already offers such services on a wholesale basis. In addition to the preceding restrictions, Sprint should be prohibited from "cross-class selling."
XIV.A.4.	For wholesale services, Sprint requires that the existing databases and signaling supporting the retail service continue to be provided as part of the wholesale service.	A	The resold services will be provisioned in a nondiscriminatory manner and of equal quality to the retail services.
XIV.A.5.	If the ILEC continues to sell a product to any end-user under grandfathered arrangements, the ILEC must make that product available for resale by Sprint to that end-user. If a service withdrawn from certain customers remains available to other customers, that service must be made available for resale to those customers that could still purchase the service at retail.	A	Services identified in GTE tariffs as grandfathered in any manner are available for resale only to end user customers that already have such grandfathered service. An existing end user customer may not move a grandfathered service to a new service location.
XIV.A.6.	ILEC must provide a minimum notice period for changes/discontinuation of services so that Sprint has an opportunity to make the necessary modifications to its ordering, billing, and customer service systems, and so that it can provide sufficient customer notification regarding any changes.	A	Applicable to resold services, GTE will file tariffs prior to offering new services. The tariff filing, in effect, serves as a public notification. The period from the filing date to the effective date is the advance notification period. GTE Carrier Markets Account Managers are also available for periodic planning meetings to discuss new offerings.
XIV.A.7.	Sprint's local customers must be able to retain their existing ILEC provided telephone number without loss of feature capability and ancillary services such as, but not exclusively: DA, 911/E911 capability. Both Sprint and the ILEC will work cooperatively on exceptions.	A	In a resale environment, Sprint local customers will retain their existing GTE provided telephone number and access to features and services that are provided by GTE via interim Service Provider Number Portability (IP-SPNP).

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
XIV.A.8.	When ILEC provides short installation intervals to its end-users, ILEC shall match those installation intervals for Sprint customers (e.g. facilities are already connected at the premises and all that is required is a computer entry activating service, such as "warm line" activation).	D	Sprint shall provide on the LSR its end user customers desired due date (DDD). If GTE is unable to meet that date, GTE will provision the LSR based on the next available due date. See III.A.7
XIV.B.1.	**COMPENSATION** The wholesale price for each retail service must be determined based on the FCC approved methodology where costs the ILEC will avoid will be removed when the service is resold. FCC Rule 51.607 and 51.609.	D	The FCC rule has now been stayed. GTE does not agree with the FCC's proposed avoided cost study model and that GTE's Avoided Cost Study best reflects the intent of the Act, primarily the determination of avoided retail expenses
XIV.B.2	Any PIC administration change charge must be at TELRIC plus a reasonable allocation of forward-looking joint and common costs.	D	GTE will bill PIC change charges contained in GTE tariffs.
XIV.B.3.	ILECs must either adopt interim wholesale rates within the 96-98 Order's proxy range or produce cost studies within the specified time frame contemplated for negotiations as part of good faith negotiations.	D	The FCC rules have been stayed. GTE has previously provided cost study information to Sprint for resale services (avoided costs). GTE will have filed avoided cost studies in most jurisdictions and expects state commission to review and approve these rates in an expeditious manner.
XIV.C.	**INFORMATION** The ILEC must provide information concerning the agreements they have made with other Sprints and with its own affiliates.	A	GTE will file Interconnections Agreements with state commissions, as required, where they will be public record.
XIV.D.1.	**ORDERING** ILEC must provide the ability for Sprint to order local and long distance toll service on unified order.	A	GTE local service requests (LSRs) requires multiple PIC input.
XIV.D.2.	Sprint shall adopt a reasonable account verification method consistent with the FCC's PIC verification guidelines. ILEC shall honor Sprint service order requests without receiving a separate signed LOA from the end-user in order to process a Sprint order.	D	GTE will require a LOA (or other industry acceptable form of evidence of authority) from Sprint signed by an end user to release pre-order account (CSR) information (GTE will not process "as is" requests). When CSR information is not required, GTE will accept a blanket LOA (or other industry acceptable form of evidence of authority) to facilitate processing a Sprint order.

LEGEND
A = Agree
D = Disagree

T.S.REF.	SPRINT POSITION	STATUS	GTE POSITION
XIV.D.3.	ILEC shall provide confirmation of the installation/change activity to Sprint via an initial Firm Order Confirmation ("FOC") and positive completion of order activity. Sprint requires an "As Is" process when customers are migrating from the ILEC to Sprint at the same location. On migration type orders the FOC should contain all services/features currently being provided by the ILEC and those services/features being migrated to Sprint. On new installation/change orders the FOC should verify all services/features ordered by Sprint. A positive completion delineating all the services installed and those not installed should be sent to Sprint upon actual completion within 24 hours of Order completion. This will ensure proper billing to end-user customers for services provided.	D	GTE shall provide a FOC for each LSR received and processed. The FOC will contain the scheduled due date, telephone number, Sprint PON, GTE service order number, and notes detailing exceptions. GTE does not agree to transfer services "as is". GTE agrees to work towards an electronic interface for providing completions delineating all the services installed.
XIV.D.4.	Once Sprint has obtained a customer, the ILEC shall provide in pre-ordering and ordering phases of processing the Sprint order, the ILEC regulated local features/products/services/ elements/combinations that were previously provisioned by the ILEC for all affected Sprint local customers. This applies to all types of local service orders and all elements. Sprint requires that the ILEC provide any customer status which qualifies the customer for a special service (e.g. DA exempt, lifeline, etc.)	D	GTE will not release information to Sprint on GTE end user customer accounts unless Sprint first provides a written LOA, signed by the end user customer, authorizing the release of such information to Sprint. For DA exempt or Lifeline services, exceptions shall be determined by Sprint.
XIV.D.5.	Access to CRIS and routing reconciliation between CRIS records and Sprint customer records should be established.	D	GTE does not use CRIS but rather CBSS for end user billing. GTE shall provide to Sprint subordinate account detail with summary bills available either via paper, magnetic tape, or EDI, to provide for record verification. On-line access is not necessary as such.
XIV.D.6.	Sprint, as the local service provider, and its customer are assigned any telephone line number switched by the ILEC switch. Therefore, Sprint must have access to the Telephone Line Number ("TLN") and Line Information Data Base ("LIDB")	D	For resale services, GTE's service order will generate updates to the TLN and LIDB for calling card, collect, and third number calls. GTE can agree to work toward a future electronic gated interface with TLN and LIDB.
XIV.E.1.	**BILLING** When ILEC local service is rebranded (as opposed to service provided via unbundled elements) the ILEC is the appropriate recipient of all access charges, and should be responsible for directly billing the IXCs for the access related to interexchange calls generated by rebranded customers.	A	Under resale, GTE retains all revenue due from other carriers for access to GTE facilities, including both switched and special access charges.

LEGEND
A = Agree
D = Disagree

T S REF	SPRINT POSITION	STATUS	GTE POSITION
XIV E 2.	ILEC must return EMI records to IXCs with the Sprint disconnect rejection code along with the Operating Company Number ("OCN") of the associated ANI. The OCN must be provided so that the IXC will know which local ILEC provides service for the WTN.	A	GTE does not intend to bill IXC 10XXX end user toll charges that are placed over the switched network after 1/1/97. GTE will return EMI records back to IXC with associated ACEC OCN. GTE will continue to bill for a period of time after 1/1/97 until all pre 1/1/97 traffic has been appropriately billed.
XIV E 3	Monthly invoices must be presented in an agreed upon format. Sprint prefers Carrier Access Billing Systems ("CABS") format in order to facilitate standard industry auditing practices. Other requirements include:	A	GTE and Sprint can agree to billing of resold services via GTE's end user billing system, CBSS.
XIV E 3 a	Where available, daily receipt of local usage at the call detail level in standard EMR/EMI industry format must be provided to enable Sprint to match these records with appropriate accounts by billing cycle in parity with the ILEC.	A	a) Except for those services and in those areas where measured rate local service is available to end users, monthly billing to Sprint does not include local calling detail.
XIV E 3 b	Access to Bellcore CMDS in and out-collect process for inter-region alternately billed messages via a CMDS sponsor.	A	b) Under mutually agreed terms, GTE will pass in-collect records to Sprint for billing to their end user.
XIV E 3 c	Access to in and out-collect process for intra-region alternately billed messages via the appropriate Bellcore Client Company.	A	c) Under mutually agreed terms, GTE will pass in-collect records to Sprint for billing to their end user.
XIV E 3 d	Long term neutral third party in and out-collect process for inter and intra-region alternately billed message.	D	d) Sprint will have to contract directly with any such neutral third party.
XIV E 3 e	Provision to IXC of billing information for casual usage.	A	e) See XIV E 2
XIV E 3 f	Information on customer's selection of billing method, special language billing, etc.	D	f) See XIV D 4

LEGEND
A = Agree
D = Disagree

T.S REF	SPRINT POSITION	STATUS	GTE POSITION
XIV F	**PIC ADMINISTRATION** IXC PIC. When Sprint rebrands ILEC local service (becomes the end-user's local service provider), the ILEC shall process all PIC changes provided by Sprint on behalf of the IXCs. If PIC changes are received directly by the ILEC from the IXC, the ILEC shall reject the PIC change back to the IXC with the OCN of Sprint in the appropriate field of the industry standard CARE record. Sprint to CLEC Change. When a CLEC other than Sprint or the ILEC sells local service to an existing Sprint local customer and an order is submitted to the ILEC for migrating the service, the ILEC will shall inform Sprint of the disconnect in a manner similar to the existing CARE process for notifying an IXC of a disconnect PIC change. This will ensure accurate billing to the end-user customer.	A A D	Until 1/1/97, GTE will process PIC changes as they are received by IXCs. Only if the end user customer requests a PIC freeze will PIC changes not be honored. After 1/1/97, GTE intends to process all PIC changes from IXCs that are received for Sprint end users (that do not have a PIC freeze) by rejecting back to the IXC with the Sprint OCN. Detail will be provided on the Sprint bill so that Sprint can identify the specific charges for rebilling to their end user customers. GTE will provide notice to Sprint when the resell service is switched from Sprint to another local service provider. GTE will provide a disconnect notice via NDM once the migration order with a new LOA has been completed. GTE does not agree that a process similar to the CARE process is necessary to ensure accurate notification/billing.

LEGEND
A = Agree
D = Disagree

GLOSSARY

GLOSSARY

The following definitions are taken from Section 153 of the Telecommunications Act of 1996 and the FCC's First Report and Order. Some of the definitions taken from the FCC's First Report and Order apply to only certain FCC rules, and these rules are referenced in the appropriate definitions. GTE does not agree with all of the FCC's definitions, such as the FCC's definition of 'technically feasible', but these definition are provided here for convenience. Moreover, some of the definitions listed here may be inconsistent with State law.

* * *

Act. The Communications Act of 1934, as amended.

Advanced intelligent network. "Advanced Intelligent Network" is a telecommunications network architecture in which call processing, call routing, and network management are provided by means of centralized databases located at points in an incumbent local exchange carrier's network.

Arbitration, final offer. "Final offer arbitration" is a procedure under which each party submits a final offer concerning the issues subject to arbitration, and the arbitrator selects, without modification, one of the final offers by the parties to the arbitration or portions of both such offers. "Entire package final offer arbitration," is a procedure under which the arbitrator must select, without modification, the entire proposal submitted by one of the parties to the arbitration. "Issue-by-issue final offer arbitration," is a procedure under which the arbitrator must select, without modification, on an issue-by-issue basis, one of the proposals submitted by the parties to the arbitration.

Billing. "Billing" involves the provision of appropriate usage data by one telecommunications carrier to another to facilitate customer billing with attendant acknowledgments and status reports. It also involves the exchange of information between telecommunications carriers to process claims and adjustments.

Commission. "Commission" refers to the Federal Communications Commission.

Common carrier. The term "common carrier" or "carrier" means any person engaged as a common carrier for hire, in interstate or foreign communication by wire or radio or in interstate or foreign radio transmission of energy, except where reference is made to common carriers not subject to the Act [47 USC §§ 151 et seq.]; but a person engaged in radio broadcasting shall not, insofar as such person is so engaged, be deemed a common carrier.

Customer premises equipment. The term "customer premises equipment" means equipment employed on the premises of a person (other than a carrier) to originate, route, or terminate telecommunications.

Dialing parity. The term "dialing parity" means that a person that is not an affiliate of a local exchange carrier is able to provide telecommunications services in such a manner that customers have the ability to route automatically, without the use of any access code, their telecommunications to the telecommunications services provider of the customer's designation from among 2 or more telecommunications services providers (including such local exchange carrier).

Directory assistance service. "Directory assistance service" includes, but is not limited to, making available to customers, upon request, information contained in directory listings.

Directory listings. "Directory listings" are any information: (1) identifying the listed names of subscribers of a telecommunications carrier and such subscriber's telephone numbers, addresses, or primary advertising classifications (as such classifications are assigned at the time of the establishment of such service), or any combination of such listed names, numbers, addresses or classifications; and (2) that the telecommunications carrier or an affiliate has published, caused to be published, or accepted for publication in any directory format.

Downstream database. A "downstream database" is a database owned and operated by an individual carrier for the purpose of providing number portability in conjunction with other functions and services.

Equipment necessary for interconnection or access to unbundled network elements. For purposes of section 251(c)(2) of the Act, the equipment used to interconnect with an incumbent local exchange carrier's network for the transmission and routing of telephone exchange service, exchange access

service, or both. For the purposes of section 251(c)(3) of the Act, the equipment used to gain access to an incumbent local exchange carrier's unbundled network elements for the provision of a telecommunications service.

Exchange access. The term "exchange access" means the offering of access to telephone exchange services or facilities for the purpose of the origination or termination of telephone toll services.

Incumbent Local Exchange Carrier (Incumbent LEC). With respect to an area, the local exchange carrier that: (1) on February 8, 1996, provided telephone exchange service in such area; and (2) (i) on February 8, 1996, was deemed to be a member of the exchange carrier association pursuant to 47 C.F.R. § 69.601(b); or (ii) is a person or entity that, on or after February 8, 1996, became a successor or assign of a member described in clause (i) of this paragraph.

Interconnection. "Interconnection" is the linking of two networks for the mutual exchange of traffic. This term does not include the transport and termination of traffic.

Local access and transport area. The term "local access and transport area" or "LATA" means a contiguous geographic area--

(A) established before the date of enactment of the Telecommunications Act of 1996 [enacted Feb. 8, 1996] by a Bell operating company such that no exchange area includes points within more than 1 metropolitan statistical area, consolidated metropolitan statistical area, or State, except as expressly permitted under the AT&T Consent Decree; or

(B) established or modified by a Bell operating company after such date of enactment and approved by the Commission.

Local Exchange Carrier (LEC). A "LEC" is any person that is engaged in the provision of telephone exchange service or exchange access. Such term does not include a person insofar as such person is engaged in the provision of a commercial mobile service under section 332(c) of the Act, except to the extent that the Commission finds that such service should be included in the definition of the such term.

Maintenance and repair. "Maintenance and repair" involves the exchange of information between telecommunications carriers where one initiates a request for maintenance or repair of existing products and services or unbundled network elements or combination thereof from the other with attendant acknowledgments and status reports.

Meet point. A "meet point" is a point of interconnection between two networks, designated by two telecommunications carriers, at which one carrier's responsibility for service begins and the other carrier's responsibility ends.

Meet point interconnection arrangement. A "meet point interconnection arrangement" is an arrangement by which each telecommunications carrier builds and maintains its network to a meet point.

Network element. A "network element" is a facility or equipment used in the provision of a telecommunications service. Such term also includes, but is not limited to, features, functions, and capabilities that are provided by means of such facility or equipment, including but not limited to, subscriber numbers, databases, signaling systems, and information sufficient for billing and collection or used in the transmission, routing, or other provision of a telecommunications service.

Number portability. The term "number portability" means the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another.

Operator services. "Operator services" are any automatic or live assistance to a consumer to arrange for billing or completion of a telephone call. Such services include, but are not limited to, busy line verification, emergency interrupt, and operator-assisted directory assistance services.

Physical collocation. "Physical collocation" is an offering by an incumbent LEC that enables a requesting telecommunications carrier to:

(1) place its own equipment to be used for interconnection or access to unbundled network elements within or upon an incumbent LEC's premises;

(2) use such equipment to interconnect with an incumbent LEC's network facilities for the transmission and routing of telephone exchange service, exchange access service, or both, or to gain access to an incumbent LEC's unbundled network elements for the provision of a telecommunications service;

(3) enter those premises, subject to reasonable terms and conditions, to install, maintain, and repair equipment necessary for interconnection or access to unbundled elements; and

(4) obtain reasonable amounts of space in an incumbent LEC's premises, as provided in this part, for the equipment necessary for interconnection or access to unbundled elements, allocated on a first-come, first-served basis.

Pre-ordering and ordering. "Pre-ordering and ordering" includes the exchange of information between telecommunications carriers about current or proposed customer products and services or unbundled network elements or some combination thereof.

Provisioning. "Provisioning" involves the exchange of information between telecommunications carriers where one executes a request for a set of products and services or unbundled network elements or combination thereof from the other with attendant acknowledgments and status reports.

Rural telephone company. A "rural telephone company" is a LEC operating entity to the extent that such entity:

(1) provides common carrier service to any local exchange carrier study area that does not include either:

(i) any incorporated place of 10,000 inhabitants or more, or any part thereof, based on the most recently available population statistics of the Bureau of the Census; or

(ii) any territory, incorporated or unincorporated, included in an urbanized area, as defined by the Bureau of the Census as of August 10, 1993;

(2) provides telephone exchange service, including exchange access, to fewer than 50,000 access lines;

(3) provides telephone exchange service to any local exchange carrier study area with fewer than 100,000 access lines; or

(4) has less than 15 percent of its access lines in communities of more than 50,000 on February 8, 1996.

Service control point. A "service control point" is a computer database in the public switched network which contains information and call processing instructions needed to process and complete a telephone call.

Service creation environment. A "service creation environment" is a computer containing generic call processing software that can be programmed to create new advanced intelligent network call processing services.

Signal transfer point. A "signal transfer point" is a packet switch that acts as a routing hub for a signaling network and transfers messages between various points in and among signaling networks.

State commission. A "state commission" means the commission, board, or official (by whatever name designated) which under the laws of any State has regulatory jurisdiction with respect to intrastate operations of carriers. As referenced in this part, this term may include the Commission if it assumes the responsibility of the state commission, pursuant to section 252(e)(5) of the Act. This term shall also include any person or persons to whom the state commission has delegated its authority under section 251 and 252 of the Act.

State proceeding. A "state proceeding" is any administrative proceeding in which a state commission may approve or prescribe rates, terms, and conditions including, but not limited to, compulsory arbitration pursuant to section 252(b) of the Act, review of a Bell operating company statement of generally available terms pursuant section 252(f) of the Act, and a proceeding to determine whether to approve or reject an agreement adopted by arbitration pursuant to section 252(e) of the Act.

Technically feasible. Interconnection, access to unbundled network elements, collocation, and other methods of achieving interconnection or access to unbundled network elements at a point in the network shall be deemed technically feasible absent technical or operational concerns that prevent the fulfillment of a request by a telecommunications carrier for such interconnection, access, or methods. A determination of technical feasibility does not include consideration of economic, accounting, billing, space, or site concerns, except that space and site concerns may be considered in circumstances where there is no possibility of expanding the space available. The fact that an incumbent LEC must modify its facilities or equipment to

respond to such request does not determine whether satisfying such request is technically feasible. An incumbent LEC that claims that it cannot satisfy such request because of adverse network reliability impacts must prove to the state commission by clear and convincing evidence that such interconnection, access, or methods would result in specific and significant adverse network reliability impacts.

Telecommunications. The term "telecommunications" means the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received.

Telecommunications carrier. A "telecommunications carrier" is any provider of telecommunications services, except that such term does not include aggregators of telecommunications services (as defined in section 226 of the Act). A telecommunications carrier shall be treated as a common carrier under the Act only to the extent that it is engaged in providing telecommunications services, except that the Commission shall determine whether the provision of fixed and mobile satellite service shall be treated as common carriage. This definition includes CMRS providers, interexchange carriers (IXCs) and, to the extent they are acting as telecommunications carriers, companies that provide both telecommunications and information services. Private Mobile Radio Service providers are telecommunications carriers to the extent they provide domestic or international telecommunications for a fee directly to the public.

Telecommunications equipment. The term "telecommunications equipment" means equipment, other than customer premises equipment, used by a carrier to provide telecommunications services, and includes software integral to such equipment (including upgrades).

Telecommunications service. The term "telecommunications service" means the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used.

Telephone exchange service. The term "telephone exchange service" means (A) service within a telephone exchange, or within a connected system of telephone exchanges within the same exchange area operated to furnish to subscribers intercommunicating service of the character ordinarily furnished

by a single exchange, and which is covered by the exchange service charge, or (B) comparable service provided through a system of switches, transmission equipment, or other facilities (or combination thereof) by which a subscriber can originate and terminate a telecommunications service.

Telephone toll service. The term "telephone toll service" means telephone service between stations in different exchange areas for which there is made a separate charge not included in contracts with subscribers for exchange service.

Virtual collocation. "Virtual collocation" is an offering by an incumbent LEC that enables a requesting telecommunications carrier to:

(1) designate or specify equipment to be used for interconnection or access to unbundled network elements to be located within or upon an incumbent LEC's premises, and dedicated to such telecommunications carrier's use;

(2) use such equipment to interconnect with an incumbent LEC's network facilities for the transmission and routing of telephone exchange service, exchange access service, or both, or for access to an incumbent LEC's unbundled network elements for the provision of a telecommunications service; and

(3) electronically monitor and control its communications channels terminating in such equipment.

SECTION IV

TESTIMONY

PART I

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF LARRY HARTSHORN

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is Larry Hartshorn. My business address is One GTE Place, Thousand Oaks, California 91362.

Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?

A. I am employed by GTE California Incorporated (GTE) as Manager-Network Design.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATION AND WORK EXPERIENCE.

A. I received my Bachelor of Science degree in electrical engineering from the University of California at Davis. I have worked in the telecommunications industry for over 27 years. I have been with GTE for over 22 years, and have held positions in both manufacturing and telephone operations. I started with GTE as an applications engineer specializing in microwave radio and later served as Product Manager for transmission and radio products. Between 1987 and 1993, I held manager positions in both engineering and planning for GTE Hawaiian Telephone Company. I joined GTE California in 1993 as

Network Engineering Manager and assumed my current position of Network Design Manager in 1994.

Q. WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT POSITION?

A. I plan the growth and modernization of the network infrastructure for GTE, including outside plant cable and electronics, central office equipment, and interoffice facilities as well as developing infrastructure necessary to deliver new products and services to GTE customers.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY STATE COMMISSIONS?

A. Yes. I have testified in several matters in both Hawaii and California.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to state GTE's position with regard to loop and NID unbundling, to explain switch unbundling, and to respond to Sprint's expectation that GTE will provide custom routing for operator services and directory assistance (OS/DA) traffic, when technically feasible.

Q. WOULD YOU PROVIDE AN OVERVIEW OF THE ISSUES TO BE ADDRESSED WITHIN YOUR TESTIMONY?

A. In Section A, I describe two of GTE's network elements, the local loop and the switch. This Section also explains how these network elements are inter-related, and how a request for one network element might affect other network elements, including operator services and directory assistance. Section B briefly sets out certain provisions of the Telecommunications Act of 1996 (the "Act") and the FCC's rules that govern the unbundling of the loop and switch. Section C summarizes the open issues and explains the rationale underlying GTE's position.

Accompanying my testimony is a videotape that discusses the loop and the switch. This video is provided as part of GTE's response to Sprint's petition for arbitration and is identified as Exhibit LH-1. This video includes a computer graphic diagram of the loop and switch, and this diagram is reproduced as Exhibit No. LH-2 and is attached to my testimony.

SECTION A: LOOP AND SWITCH UNBUNDLING

Q. PLEASE DESCRIBE THE "LOOP."

A. As depicted in the video and on the attached diagram, the local loop begins at the network interface device ("NID"), which is the point of demarcation between the customer's inside wiring and GTE's facilities. A customer's telephone line typically extends from the NID to a pedestal where it is aggregated with a handful of other nearby

subscriber lines into a single cable sheath. In many of GTE's local networks, the cable containing these aggregated lines extends from the pedestal to a distribution box, which is often referred to as a "cross-connect," where the cable is aggregated with other cables into a higher capacity cable, or "feeder" cable. Application of pair-gain technology is an alternative to the use of feeder cables. The feeder cable extends to the central office, where it is connected to the main distribution frame ("MDF"). The lines and cables extending from the NID to the MDF are referred to collectively as the local loop.

Many of GTE's local networks have different types of distribution and feeder facilities that use different technologies and have different capabilities.

Q. PLEASE DESCRIBE THE SWITCH.

A. The switching part of the network begins where the local loop ends. In many of GTE's local networks, the local loop (or "subscriber line") is extended from the MDF by way of cabling facilities to a port. This port provides the subscriber line with access to the tables and call processors that are part of the integrated switching fabric. The switch itself is a computer that provides call-related capabilities and functions such as dial tone, basic switching, custom calling features (e.g., call waiting and three-way calling), and call signaling generation. It also provides access to transport facilities, operator systems, databases and Signaling System 7 ("SS7") capability, and

some switches even are capable of providing access to GTE's Advanced Intelligent Network ("AIN").

Let me explain how a switch operates. Imagine that you are in Durham, N.C., and you want to call a friend in New York City. You pick up the phone and dial the long distance number. The digits you dialed travel over the local loop to the MDF, where they are "cabled over" to the line card where your port resides. The port provides these digits with access to the switching fabric. Embedded in this fabric are tables that "read" the digits you have dialed and that route your call to the appropriate trunk group. In our example, you are making a long-distance call to New York City; therefore, you dialed the numbers "1-212-NXX-XXXX." The table reads these numbers, recognizes that you are placing a long-distance call, and the switch's call processors route your call to the dedicated trunk group serving your presubscribed long-distance carrier.

If you were making a local call to someone served by the same central office, then your call would be routed to the appropriate port of the called party. Similarly, if you called Directory Assistance ("DA") by dialing "411" or Operator Services ("OS") by dialing ("0"), the tables and call processors would route your call to the DA or OS trunk group.

The "table reading functions" and the "call processor routing functions" described above are accomplished by the assignment of a Line Class Code ("LCC") to every subscriber telephone number. LCCs are table values that define, among other things, the class of service provided to a specific subscriber, the rate center for a given subscriber line, and dialed number analysis/routing information associated with that line. An LCC must be assigned to a specific subscriber line in order for the calls placed over that line to be read and routed to the appropriate trunk group.

SECTION B: THE "ACT" AND UNBUNDLING

Q. DOES THE TELECOMMUNICATIONS ACT OF 1996 ADDRESS UNBUNDLING?

A. Yes. Section 251(c)(3) of the Act requires incumbent local exchange carriers ("ILECs") to provide to any requesting telecommunications carrier "nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms and conditions that are just, reasonable, and nondiscriminatory" (47 U.S.C. § 251(c)(3) (1996)). The Act defines network element to mean:

> a facility or equipment used in the provision of a telecommunications service. Such term also includes features, functions, and capabilities that are provided by means of such facility or equipment, including subscriber

numbers, databases, signaling systems, and information sufficient for billing and collection or used in the transmission, routing, or other provision of a telecommunications service. (47 U.S.C. § 153(29) (1996)).

In its recent First Report and Order, the FCC identified seven network elements the ILECs must offer on an unbundled basis, including the NIDs, the local loop, local and tandem switching capability, and OS and DA facilities. (In re Implementation of Local Competition Provisions in the Telecommunication Act of 1996, CC Docket 96-98, FCC 96-325 (released Aug. 8, 1996) (the "Order") ¶ 366).

GTE does not agree with the FCC's treatment of switch unbundling. Sprint's request is not specific enough, however, for us to tell if there is a disagreement between the parties in this regard other than with respect to customized routing to OS/DA platforms.

SECTION C: UNRESOLVED ISSUES

Q. ARE THERE ANY UNRESOLVED ISSUES RELATED TO THE LOOP?

A. We think not, based upon Sprint's position in its petition that it wants GTE to unbundle the loop, the switch and the NID. We do not understand Sprint to have raised any issue about the loop itself, and therefore we treat this as a resolved issue.

GTE agrees to unbundle the loop from the switch; provided, however, that Sprint (1) notify GTE when it intends to deploy any service-enhancing copper cable technology (e.g., HDSL, ISDN) and, if so, certify that such technology will not interfere with GTE's existing or future technology within a given cable sheath or other GTE facility (this will minimize potential service degradation to other customers served via that sheath or facility); and (2) pays all the costs associated with unbundling the loop from the switch, including the costs of testing Sprint's technology and the costs of any loop conditioning.

Q. WHAT IS GTE'S POSITION CONCERNING NID UNBUNDLING?

A. GTE will allow Sprint to connect its loops directly to GTE's NID, provided that: (1) such interconnection does not adversely affect the reliability and security of GTE's network; (2) GTE recovers all costs associated with unbundling its NID; and (3) GTE receives "just and reasonable" compensation from Sprint for the unbundled NID.

Q. ARE THERE ANY UNRESOLVED ISSUES RELATED TO THE SWITCH?

A. Sprint has asked GTE to unbundle the loop from the switch, and has asked for customized routing to Sprint's OS/DA platform. Beyond that, Sprint only refers generally to the FCC Order. GTE does not understand Sprint to have raised any further issue regarding switch unbundling.

In response to the general reference to the FCC Order, however, GTE's position is that the FCC's notion of switch unbundling is wrong. In a typical GTE local tariff, there are over 100 vertical features tariffed. The costs of these individual features range from small to quite large. The memory requirements for these features vary significantly. Some features do not require hardware; others require significant hardware. In addition, there are another 700 untariffed features available via the three primary switches in GTE's network. These additional features are not tariffed because of the limited demand for them. The FCC's Order that the switching element include all features and functions of the switch is ludicrous. No customer wants all of the features and functions available via the switch, and to provision them would require significant additional memory, significant additional hardware, and significant additional cost. GTE believes that its port and usage proposal meets any common-sense test and accomplishes the purpose of the Act. Details regarding GTE's pricing proposals for switch features are provided in the testimony of the GTE pricing witnesses.

Q. WHAT IS GTE'S POSITION REGARDING CUSTOMIZED ROUTING FOR OS/DA TRAFFIC?

A. In order for calls to be routed to specific trunk groups as Sprint requests, appropriate Line Class Codes (LCC) must be identified and activated. To offer this functionality, a unique LCC value must be determined for every permutation of the required options, and the

LCCs must then be placed on each customer's switch entry. GTE would be required to perform a manual search to find the required LCC values. The time and labor needed to accomplish this task would depend on: (1) the number of routing possibilities Sprint requests for a given switch; and (2) the number of different routing options Sprint makes available to its customers.

Sprint also ignores the fact that substantial costs will be incurred to provide existing switches with the capability of performing the routing requested by Sprint. It is difficult to estimate the costs of increasing switch capacity because these costs will vary depending on the particular switch in question.

Sprint's request also could exhaust the capacity of the switch and adversely affect network capabilities. Sprint does not explain who will perform and pay for these capacity upgrades.

In addition to the concerns addressed above, two manufacturers of major switch types, Lucent Technologies and AGCS have written to us regarding the feasibility of OS/DA custom routing. Exhibit No. LH-3 attached to my testimony is a letter from Lucent Technologies, and it sets forth a number of issues that must be addressed in implementing the "LCC solution" advocated by Sprint. The issues identified by Lucent include: (1) the need for every existing switch to be preconditioned; (2) the need to evaluate the potential "memory

exhaust impact" upon the switch; (3) the class of service limitations that could result; and (4) the unavailability of local 555 service. In its letter, Lucent acknowledges that a long-term solution to the LCC problem is needed, and notes that once a solution is available, "[any] recent change effort should be reversed to restore memory resources," and that "effort will be required to move all alternate provider lines into original line classes, remove all screening, and other database work." Such a long term solution will very likely involve the development of industry standards from which equipment manufacturers, such as Lucent Technologies, can design and build products. Such standards do not exist today.

Q. WHAT DID AGCS SAY REGARDING CUSTOM ROUTING OF OS/DA TRAFFIC?

A. Exhibit No. LH-4, attached to my testimony, is a letter from AGCS. Although AGCS states they will be in a position to discuss the impact of the Act on the GTD-5 in November, they go on to state that the flexible design of the GTD-5 "should be able to deal with the . . . Act." AGCS states that "[custom] routing capability can be addressed today, in a limited manner by the GTD-5 . . . " (emphasis added). AGCS also notes that this "technique will not be adequate for the long-term requirements of the Telecom Act due to the diversity of service offerings expected to be deployed by competitive carriers."

Q. IS THE LCC SOLUTION LIKELY TO BE THE LONG-TERM SOLUTION TO THIS ISSUE?

A. No. The switch specificity of the issues and the costs associated with pre-conditioning the switch and addition of switch capacity argue against the LCC solution in the long run. Lucent acknowledges this in its letter. AGCS acknowledges this in its letter.

Q. IF GTE PURSUES THE LCC SOLUTION, THEN IS IT LIKELY THAT THE COSTS OF THAT SOLUTION WOULD NEED TO BE RECOVERED WITHIN A RELATIVELY SHORT WINDOW OF TIME?

A. Yes. I am not the company's cost recovery witness, but I agree that the costs would need to be recovered within a relatively short window of time.

Q. HAS SPRINT STATED THAT IT WILL PAY FOR CUSTOM ROUTING OF OS/DA TRAFFIC?

A. Sprint says it will pay for an additional trunking cost associated with custom routing of OS/DA traffic, but Sprint is silent regarding the switch costs.

Q. ARE THERE ANY OTHER ISSUES ASSOCIATED WITH SPRINT'S REQUEST?

A. Yes. Custom routing of OS/DA traffic would mean that GTE would not know the jurisdiction (state/interstate) of the traffic for proper billing of access charges. Currently, access billing records for this traffic are

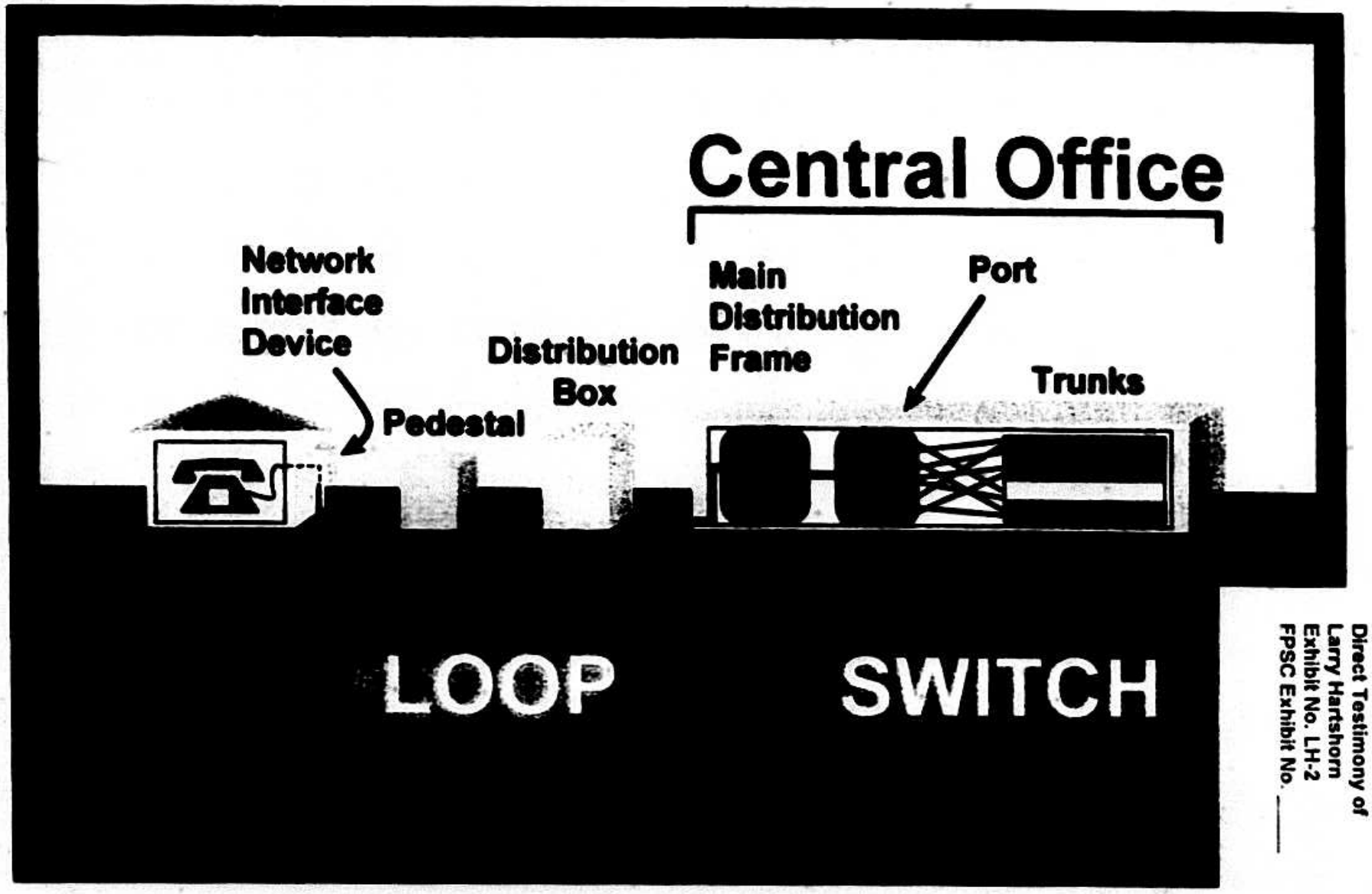
generated at GTE's operator switch. If custom routing of OS/DA traffic begins, Sprint should be required to provide the proper jurisdictional information to GTE.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. GTE will unbundle the NID. GTE will unbundle the loop from the switch subject to the two conditions stated above. Custom routing requires a switch-by-switch determination of switch capabilities. The temporary work-around identified by Lucent Technologies is not endorsed by Lucent Technologies. There are customer service impacting issues of memory and processor capacity associated with what would only be a temporary solution. AGCS believes its temporary solution will not be adequate for the long term. If custom routing for OS/DA is required, Sprint should bear the cost associated with its request and should provide jurisdictional information required for proper access charge billing.

Q. DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes.



Docket No. 961169-TP
Docket No. 961173-TP
Direct Testimony of
Larry Hartshorn
Exhibit No. LH-2
FPSC Exhibit No. ____

Docket No. 961169-TP
Docket No. 961173-TP
Direct Testimony of Larry Hartshorn
Exhibit No. LH-3
FPSC Exhibit No. _____
Page 1 of 34

Lucent Technologies
Bell Labs Innovations

P. J. Cosman
Network Management
JC21C1000

Lucent Technologies Inc.
Room 1A-309
1200 E. Warrenville Rd.
Naperville, IL 60566-7065

Telephone (708) 713-1783
EMAIL pjcosman@lucent.com

June 25, 1996

Subject: Dialing Parity of Directory Assistance and Operator Services for Competitive Resellers of Local Service

Several companies filing comments with the Federal Communication Commission in response to the Notice of Proposed Rulemaking CC 96-98 on the *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996* have stated that the FCC's rules should provide dialing parity for directory assistance and operator services. This would allow resellers of local service to provide their own operator systems or to buy operator services from a third-party provider. Any customer seeking operator/directory assistance would then dial the same digits ("0," "411," etc.) and would automatically be routed to the alternate service provider's operator services.

Implementation of this form of dialing parity may impact memory capacity of the 5ESS®-2000 Switch[1] and system resources on the 1A ESS™ Switch.[2] Call routes for directory assistance and operator services are derived from routing tables that use the Line Class Code and Class of Service to complete the call. These routing tables were designed for a single provider network, but with some modification provides the ability to handle a multiple local service provider environment.

Lucent Technologies has investigated conditional work-arounds to allow for distinct routes based on local service provider. The 5ESS-2000 Switch work-around is called Line Class Code -Rate Center Routing (LCC-RAC) and calls for replication of the existing routing tables for each reseller wanting distinct routes for directory assistance and operator services. On the 1A ESS Switch the work-around is called the Line Class Code-Class of Service approach and uses capabilities intended to allow for optional LEC routes based on Class of Service. The work-arounds have limitations and resource impacts. Information to assist in understanding and estimating these impacts are described in detail in the attachments.

Included with this document are three attachments:

- Attachment 1 - Detailed description of the 5ESS®-2000 Line Class Code-Rate Center Approach
- Attachment 2 - 5ESS®-2000 Switch Line Class Code-Rate Center Memory Model
- Attachment 3 - 1A ESS™ Switch Line Class Code-Class of Service Approach

Note: This document is intended to be a statement of fact concerning currently proposed work-arounds. It is not an endorsement of any work-around by Lucent Technologies.

This information should be immediately shared with your customers to provide the information needed to complete an analysis of the work-arounds in their networks. Your customers have heard, or can expect to hear, about these issues in state and federal proceedings as they negotiate interconnection agreements with competing local services providers. In

---

[1] See Attachment 2 for 5ESS®-2000 Switch memory impacts.
[2] See Attachment 3 for 1A ESS™ Switch resource impacts.

addition to discussing the work-arounds with your customer, request requirements for a long-term solution to the issue of dialing parity for competitive resellers of local service.

P. J. Guarneri

Attachments

Copy To:

All NAR Customer Teams
ACBU Customer Team
M. E. Alexander
R. R. Allison
W. B. Bankhead
J. V. Bodycomb
R. L. Bower
T. C. Collins
K. B. Dalmia
D. R. Deman
J. Dunn
R. E. Heil
G. E. Hoffman
R. E. Hoffman
G. Huensch
L. D. Jenkins
R. L. Keck
J. Kruisbrink
F. M. Lax
H. M. Nicholson
G. R. Manley
R. B. Martin
L. M. Nye
D. Pfefferle
R. M. Presutti
R. A. Rockershousen
J. W. Russell
J. Sharpless
D. A. Ward
J. Walter
P. Wang

1. Local Exchange Services Resale

Local Exchange Service Resale (LEC Resale) is a concept where an existing customer's line can change to an alternate local service provider without moving physical equipment (e.g. tip/ring). The alternate provider "leases" the service from the LEC. While the telephone customer has chosen a different local provider the customer is still served off the same LEC switch.

With LEC Resale there is a need for certain aspects of call routing to be branded for the alternate provider. An alternate provider may desire specific call identification (e.g. announcements) and service treatments for their customers. Examples of this exist in the interLATA market place where specific identification tones and announcements are provided on operator calls (e.g. 0+interLATA).

In the LEC Resale market, it is desirable for an alternate provider to brand local operator (0- and 0+ local) services and other special services such as directory assistance and repair services. In the case of local operator service, an alternate provider may wish to direct these call to their own operator platform for branding and service control. Similarly, an alternate provider may desire to handle directory assistance or repair services with their own resources.

There is a need for long-term solution for switching equipment vendors to provide robust and efficient techniques for alternate providers. In the interim, there exists a limited workaround with shortcomings that may be attempted. The workaround known as Line Class Code-Rate Center (LCC-RAC) is discussed in subsequent sections.

2. 5ESS LCC-RAC Workaround

The 5ESS LCC-Rate Center(RAC) workaround uses routing techniques to alter the destination of an alternate provider's 0-, 0+ local, and special services calls. (e.g. 411/611). It requires replicating and customizing selected office Line Class Codes-Rate Centers (v4.1), Digit Analysis Selectors (DAS-v9.1), Screening Codes, and screening (Rate and Route - v10.10).

Screening is the core element of this workaround which permits an alternate provider's 0-, 0+ local, and special services calls to be directed to an alternate provider's resources. The sharing of a switch owner's digit analysis tables and replication of other screening entries permit the regular dialing patterns to work.

2.1. Switch Pre-conditioning

Below is a description of LCC-RAC database pre-conditioning.

- Identify the set of LCC-RACs where an alternate provider can consider providing service. For these LCC-RACs record the accessed Screen Codes, DASs, Primary Digit Interpreter Tables (PDIT) and Local Digit Interpreter Tables (LDIT).
- Assure that each accessed Primary Digit Interpreter Table (PDIT)'s 0- entry has a Code Destination Index (CDI) value that is not used by any other dial code.
- If any alternate provider is considering special services (e.g. 411/611) then assure that the LDIT's 411/611/... entries have CDIs that are not used by any other dial code. In addition, digit analysis must have expected call types for these codes (e.g. LOCDA for 411, REPAIR for 611).

- If any alternate provider is considering special services (e.g. 411/611), a unique code conversion will be necessary to avoid conflicts with switch owner code conversions. Since code conversion requires a DAS and Call Type (e.g. LOCDA), the accessed switch owner's DASs must be copied to an alternate provider's DAS and the association recorded. The code conversion can be built using the new alternate provider DASs and special service call types.

  Note that a code conversion to a ten digit number is mandatory for alternate provider's routing special service calls to FGD trunks.

- Build any new trunks to the alternate provider. For example, operator trunks may be desired by the alternate provider.

- Build route indices to access the alternate provider's operator resources.

- If any alternate provider is considering special services (e.g. 411/611) build route indices to access the alternate provides resources.

- For all accessed switch owner's Screen Codes, define and record associated alternate provider Screen Codes.

- Build the alternate provider LCC-RACs by replicating the switch owner's LCC-RAC and mapping DASs and Screen Codes to the alternate provider's values. Note that a DAS change is only necessary for alternate providers that will provide special services.

  Record the association between the switch owner's LCC-RAC and the alternate provider's LCC-RAC.

- Identify all CDIs used in the accessible PDITs and LDITs.

- The recorded association of switch owner screen codes to alternate provider screen codes requires rate and route entries (screening - v10.10) for the alternate provider. Build the equivalent screening entries for the alternate provider with the following modifications:

  1. For the alternate provider SCs and the 0- CDI(s), the appropriate screening entry will contain the alternate provider's operator route index.

  2. For the alternate provider SCs and all local CDIs with a 0+ operator prefix, the screening entry will contain an alternate provider operator route index.

  3. For the alternate provider SCs and the special services' CDIs, the appropriate screening entry will contain the alternate provider's special service route index(s).

  4. Within the switch owner's screening, there may be instances where operator and special services are being blocked. The switch owner and alternate provider should agree on whether or not blocking takes precedence over the above modifications.

2.2. Customer changing provider

When a customer switches to/from an alternate local provider, the database provisioner will look at the LCC-RAC associations and select the LCC of the new provider. A line recent change (e.g. v1.6, v1.8, ...) to

update the Line Class Code to the new provider is executed. At this point the customer is operative from the new provider's environment.

3. 5ESS LCC-RAC Workaround Issues

Investigations have identified the following issues for this workaround.

1. Pre-conditioning Effort

   The switch owner will need to execute recent changes to pre-condition the switch for each alternate provider. The majority of this recent change effort is in replication of screening (v10.10) for every alternate provider.

   With the increased translation complexity , the switch owner will have additional long- term data administration issues. For example, modifications to screening data must be done for each alternate provider.

2. Memory Impact

   The 5ESS database memory is impacted by the translation additions. The most impacted area is the 5ESS redundant Switching Module memory (RODD). The model provided with this package provides a estimation tool to evaluate specific architectures. It is possible for this approach to exhaust memory or disk resources in some instances.

   The implication of exhaustion is a switch cannot grow further routing, trunking, or consider many new capabilities.

3. Operator AMA Consideration

   The 5ESS does not generate AMA records for local operator calls nor will it with the LCC-RAC workaround.

4. Not extensible to all operator platforms

   LCC-RAC only works with existing local operator signaling protocols (e.g. Modified FGC). Potential alternate providers that already own operator platforms that require a carrier code in interswitch operator signaling (EAOSS and MEA signaling) will not work in the LCC-RAC workaround. These providers may have to make equipment and/or configuration changes to entertain branded local service.

5. Special Services Issues:

   - To support code conversion of special service calls, alternate provider DASs must be created that mimic the switch owner's DASs (i.e. accesses the same PDIT/LDIT). With 99 DAS limit per-switch, the increased DAS usage may become a resource contention.

   - Providers that route special service calls over FGD trunks are sending intraLATA calls over a equal access facility. This is outside the supported equal access protocol. The following are known side-effects of this method:

⇒ These calls have no carrier code and can not be routed to access tandem switches.

⇒ If FGD AMA records are created, they will contain an all zeros carrier code which may be considered invalid at Revenue Account Offices. Generating no AMA record is a consideration.

⇒ Code conversion to a ten-digit number is required.

6. Class of Service Limitations

Some classes of service such as com and hotel motel require appropriate controls signals be exchanged with the switch. LCC-RAC cannot be used to divert these calls to trunks that do not support the control signals. There are other service classes such as data related services that may not be reasonable for LEC resale.

7. Local 555 Service unavailable

Local 555 directory assistance (call type DA) cannot be routed over FGD trunks.

8. Long Term Solutions

Once a industry or long-term solution for LEC Resale is available, the recent change effort should be reversed to restore memory resources. Effort will be required to move all alternate provider lines into original line classes, remove all screening, and other database work.

9. LCC-RAC is a line only workaround.

4. 1A ESS Workaround

The 1A ESS workaround and related issues are described in Attachment 3.

1.1. Model Introduction

Before the model can be executed, the input parameters must be determined through either empirical estimation of the values or retrieving real switch data. The determined values must be below the maximums values allowed by the 5ESS. If data exceeds these maximums, the model user must either realistically reduce the values or fail this set of data as not being possible for the 5ESS LCC-RAC workaround. The closer the inputs values are to real switch data, the better the model forecasts memory consumption of LCC-RAC.

Empirical estimates of the input values tend to give higher memory consumption results. The nature of relational databases are the primary factor in higher values. The keys in a multiple key database form a table. This table might not be fully populated for all key values. In empirical estimation where the keys are quantities, the quantities are multiplied together giving the result of a fully populated table.

This occurs in the case of Screening Codes (SC), Code Destination Indices (CDI), and Number or Prefixes which are the keys of the RT_SCRNING table. If a switch had a 100 SCs, 100 CDIs, 3 Prefixes an empirical model execution would determine that 3000 RT_SCRNING tuples exist in the table. This is possible in the switch setup, but specific implementations may not be 100% full. Only real switch data will resolve this limitation. The "Improved Model Accuracy for Screening" section addresses this issue.

This model estimates the memory consumption of the LCC-RAC workaround and is intended for planning purposes only. It is the user's role to accurately determine the inputs and execute the model. When inputs are accurate, the model's goal is expected to provide a memory growth estimate within +/-20 percent of actual growth. The model is documented here but is also available in spreadsheet form.

1.2. Model Equation Format

The model contains equations with input variables, constants, and tuple sizes (byte) that estimate the memory growth of particular relations (byte). These are later summed generating the outputs discussed in a subsequent section. Input variables have a 'i' prefix, constants a 'c' prefix, and tuple sizes are numeric with no prefix. Each equation is divided by a Memory Utilization Ratio.

The following is a example equation:

RC_EXAMPLE
LINE n: ((i1 * i2) * c2 * 32) / .65 = _____

where RC_EXAMPLE is the database relation being modeled;
LINE n is the line number;
i1 and i2 are input variables;
c2 is the really the constant 2;
32 is the tuple size of RC_EXAMPLE;
.65 is the Memory Utilization Ratio (described next).

assume i1 = 10 and i2 = 4 then equation translates to

LINE1: ((10 * 4) * 2 * 32) / .65 = 3938.46 (round up to 3939)

At the end of the equations, you will be asked to sum various lines to determine impacted memory areas.

1.3. Memory Utilization Ratio

The memory equations contain a factoring component know as the Memory Utilization Ratio (MUR). This factor accounts for the following elements of 5ESS memory management:

- Data management techniques have overheads (such as pointers and index tables) that consume memory.
- Memory is allocated in predefined blocks sizes. Depending on the selection of key values, memory blocks may be sparsely populated with data.

The MUR factors can be office dependent and the MUR values used in the model are based on modeling experiences for memory requirements.

1.4. Non-Model Parameter Descriptions

Below are non-model parameter descriptions that require switch specific data and should not be empirically estimated. These parameters along with Model parameters are used in the "Maximum Boundary Test" section. For a specific switch implementation they will tell the user if critical switch resources are exhausted. These parameters are not used in determining incremental memory consumption.

Number of Screen Codes (#SCs)

This is total number of SCs found in the existing switch.

Number of Digit Analysis Selectors (#DAS)

This is the total number of DASs used in the existing office.

1.5. Model Parameter Descriptions

The following parameters are used in the memory consumption model for LCC-RAC. It is assumed that the parameters are representing one switch. To the right of each item is a mnemonic (e.g. #ALCC) and the actual model input variable name (i<number>). Input names correspond to those found in the text and spreadsheet versions.

Number of Alternate Provider Line Class Codes (#ALCC - i1)

This is the number of LCCs an alternate provider intends on serving. For example, an alternate provider may request to serve all LCC on a switch or only a subset of the LCCs.

Number of Alternate Provider Rate Centers (#ARAC - i2)

This is the number of rate centers an alternate provider intends to serve in a single switch. For example, an alternate provider may desire to service all RACs on a switch or a subset.

Number of Alternate Provider Screen Codes (#ASCs - i3)

This is number of SCs the existing switch owner has associated with the LCCs and RACs the alternate provider intends to serve. These SCs will be replicated for the alternate provider.

Number of Screening Prefixes (#PREFIX - i3a)

The number of prefixing codes (NONE, 0+, 1+) used in screening. This parameter will normally be 3 but has been left as a option.

Code Destination Indices (#CDIs - i4)

This is the quantity of CDIs found in the PDITs and LDITs associated with the DASs for the LCC-RACs the provider intends to serve.

Number of Alternate Providers (#PROV - i5)

This is the number of alternate providers. This will be (1) for analyzing the incremental memory consumption of an alternate provider. If multiple providers are considered, they must be entering the LEC Resale market identically (e.g. same LCC-RACs, #trunks, ...). Alternatively, each alternate provider can be analyzed by the model and results summed for total incremental memory consumption.

Number of Code Converts (#CONV - i6)

How many special service code conversions are needed for the alternate provider. If an alternate provider was considering 411 and 611 service, the value would be 2.

Number of Trunks Groups (#TGS - i8)

The is the quantity of trunk groups added to access the alternate provider's resources. For example, an alternate provider might ask to add local operator trunks or FGD trunks for special services.

Number of Trunks (#TRKS - i9)

This is the number of trunk members added to new or existing trunk groups for an alternate provider's resource.

Number of Alternate Provider Digit Analysis Selectors (#ADAS - i10)

This is the number of DASs the existing switch owner has associated with the LCCs and RACs the alternate provider intends to serve. These DASs will be replicated when code conversion is used for special services.

If the alternate provider will not be handling special services calls (e.g.411/611/...), the value of ADAS is (0) since no DAS replication is necessary.

Number of Route Indices (#RTI - i7)

This is the number of route indices being added for the alternate provider. For example, this value would be (2) if an alternate provider is requesting a new operator route index and a new FGD route index that does not overflow to an access tandem.

Number of Large Trunk Groups (#LGTG - i11)

For the new trunk groups added (see #TGS - i8), how many of these will have more than 95 trunk members. For example, if one of the trunk groups had 120 trunk members, this value would be (1).

Number of Small Trunk Groups (#SMTG - i12)

For the new trunk groups added (see #TGS - i8), how many of these will have less than or equal to 95 trunk members. For example, if two trunk groups were added with 24 members each, this value would be (2).

5ESS Generic Release (RELEASE - i13)

The 5ESS release can be 5E9.1, 5E9.2, and 5E10.1. The generic release impacts the set of equations executed because items such as tuple size may change between releases.

1.6. Improved Model Accuracy for Screening

In a earlier section, the assumption of full tables was discussed in regard to the model. The rate and route table (screening: RT_SCRNING) is a table that the model treats as being full. This may not be the case in all offices.

The RT_SCRNING relation is keyed by SC, CDI, and Prefix. The model multiplies the #ASC * #CDI * #PREFIX(normally 3) giving the result of a full table. Real switch data consisting of the actual tuple count in the RT_SCRNING relation for alternate provider screen codes can replace that calculation. This will improve model accuracy. In totaling the RT_SCRNING tuples, each prefix entry (NONE,1+,and 0+) is considered a separate tuple.

In the text model, the RT_SCRNING tuple count would replace the i3 * i4 * i3a portion of the LINE 2 equation.

In the spreadsheet tool, the input variables must be modified to cause the tuple count to replace the full calculation. This is done by setting:

i3 = RT_SCRNING tuple count
i4 = 1
i3a = 1

When the spreadsheet performs the i3 * i4 * i3a calculation, the result is the RT_SCRNING tuple count.

1.7. Maximum Boundary Tests

If non-Model parameters were determined for a real switch, check that no boundary tests (below) fail. When this data is not available, the memory consumption model can still be executed.

If any boundary tests fail, the switch is completely out of a critical switch resource. The switch will not be capable of implementing LCC-RAC or the alternate provider's configuration must be re-engineered. These checks are not related to memory consumption.

1. DAS increase within limits

   Is Maximum #DASs (99) - #DASs < (#ADASs * #PROV)

2. SC increase within limits

   Is Maximum #SCs (4095) - #SCs < (#ASCs * #PROV)

2. LCC-RAC Memory Consumption Model

Model Inputs	Input Value
i1) Number of Alternate Provider Line Class Codes (#ALCC)	
i2) Number of Alternate Provider Rate Centers (#ARAC)	
i3) Number of Alternate Provider Screen Codes (#ASCs)	
i3a) Number of Screening Prefixes (#PREFIX)	
i4) Code Destination Indices (#CDIs)	
i5) Number of Alternate Providers (#PROV)	
i6) Number of Code Converts (#CONV)	
i7) Number of Route Indices (#RTI)	
i8) Number of Trunk Groups (#TGS)	
i9) Number of Trunks (#TRKS)	
i10) Number of Alternate Provider Digit Analysis Selectors (#ADAS)	
i11) Number of Large Trunk Groups (#LGTG)	
i12) Number of Small Trunks Groups (#SMTG)	
i13) 5ESS Generic Release (RELEASE) 5E9.1, 5E9.2 or 5E10	

5E9.1 ALGORITHM

RC_LCC
LINE 1: ((i1 * i2) * i5 * 32) / .65 = _____

RT_SCRNING, RC_SCRN (SCRN_R, REM_G)
LINE 2: ((i3 * i4) * i5 * i3a * 4) / .60 = _____
LINE 3: ((i3 * i4) * i5 * 2) / .60 = _____
LINE 3a: if i3 * i4 * i5 < 100 then ((i3 * i4 * i5 * 20) / .80 = _____
if i3 * i4 * i5 >= 100 then ((c100) * 20) / .80 = _____

DA_3DIGIT
LINE 4: (i6 * i5 * 8) / .20 = _____

RC_CVRMK
LINE 5: (i6 * i5 * 24) / .20 = _____

RC_DAS
LINE 6: (i10 * i5 * 24) / .48 = _____

RT_ROUTING, RCRTIRMK
LINE 7: (i7 * i5 * 24) / .60 = _____
LINE 8: (i7 * i5 * 20) / .80 = _____

RT_TRKG, RCTGRPRK (TGRPRK_R)
LINE 9: (i8 * i5 * 48) / .55 = _____
LINE 10: (i8 * i5 * 40) / .60 = _____

FC_OPERTRK, FC_PORTTYP (PRTTYP_R), FC_TRUNK
LINE 11: (i9 * i5 * 8) / .20 = _____
LINE 12: (i9 * i5 * 8) / .88 = _____
LINE 13: (i9 * i5 * 36) / .80 = _____
LINE 13a: (0) for 5E9.1 = _____

GROUP_PORT (GPRT_R), PORT_GROUP (PGGP_R)
LINE 14: (i9 * i5 * 12) / .18 = _____
LINE 15: (i9 * i5 * 4) / .18 = _____

PCTRKTXC
LINE 16: (i9 * i5 * 2) / .20 = _____

RC_EQLOC (EQLOC_R)
LINE 17: (i9 * i5 * 4) / .10 = _____

RC_LOCEQ
LINE 18: (i9 * i5 * 24) / .30 = _____

RC_TKTXC
LINE 19: (i9 * i5 * 8) / .20 = _____

RC_TRK (RCTRK_R)
LINE 20: (i9 * i5 * 4) / .40 = _____

TKSTAT
LINE 21: (i12 * i5 * 64) / .57 = _____

LGTKSTAT
LINE 22: (i11 * i5 * 512) / .57 = _____

5E9.2 ALGORITHM

RC_LCC
LINE 1: ((i1 * i2) * i5 * 32) / .65 = _____

RT_SCRNING, RC_SCRN (SCRN_R, REM_G)
LINE 2: ((i3 * i4) * i5 * i3a * 4) / .60 = _____
LINE 3: ((i3 * i4) * i5 * 2) / .60 = _____
LINE 3a: if i3 * i4 * i5 < 100 then (i3 * i4 * i5 * 20) / .80 = _____
if i3 * i4 * i5 >= 100 then ((c100) * 20) / .80 = _____

DA_3DIGIT
LINE 4: (i6 * i5 * 8) / .20 = _____

RC_CVRMK
LINE 5: (i6 * i5 * 24) / .20 = _____

RC_DAS
LINE 6: (i10 * i5 * 24) / .40 = _____

RT_ROUTING, RCRTIRMK
LINE 7: (i7 * i5 * 24) / .60 = _____
LINE 8: (i7 * i5 * 20) / .80 = _____

RT_TRKG, RCTGRPRK (TGRPRK_R)
LINE 9: (i8 * i5 * 52) / .55 = _____
LINE 10: (i8 * i5 * 40) / .60 = _____

FC_OPERTRK, FC_PORTTYP (PRTTYP_R), FC_TRUNK (FCTRNK_R)
LINE 11: (i9 * i5 * 8) / .20 = _____
LINE 12: (i9 * i5 * 12) / .88 = _____
LINE 13: (i9 * i5 * 12) / .80 = _____
LINE 13A: if i9 * i5 < 100 then (i9 * i5 * 24) / .80 = _____
if i9 * i5 >= 100 then ((c100) * 24) / .80 = _____

GROUP_PORT (GPRT_R), PORT_GROUP (PGGP_R)
LINE 14: (i9 * i5 * 16) / .18 = _____
LINE 15: (i9 * i5 * 4) / .18 = _____

PCTRKTXC
LINE 16: (i9 * i5 * 2) / .20 = _____

RC_EQLOC (EQLOC_R)
LINE 17: (i9 * i5 * 4) / .10 = _____

RC_LOCEQ
LINE 18: (i9 * i5 * 28) / .30 = _____

RC_TKTXC
LINE 19: (i9 * i5 * 8) / .20 = _____

RC_TRK (RCTRK_R)
LINE 20: (i9 * i5 * 4) / .40 = _____

TKSTAT
LINE 21: (i12 * i5 * 64) / .57 = _____

LGTKSTAT
LINE 22: (i11 * i5 * 512) / .57 = _____

5E10.1 ALGORITHM

RC_LCC
LINE 1: ((i1 * i2) * i5 * 32) / .65 = _____

RT_SCRNING, RC_SCRN (SCRN_R, REM_G)
LINE 2: ((i3 * i4) * i5 * i3a * 8) / .60 = _____
LINE 3: ((i3 * i4) * i5 * 2) / .60 = _____
LINE 3a: if i3 * i4 * i5 < 100 then (i3 * i4 * i5 * 20) / .80 = _____
if i3 * i4 * i5 >= 100 then ((c100) * 20) / .80 = _____

DA_3DIGIT
LINE 4: (i6 * i5 * 8) / .20 = _____

RC_CVRMK
LINE 5: (i6 * i5 * 24) / .20 = _____

RC_DAS
LINE 6: (i10 * i5 * 24) / .40 = _____

RT_ROUTING, RCRTIRMK
LINE 7: (i7 * i5 * 24) / .60 = _____
LINE 8: (i7 * i5 * 20) / .80 = _____

RT_TRKG, RCTGRPRK (TGRPRK_R)
LINE 9: (i8 * i5 * 52) / .55 = _____
LINE 10: (i8 * i5 * 40) / .60 = _____

FC_OPERTRK, FC_PORTTYP (PRTTYP_R), FC_TRUNK (FCTRNK_R)
LINE 11: (i9 * i5 * 8) / .20 = _____
LINE 12: (i9 * i5 * 12) / .88 = _____
LINE 13: (i9 * i5 * 12) / .80 = _____
LINE 13A: if i9 < 100 then (i9 * i5 * 28) / .80 = _____
if i9 >= 100 then ((c100) * 28) / .80 = _____

GROUP_PORT (GPRT_R), PORT_GROUP (PGGP_R)
LINE 14: (i9 * i5 * 16) / .18 = _____
LINE 15: (i9 * i5 * 4) / .18 = _____

PCTRKTXC
LINE 16: (i9 * i5 * 2) / .20 = _____

RC_EQLOC (EQLOC_R)
LINE 17: (i9 * i5 * 4) / .10 = _____

RC_LOCEQ
LINE 18: (i9 * i5 * 28) / .30 = _____

RC_TKTXC
LINE 19: (i9 * i5 * 8) / .20 = _____

RC_TRK (RCTRK_R)
LINE 20: (i9 * i5 * 4) / .40 = _____

TKSTAT
LINE 21. (i12 * i5 * 64) / .57 = _____

LGTKSTAT
LINE 22. (i11 * i5 * 512) / .57 = _____

Model Outputs

The model estimation will output the byte growth in five outputs

1. Administrative Module (AM) Memory Growth
2. Communications Module Processor (CMP) Memory Growth
3. Switch Module Redundant ODD (RODD) Memory Growth
4. Switch Module Non-Redundant ODD (NRODD) Memory Growth
5. Switch Module Dynamic or Unprotected ODD (UODD) Memory Growth

AM Memory Growth = SUM(LINE 3, LINE 3a, LINE 9, LINE 10, LINE 16, LINE 17, LINE 18, LINE 19, LINE 20)
AM Memory Growth = _____

CMP Memory Growth = SUM(LINE 1, LINE 5, LINE 6, LINE 7, LINE 8, LINE 9, LINE 14, LINE 15, LINE 17)
CMP Memory Growth = _____

RODD Memory Growth = SUM(LINE 2, LINE 4, LINE 7, LINE 9)
RODD Memory Growth = _____

NRODD Memory Growth = SUM(LINE 11, LINE 12, LINE 13, LINE 13A, LINE 14, LINE 15, LINE 16, LINE 18)
NRODD Memory Growth = _____

UODD Memory Growth = SUM(LINE 21, LINE 22)
UODD Memory Growth= _____

3. Model Output Analysis

3.1. Installed Memory

To determine if these growth values are in acceptable bounds for a existing 5ESS switch, the correct memory size and configuration must be known for the AM, CMP, and SMs. The SMs have three memory growth areas of concern: redundant, non-redundant, and unprotected. The current memory sizes can be obtained by executing the OP:ODD input message on the 5ESS. Attachment gives some tips on reading OP:ODD outputs. The OP:ODD output does not provide processor information for determining pack types or current setup (e.g. #memory packs)

Compare the model's estimated growth with the switches available memory. This determines if the switch has sufficient memory to accommodate the alternate provider without memory growth

3.2. Maximum Comparison

Existing switch memory may not be sufficient for the alternate provider(s). To determine if the 5ESS can grow memory resources, compare the total memory demand (existing switch memory + model's growth estimate) to the maximum 5ESS
configurations (AM, CMP, SMs). This information is provided on a per-generic basis in Table 2. This total memory
must be able to fit in a maximum configured office to consider growth possibilities.

3.3. Memory and Equipment Growth

5ESS switches may need to grow memory to support translations for alternate providers. The 5ESS SM has had several processor board changes that impact the maximum size of the ODD. Tables 3, 4, and 5 provide growth details for generics 5E9.1, 5E9.2, and 5E10.1. Use the information to determine feasibility of growing switch memory.

Growing ODD memory may create a need to expand disk memory on the 5ESS. Tables 3, 4, and 5 also contains a description of base and optional disk configurations possible. Sufficient disk space must be available for the planned SM memory growths due to alternate providers.

Standard 5ESS procedures should be following when doing memory and disk growth.

Table 1 - OP:ODD COMMAND

OP:ODD COMMAND

The OP:ODD input command is used to request the ODD availability in the AM, SM(s), or CMP, or any combination of the three. The format of the command is:

OP:ODD,(AM|SM=a[&&b]|CMP=a[&&b]), where a = SM or CMP number, or the lower limit of a range of numbers, and b = upper limit of the range of SM or CMP.

The output of the OP:ODD command for the AM is:

For the AM static ODD: AM SODD USED=xxx AVAIL=yyy PCT USED=zzz

For the AM dynamic ODD: AM UODD USED=xxx AVAIL=yyy PCT USED=zzz

For the AM Disk ODD: AM SODD USED=xxx AVAIL=yyy PCT USED=zzz

The output of the OP:ODD command for an SM is:

For the SM RODD, NRODD, and UODD:

SM RODD USED=xxx AVAIL=yyy PCT USED=zzz

	NRODD USED	NRODD AVAIL	PCT USED	UODD USED	UODD AVAIL	PCT USED	UNALLOC	SABM
SM a	xx	xx	xx	xx	xx	xx	xx	xx
SM b	yy	yy	yy	yy	yy	yy	yy	yy

The output of the OP:ODD command for the CMP is:

For the CMP NRODD, and UODD:

	NRODD USED	NRODD AVAIL	PCT USED	UODD USED	UODD AVAIL	PCT USED	UNALLOC	SABM
CMP a	xx	xx	xx	xx	xx	xx		
CMP b	yy	yy	yy	yy	yy	yy		

TABLE 2 - MAXIMUM ODD SIZES

MAXIMUM ODD SIZES ALLOWABLE BY DB

AM & CMP

For all hardware configurations and generics, the max for the AM is 6 meg, and the CMP is 8 meg (the CMP is fixed at 8 meg, not growable, where the AM may be less than 6 meg and growable up to 6 meg).

SMs

For all hardware configurations and the 5e9(1) generic and earlier, the RODD max is 4 meg, and the NRODD + UODD max is 10 meg. The RODD, NRODD, and UODD are variable in size and may be grown.

For all hardware configurations and the 5e9(2) generic, the RODD max is 4 meg, and the NRODD + ODD max is 64 meg. The RODD, NRODD, and UODD are variable in size and may be grown.

For all hardware configurations and the 5e10(1) generic, the RODD max is currently 4 meg, but a Software Update (SU) is in the works to increase it to 8 meg, and the NRODD + UODD max is 64 meg. The RODD, NRODD, and UODD are variable in size and may be grown. The increase in RODD is to accommodate the increasing size of RT_SCRNING.

For all hardware configurations and the 5e11(1) generic, the RODD max is 8 meg, and the NRODD + UODD max is 64 meg. The RODD, NRODD, and UODD are variable in size and may be grown. Additionally, in 5e11(1), RT_SCRNING will be made into an OPVIEW to conserve RODD memory.

TABLE 3 - 5E9.1 SM MEMORY AND EQUIPMENT

Table A - SM Processor Equipage

SM	Processor (Note 1)	Memory Boards (Note 2)	Max. Slots	Max. Equipage (MB) (Note 3)
SMP12	68012	TN56	5 + 7	24*
		TN2012	5 + 3	32*
SMP23	68020	TN56	5 + 7	24*
		TN2012	5 + 3	32*
	SMP23CDM	TN1423	1	32
SMP20	68020	TN1374	6	24
SMP20DC		TN1376	6	48
		TN1661	6	96

Notes:
1. Processor addressability limits: 68012 & 68023 - 32 MB, 68020 - 4 GB, 68040 - 784 MB.
2. TN56 = 2MB, TN2012 = 4 MB, TN1374 = 4 MB, TN1376 = 8 MB, TN1661 = 16 MB, TN1423 = 32 MB.
   The TN1374, TN1376, and TN1661 boards may be mixed in the same MCTU2 (68020). The other boards are not mixable.
3. Maximum equipage (*) requires the use of the MEU (Memory Expansion Unit).
4. The switch must be on 5E9(1) before the TN1423 can be used.

TABLE 1

5E9(1) Disk Capacities
Base Configurations

Base Config.	Minimum Disk Pairs	SM ODD (MB)	AMA (MB)
63	2	48	39
66	2	213	155

63 is 600 MB SCSI, 322 MB SCSI or 340 MB SMD and
66 is 600 MB SCSI, 600 MB SCSI.

TABLE 2

Optional Disk Layouts

63 Layout	SM ODD (MB)	AMA (MB)	% SM ODD to % AMA	66 Layout	SM ODD (MB)	AMA (MB)
0300	0	264	0/100	0600	0	576
0325	62	192	25/75	0625	134	432
0350	126	128	50/50	0650	278	288
0375	190	64	75/25	0675	422	144
03100	254	0	100/0	06100	502	0

TABLE 4 - 5E9.2 SM MEMORY AND EQUIPMENT

Table A - SM Processor Equipage

SM	Processor (Note 1)	Memory Boards (Note 2)	Max. Slots	Max. Equipage (MB) (Note 3)
SMP12	68012	TN56	5 + 7	24*
		TN2012	5 + 3	32*
SMP23	68020	TN56	5 + 7	24*
		TN2012	5 + 3	32*
	SM23CDM	TN1423	1	32
SMP20	68020	TN1374	6	24
SMP20DC		TN1376	6	48
		TN1661	6	96
SMP40	68040	TN1685	4	128

Notes:
1. Processor addressability limits: 68012 & 68023 - 32 MB, 68020 - 4 GB, 68040 - 784 MB.
2. TN56 = 2MB, TN2012 = 4 MB, TN1374 = 4 MB, TN1376 = 8 MB, TN1661 = 16 MB, TN1423 = 32 MB, TN1685 = 32 MB. The TN1374, TN1376, and TN1661 boards may be mixed in the same MCTU2 (68020). The other boards are not mixable.
3. Maximum equipage (*) requires the use of the MEU (Memory Expansion Unit).

TABLE 1

5E9(2) Disk Capacities
Base Configurations

Base Config.	Minimum Disk Pairs	SM ODD (MB)	AMA (MB)
63	2	52	52
66	2	245	125

For 3B20D:
63 is 600 MB SCSI, 322 MB SCSI or 340 MB SMD.
66 is 3.5" 1 GB SCSI or 600 MB SCSI, 3.5" 1 GB SCSI or 600 MB SCSI.
For 3B21D:
66 is 1 GB SCSI, 1 GB SCSI for 3B21D.

TABLE 2

Optional Disk Layouts
(Same as 5E9(1).)

63	SM ODD	AMA	SM ODD	66	SM ODD	AMA

Layout	(MB)	(MB)	to % AMA	Layout	(MB)	(MB)
0300	0	264	0/100	0600	0	576
0325	62	192	25/75	0625	134	432
0350	126	128	50/50	0650	278	288
0375	190	64	75/25	0675	422	144
03100	254	0	100/0	06100		

TABLE 5 - 5E10 SM MEMORY AND EQUIPMENT

Table A - SM Processor Equipage

SM	Processor (Note 1)	Memory Boards (Note 2)	Max. Slots (Note 3)	Max. Equipage (MB) (Note 4)
SMP12	68012	TN56	5 + 7	24**
		TN2012	5 + 3	32**
SMP23	68020	TN56	5 + 7	24**
		TN2012	5 + 3	32**
	SMP23CDM	TN1423	1	32
SMP20 SMP20DC	68020	TN1374	6	24
		TN1376	6	48
		TN1661	6	96
SB20CORE	68LC040	KBN*	1-3	96
CORE40	68040	TN1685	4	256
		TN1806	4	256
CORE60	68060***	TN1685	4	256
		TN1806	4	256

Notes:
1. Processor addressability limits: 68012 & 68023 - 32 MB, 68020 - 4 GB, SB20CORE/ CORE40/ CORE60 - 784 MB.
2. TN56 = 2MB, TN2012 = 4 MB, TN1423 = 32 MB, TN1374 = 4 MB, TN1376 = 8 MB, TN1661 = 16 MB, TN1685 = 32 MB, TN1806 = 64 MB.
   The TN1374, TN1376, and TN1661 boards may be mixed in the same MCTU2 (68020). The TN1685 and TN1806 boards may be mixed in the same CORE40/60. The other boards are not mixable. The TN1423 is a new microprocessor board with with dynamic memory.
3. (*) The KBN20 is a processor board in the MCTU3 with 1 memory module of 32 MB. KBN21 is the same processor board equipped with 2 memory modules for 64 MB.
4. Maximum equipage (**) requires the use of the MEU (Memory Expansion Unit).
5. The CORE60 (***) comes with 64 MB of memory resident on the core board. Add one TN1685 for 96 MB. Add one TN1806 or two TN1685s for 128 MB of total memory.

TABLE 1

5E10 Disk Capacities
Base Configurations

Base Config.	Minimum Disk Pairs	SM ODD (MB)	AMA (MB)
63	2	58	35
66	2	245	149
1010	2	344	626

For 3B20D:
63 is 600 MB SCSI, 322 MB SCSI.
66 is 3.5" 1 GB SCSI or 600 MB SCSI, 3.5" 1 GB SCSI or 600 MB SCSI.
For 3B21D:
1010 is 1 GB SCSI, 1 GB SCSI for 3B21D.

TABLE 2

Optional Disk Layouts

63 Layout	SM ODD (MB)	AMA (MB)	% SM ODD to % AMA	66 Layout	SM ODD (MB)	AMA (MB)
0300	0	264	0/100	0600	0	576
0325	62	192	25/75	0625	134	432
0350	126	128	50/50	0650	278	288
0375	190	64	75/25	0675	422	144
03100	254	0	100/0	06100	502	0

1010 Layout	SM ODD (MB)	AMA (MB)	% SM ODD to % AMA
1000	0	1001	0/100
1025	240	751	25/75
1050	490	500	50/50

1. 1A ESS™ Switch Alternate Local Service Provider Description

The approach for the 1A ESS™ Switch involves creating new classes of service for the alternate local service provider(s) and then using normal switch screening capabilities to select routes for 0- and local 0+ calls that terminate on the operator system of the alternate service provider. The method uses what the switch considers alternate LEC routing and will not produce an access charge AMA record. An approach using an alternate digit tree is not a possibility for the 1A ESS Switch since a digit tree (known as a Rate Center - RAC) is assigned to a group of a thousand numbers (NXX+D4) and not on an individual DN basis. An individual subscriber would require a number change in order to be associated with a new digit tree (RAC).

An alternate provider's 0- traffic can be routed using normal screening methods by assigning an alternate service provider's subscribers a unique class of service. This is possible since 0- is treated like any other 3 digit code in a RAC.

An alternate provider's 0+ traffic can be routed by assigning a unique 0+ routing data element known as the Traffic Service Position (TSP) Index to the class of service. However, at most only 8 of these indices are allowed. Other complications with this method are described below.

A method for "code converting" an alternate provider's special services (e.g., 411,611) cannot be supported on the 1A ESS Switch.

2. Memory Impact

The only new memory required for the 1A ESS Switch approach is for a structure called a Chart Class Column Table that is required for each new class of service. The Chart Class Column Table provides the TSP Index which is used in the algorithm for route selection on 0+ calls. In addition, using standard switch screening, the Chart Class Column Table for a given class of service can provide a 0- route for that class of service that is used in lieu of the office default 0- route. Each new Chart Class Column Table requires 64 words of memory. If for example 50 new Classes of service are required, the impact would be 3200 words (50 X 64).

There are 1023 available Chart Class Column tables in 1A, so this data element is not likely to become a limiting factor.

3. Issues

3.1. TSP Index Limitations

The limiting factor for the 1A ESS switch is more likely to be the availability of TSP Indices. A total of 128 routes may be allocated to 0+ routing in 1A. However, these routes are accessed via an algorithm using 2 keys called TSP Index and TSP Group. The TSP Index represents the class of user (e.g. Coin lines) and the TSP Group represents class of call (e.g. IDDD). The TSP Group comes from a structure called the Rate and Route pattern that would not vary between the LEC and alternate service providers. It cannot vary because the Rate and Route Pattern is a function of the Rate Center and the dialed 3/6 digit code. As previously mentioned, the Rate Center cannot vary by DN in the 1A ESS Switch, but only in blocks of 1000 numbers.

The LEC gets to make a choice as to how the maximum 128 0+ routes that are available are split between varying the TSP Index and the TSP Group. The 3 choices available are:

TSP Index Max	TSP Group Max
2	64
4	32
8	16

That is, the number that can vary by class of service can have only at most 8 possible values. An alternate service provider would need a new TSP index to access different routes than the current LEC routing. The TSP Index is specified per class of service. The original purpose of this index was to distinguish Coin from non-Coin. However, other uses may have been devised by a given LEC for routing/screening purposes.

Since the actual route is accessed using an algorithm that multiplies the TSP Group by the TSP Index max chosen and then adds the TSP Index, there is also a certain amount of administrative pain involved if a LEC would have to change the split described above. In other words, going from a TSP Index max of 2 to a TSP Index max of 8 would involve "shuffling" the 128 possible routes. This may present challenges when shuffling these routes in a live office.

3.2. Operator AMA Consideration

The 1A ESS Switch does not currently generate AMA records for local operator calls, nor will it under this proposal.

3.3. Not Extensible to all Operator Platforms

The 1A ESS Switch approach will only support existing local operator signaling protocols. Other signaling methods (such as EAOSS and MEA) will not work under this proposal.

3.4. 611, 411 etc.

The 1A ESS Switch proposal does not support separation of these services for alternate providers.

3.5. Long Term Solutions

Once an industry or long-term solution for LEC Resale is available, the recent change effort should be reversed to restore resources. It would be a significant effort to move all alternate provider lines into original line classes and remove chart columns.

LCC-RAC Memory Model for Alternate Local Service

Model Inputs

		Input Value
i1)	Number of Alternate Provider Line Class Codes (#ALCC)	1
i2)	Number of Alternate Provider Rate Centers (#ARAC)	1
i3)	Number of Alternate Provider Screen Codes (#ASCs)	1
i3a)	Number of Screening Prefixs (#PREFIX)	1
i4)	Code Destination Indexs (#CDIs)	1
i5)	Number of Alternate Providers (#PROV)	1
i6)	Number of Code Converts (#CONV)	1
i7)	Number of Route Indexs (#RTI)	1
i8)	Number of Trunks Groups (#TGS)	1
i9)	Number of Trunks (#TRKS)	1
i10)	Number of Alternate Provider Digit Analysis Selectors (#ADAS)	1
i11)	Number of Large Trunk Groups (#LGTG)	1
i12)	Number of Small Trunk Groups (#SMTG)	1
i13)	5ESS Generic Release (RELEASE) 1=5E9.1 2=5E9.2 3=5E10	1

Memory Calculations

		Calculation
	RC_LCC	
Line 1:	((i1 * i2) * i5 * 32) / .65 =	49.230769
	RT_SCRNING, RC_SCRN(SCRN_R, REM_G) (default 3)	
Line 2:	((i3 * i4) * i5 * i3a * x) / .60 = 5E9.1and 5E9.2 x = 4, 5E10 x = 8	6.6666667
Line 3:	((i3 * i4) * i5 * 2) / .60 =	3.3333333
Line 3a:	if (i3 * i4 * i5) < 100 then (i3 * i4 * i5 * 20) / .80 =	25
	if (i3 * i4 * i5) >= 100 then (100 * 20) / .80 =	
	DA_3DIGIT	
Line 4:	(i6 * i5 * 8) / .20 =	40

	RC_CVRMK	
Line 5.	(i6 * i5 * 24) / .20 =	120
	RC_DAS	
Line 6.	(i10 * i5 * 24) / .40 =	60
	RT_ROUTING, RCRTIRMK	
Line 7:	(i7 * i5 * 24) / .60 =	40
Line 8:	(i7 * i5 * 20) / .80 =	25
	RT_TRKG, RCTGRPRK, (TGRPRK_R)	
Line 9:	(i8 * i5 * x) / .55 = 5E9.1x=48, 5E9.2 and 5E10 x=52	87.272727
Line 10:	(i8 * i5 * 40) / .60 =	66.666667
	FC_OPERTRK, FC_PORTTYP (PRTTYP_R), FC_TRUNK	
Line 11:	(i9 * i5 * 8) / .20 =	40
Line 12:	(i9 * i5 * x) / .88 = 5E9.1 x=8, 5E9.2 and 5E10 x=12	9.0909091
Line 13:	(i9 * i5 * x) / .80 = 5E9.1 x=36, 5E9.2 and 5E10 x=12	45
Line 13a	if (i5 * i9) < 100 then (i9 * i5 * x) / .80 =5E9.1 x=0, 5E9.2 x=24, 5E10 x=28	0
	if (i5 * i9) >= 100 then (100 * x) / .80 =5E9.1 x=0, 5E9.2 x=24, 5E10 x=28	
	GROUP_PORT, (GPRT_R), PORT_GROUP (PGGP_R)	
Line 14:	(i9 * i5 * 12) / .18 =	66.666667
Line 15:	(i9 * i5 * 4) / .18 =	22.222222
	PCTRKTXC	
Line 16:	(i9 * i5 * 2) / .20 =	10
	RC_EQLOC (EQLOC_R)	
Line 17:	(i9 * i5 * 4) / .10 =	40
	RC_LOCEQ	
Line 18:	(i9 * i5 * x) / .30 = 5E9.1 and 5E9.2 x=24, 5E10 x=28	80
	RC_TKTXC	

Line 19:	(i9 * i5 * 8) / 20 =	40
	RC_TRK (RCTRK_R)	
Line 20:	(i9 * i5 * 4) / 40 =	10
	TKSTAT	
Line 21:	(I12 * i5 * 64) / .57 =	112.2807
	LGTKSTAT	
Line 22:	(I11 * i5 * 512) / .57 =	898.24561

Memory Outputs

	Administrative Module (AM) Memory Growth	
o1)	L3 + L3a + L9 + L10 + L16 + L17 + L18 + L19 + L20 =	362.27273
	Communications Module Processor (CMP) Memory Growth	
o2)	L1 + L5 + L6 + L7 + L8 + L9 + L14 + L15 + L17 =	510.39239
	Switch Module Redundant ODD (RODD) Memory Growth	
o3)	L2 + L4 + L7 + L9 =	173.93939
	Switch Module Non-Redundant ODD (NRODD) Memory Growth	
o4)	L11 + L12 + L13 + L13a + L14 + L15 + L16 + L18 =	272.9798
o5)	Switch Module Dynamic or Unprotected ODD (UODD) Memory Growth	
	L21 + L22 =	1010.5263

Docket Nos. 961169-TP/961173-TP
Direct Testimony of Larry Hartshorn
Exhibit No. LH-4
FPSC Exhibit No. _____

AG Communication Systems

AG Communication Systems Corporation
[illegible] East Las Colinas Boulevard
Irving, TX 75039
(214) [illegible]

October 15, 1996

M. L. Jackson
Manager - Carrier Markets
GTE Telephone Operations
600 W. Hidden Ridge Rd.
Irving, Texas 75012-2092
(972) 718-7104

SUBJECT: Impact of the Telcom Act of 1996 on the GTD-5

AG Communication Systems is currently studying the impact of the Telcom Act of 1996 on the GTD-5 EAX and other telecommunication products offered by our company. We feel we will be in a position to discuss these impacts with our major customers in November of this year. It is only after our discussions are complete that we can adequately assess the magnitude of the design activity that will be required to support the Act. The GTD-5 EAX has a flexible, database driven, design. The design is adaptable and, with modifications, should be able to deal with the unique requirements of the Telcom Act. Changes to the Call Processing and/or Administrative software are inevitable.

Initial deployment of the switch unbundling capability requires unique routing to operator and/or directory assistance services. This routing capability can be addressed today, in a limited manner by the GTD-5, through the Selective Routing technique. Please note that the Selective Routing technique will not be adequate for the long term requirements of the Telcom Act due to the diversity of service offerings expected to be deployed by competitive carriers.

Dan Richy
Sr. Product Planning Manager
AG Communication Systems

cc L. M. Robason

PART II

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF DOUGLAS N. MORRIS

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Douglas N. Morris. My business address is 600 Hidden Ridge, Irving, TX 75038.

Q. BY WHOM ARE YOU EMPLOYED, AND WHAT IS YOUR POSITION?

A. I am employed by GTE Telephone Operations as Senior Product Manager - Advanced Services.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATION AND WORK EXPERIENCE.

A. I received a Bachelor of Science degree in Engineering, with a specialty in Electrical Engineering, from the University of South Florida (USF), Tampa, Florida, in 1971. After graduation, I began my career with GTE Florida in Tampa, Florida, as Central Office Equipment Engineer. After holding positions of increasing responsibility in Engineering and Planning in GTE Florida, I was promoted to GTE Service Corporation, Stamford, Connecticut, in 1977, as Systems Engineer - Development. I held positions of increasing responsibility with GTE Service Corporation in Support Systems Planning, Capital Planning, Network Services Planning, and

Business and Strategic Planning until 1988, when I transferred to GTE Information Services, Tampa, Florida, as Senior Manager - Technical Planning. I moved to the GTE Telecommunication Services Incorporated business unit in 1990, as Industry Affairs Manager. In 1992, I transferred to GTE Telephone Operations in Irving, Texas, to assume my current position.

I have obtained special knowledge and expertise of Signaling System 7 (SS7) technology through attendance at numerous courses and seminars presented by industry training experts (such as Bellcore), by participating in informational seminars held by switch and SS7 equipment manufacturers, and by working with GTE technical experts over the last 13 years.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to present the position of GTE regarding SS7. I discuss SS7 and the SS7 issues that are unresolved between GTE and Sprint.

Q. DO YOU HAVE AN OVERVIEW OF THE SS7 SUBJECT?

A. Yes. The Act requires incumbent local exchange carriers (ILECs) to provide, on an unbundled basis, nondiscriminatory access to network elements at any technically feasible point. In its First Report and Order, the FCC interpreted the Act's unbundling provisions to require ILECs to provide unbundled access to signaling networks (Signaling

Links (SLs) and Signaling Transfer Points (STPs)), and access to call-related databases. The only physical point at which interconnection with an SS7 network is technically feasible without risking harm to the reliability and security of the network is the STP. SLs can be provided on an unbundled basis by interconnecting Sprint's Service Switching Points (SSPs) or STPs to GTE's signaling network at the STP.

Q. HOW IS THE REST OF YOUR TESTIMONY ORGANIZED?

A. I have organized the testimony as follows: Section A describes SS7; Section B restates the relevant provisions of the Act; Section C discusses the technical feasibility of unbundling the SS7 Network and the related unresolved issues; Section D sets forth in detail GTE's position on unbundling SS7; and Section E provides a brief summary of my testimony.

SECTION A: WHAT IS SS7?

Q. WHAT TERMINOLOGY WILL YOU BE USING DURING THE DISCUSSION OF SS7?

A. I will be discussing the following terms or concepts: Signaling, traditional Signaling, common channel signaling, out of band signaling, standards and protocols.

Q. WHAT IS "SIGNALING" AND WHAT IS THE FUNCTION OF SIGNALING IN TELECOMMUNICATIONS?

A. Signaling is the transmission of information required to direct and control the setup, administration and disconnection of a voice circuit. In other words, it is the communication of control information between elements of a communications network using a standard protocol understood by all signaling elements involved. Signaling functions include: (1) supervising (i.e., initiating a request for service such as on-hook or off-hook); (2) alerting (i.e., notification of activity on the circuit such as ringing); and (3) addressing (i.e., information provided to the communications system concerning the destination of the call, such as calling number via dial pulse, dual tone multi-frequency, or multi-frequency).

Q. WHAT IS "TRADITIONAL SIGNALING"?

A. Traditional signaling, shown in Schedule DNM-1 attached to my testimony, carries signals between network nodes in the same circuit as the related voice conversation, and is referred to as "in-band" signaling. The signaling itself is carried by the voice circuit in the form of tones or other changes in electrical characteristics. Because the signaling and conversation cannot be transmitted at the same time, the signaling occurs before or after the conversation, or interrupts the conversation while it is in progress.

Some of the shortcomings of traditional signaling include its slow speed, its ability to transfer only limited information and long call set-up time, all of which result in an inefficient use of facilities and signaling equipment. Also, this type of signaling creates an opportunity for fraud because changes in the tones and electrical characteristics can be inserted into the circuit and affect the routing or content of other signaling information.

Q. WHAT IS "COMMON CHANNEL SIGNALING"?

A. The problems with traditional or "in-band" signaling have been overcome by the development of common channel signaling (CCS). As illustrated in Schedule DNM-2, CCS is a technique of signaling which uses a common channel or network, separate from the voice channels used to transmit signals. This is called "out-of-band" signaling because the signaling and voice paths use separate networks or facilities. The advantages of "out-of-band" signaling over "in-band" signaling include the ability to handle a greater volume of signaling information, reduced call set-up times, more efficient trunk usage, and fraud reduction. These advantages result in more efficient and faster connections, and facilitate the provision of new services for subscribers.

Q. WHAT IS THE RELATIONSHIP OF OUT OF BAND SIGNALING TO SS7?

A. SS7 is a standardized network architecture and protocol used by the international telecommunications industry to accomplish CCS (or "out-of-band" signaling). The SS7 network architecture and protocol were adopted by international and United States standards-setting bodies many years ago, and have been used in providing services or applications since their adoption.

Q. WHAT IS THE ROLE OF INDUSTRY STANDARDS?

A. Industry standards developed by United States standards bodies (e.g., American National Standards Institute or ANSI), and those developed by industry agreement (e.g., Bellcore), are developed in open fora with the participation of manufacturers, service providers, end users, government and other interested parties. The standards thus developed are recommended; there is no requirement or implementation schedule imposed on the user of the standards. The benefit of establishing standards is that participants in the network can reference a detailed description of a particular standard and understand what to expect from implementation of the standard. However, because other companies may have implemented other proprietary or non-standard approaches, my testimony addresses what can be accomplished within the GTE network and/or within current industry standards.

Q. WHAT IS THE STANDARDIZED SS7 ARCHITECTURE?

A. The SS7 network architecture, which is illustrated in Schedule DNM-3, includes the following components:

- Signaling Point (SP). The Signaling Point is any node on an SS7 network (e.g., STP, SCP, end office, access tandem or operator system). SPs have SS7 signaling capabilities, but not necessarily the application software needed to provide services to end-users.

- Service Switching Points (SSPs). Service Switching Points are SPs (end office, access tandem or operator system) which have both SS7 signaling capabilities and application-specific software to perform end-user services.

- Signaling Transfer Points (STP). The Signaling Transfer Point is a highly-reliable packet switch which is unique in the network in that it mediates, translates and routes signaling messages appropriately. STPs are provisioned in pairs to ensure reliability, redundancy and diversity. Each STP handles one-half of the signaling traffic so that if a link is damaged, the other STP in the mated pair is able to take over the signal switching and routing functions without compromising network reliability.

- Service Control Point (SCP). The Service Control Point is a computer system which is linked to its primary STP pair and provides access to the SCP's related database or databases.

There also are multiple links within the SS7 network, as shown in Schedule DNM-3. These links can be described as follows:

- A-Links. A-Links, or Access links, are two links (one to each STP in the mated pair) from an SP or SSP to its primary STP pair.

- B-Links. B-Links, or Bridge Links, are four links between two mated STP pairs at the same levels of the signaling network hierarchy.

- C-Links. C-Links, or Cross Links, may be as few as one link between STPs of a mated pair.

- D-Links. D-Links, or Diagonal links, are four links between two mated STP pairs at different levels of the signaling network hierarchy.

- E-Links. E-Links, or Extension Links, are two links from an SP or SSP to its secondary STP pair. E-Links are generally not implemented in GTE's SS7 network.

- F-Links. F-Links, or Fully Associated Links, may be as little as one direct link between two SPs or SSPs. F-links are generally not implemented in GTE's SS7 network.

The original distinctions between B-Links and D-Links have faded with the development of gateway screening and increased signaling network interconnection. Because B-Links and D-Links perform the same functions (i.e., interconnecting two STP pairs), the terms B-Link and D-Link are often used interchangeably.

Q. WHAT IS THE SS7 "NETWORK PROTOCOL"?

A. A protocol is a formal set of rules for the exchange of information between networks or among network facilities. Protocols insure that a sender and receiver of information are compatible and that communication between the two will be intelligible. A protocol also includes procedures for establishing and maintaining the communication path, and provides error detection, correction and retransmission, if required. Lastly, protocols consist of procedure definitions to establish the appropriate communications and definitions of messages and message exchanges.

As illustrated in Schedule DNM-4, the SS7 protocol has five major sub-protocol layers – the Message Transfer Part (MTP); the Signaling Connection Control Part (SCCP); the ISDN (Integrated Services Digital Network) User Part (ISUP); the Transaction Capabilities

Application Part (TCAP); and the Operations and Maintenance Application Part (OMAP).

ISUP and TCAP are the higher-level service or application interface components of the SS7 protocol. MTP provides functions for basic routing of signaling messages between signaling points. SCCP provides additional routing and management functions for transfer of messages other than call set-up between signaling points. ISUP provides for transfer of call set-up signaling information between signaling points. TCAP provides transfer of non-circuit related information between signaling points. OMAP provides the functions, test procedures and protocols for the operation, maintenance, administration and provisioning of the CCS signaling network and switching offices.

ISUP, TCAP and OMAP are often referred to as the higher layers of the protocol, since they use the other, or lower layers. The lower layers are used by the higher layers of the protocol to ensure reliable message transport, error detection, error correction, retransmission and destination translation and routing.

Services or applications which use MTP, SCCP, ISUP, TCAP and/or OMAP must use defined portions of the protocol in the provision of the service or application. Services or applications may use multiple sub protocols. Messages and procedures must be defined and

standardized for each service or application. There are error detection and correction messages, as well as operations, maintenance and administrative messages transversing the signaling network at any particular time. Uses of the individual messages and the message lengths vary significantly. For example, TCAP messages start at the overhead level of 21 bytes, and may be as long as approximately 272 bytes. A single service may require multiple messages of various lengths, multiple uses of multiple protocol layers and multiple retries to attempt or complete a service.

Q. WHAT IS THE RELATIONSHIP OF SS7 TO CLASS SERVICES?

A. SmartCall services, which is the GTE trademark for a family of services, including services commonly referred to as CLASS (Custom Local Area Signaling Service), are performed by the end office switch in which the call is terminated. SS7 simply carries the calling party number in the transport of call set-up messages from the originating switch to the terminating switch. The terminating switch performs the SmartCall function subscribed to by the end user based on the calling party number transported by the SS7 network. The SS7 network does not perform CLASS services, but only carries calling party number information from the originating switch to the terminating switch, and the CLASS services are performed by the terminating switch. In addition, some TCAP messages are exchanged in the process of setting up class tables (screening lists) in the terminating switch.

SECTION B: SS7 AND "THE ACT"

Q. ARE THERE REFERENCES WITHIN THE TELECOMMUNICATIONS ACT OF 1996 THAT RELATE TO THE UNBUNDLING OF SS7?

A. Yes. The Act provides that each incumbent local exchange carrier (ILEC) has the following duties:

> UNBUNDLED ACCESS. -- The duty to provide, to any requesting telecommunications carrier for the provision of a telecommunications service, nondiscriminatory access to network elements on an unbundled basis at any technically feasible point. . .

47 U.S.C. § 251 (c)(3) (1996). The Act further provides that,

> [i]n determining what network elements should be made available for purposes of subsection (c)(3), the [FCC] shall consider, at a minimum, whether --
>
> (A) access to such network elements as are proprietary in nature is necessary; and
>
> (B) the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer.

47 U.S.C. § 251(d)(2)(1996).

The FCC has interpreted these provisions to require ILECs to provide access to SS7 by purchasing local switching services from the ILEC or by unbundling signaling links and STPs. (See In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, First Report and Order, CC Docket No. 96-98, FCC 96-325 (released Aug. 8, 1996) (the Order) ¶¶ 479-83.)

SECTION C: TECHNICAL FEASIBILITY AND RELATED ISSUES

Q. IS UNBUNDLING OF ALL SIGNALING ELEMENTS, INCLUDING THE SCP, TECHNICALLY FEASIBLE?

A. No. Although access to the databases related to GTE's SCP may be made through a query to the SCP via interconnection with the corresponding STP pair, it is not currently technically feasible to provide SCPs on an unbundled basis.

Q. IS IT TECHNICALLY FEASIBLE TO UNBUNDLE GTE'S STPS?

A. No. Although interconnection between signaling networks is accomplished at GTE's STPs, it is not currently technically feasible to provide STPs on an unbundled basis.

Q. IS IT TECHNICALLY FEASIBLE TO UNBUNDLE GTE'S SIGNALING LINKS?

A. It is not currently technically feasible to unbundle every SL within the GTE signaling network. Interconnection with GTE's signaling network is possible, however, via unbundled signaling links connecting the Sprint switch (SSP) or STP to GTE's STP.

Q. IS IT TECHNICALLY FEASIBLE TO DIRECTLY INTERCONNECT WITH GTE'S SCPS?

A. No. Access to the databases related to GTE's SCP may made only through a query to the SCP via interconnection with the corresponding STP pair. Interconnection to the SCP directly, however, is not technically feasible.

SECTION D: GTE'S POSITION

Q. WHAT IS GTE'S POSITION REGARDING INTERCONNECTION WITH AND UNBUNDLING OF THE SS7 NETWORK?

A. Although interconnection with and access to the SS7 network is currently possible through the STP, it is not currently technically feasible to provide unbundled access to every element of the SS7 network, or to allow direct inter-connection with SCPs.

Q. WHY IS IT NOT POSSIBLE TO PROVIDE ACCESS TO ALL SS7 ELEMENTS OR ALLOW DIRECT INTERCONNECTION TO THE SCP?

A. Today, interconnection with an SS7 network occurs at the STP, which was designed to be the entry point to an SS7 network and to provide access to all SS7 functions. The STP is the only physical point at which interconnection is technically feasible. The STP directs SS7 message flow and provides the necessary mediation functions by preventing passage of inexecutable or dangerous messages to the SCPs, rejecting inconsistent messages regarding the same end user, and preventing unauthorized access to proprietary information. Neither the SCP nor any other point in the SS7 network can perform these functions. The FCC has acknowledged that "STPs perform important network screening functions," which should not be "decentralized" and performed at every switch. (Expanded Interconnection with Local Telephone Company Facilities, 9 FCC rcd 2718, 2725 (1994).) In addition, the SCP is not technically capable of routing SS7 messages to multiple STP pairs. Access to the SCP and its associated databases is technically feasible only through the STP pair associated with that SCP, whether the SCP is owned by the ILEC or another entity.

Q. DOES THIS INFEASIBILITY MEAN THAT OTHER CARRIERS CANNOT ACCESS GTE'S DATA BASES?

A. No. This does not mean that other carriers are unable to access GTE's databases – it only means that they have to do so through the STP. Unbundled access to GTE's 800 and LIDB databases is provided to other carriers today. This access requires

interconnection to a GTE SS7 STP, using either GTE-provided links or links constructed by another provider. Providing direct access to the database or SCP raises network reliability issues due to the lack of industry standards. Standard interfaces exist for STP interconnection, but not for direct SCP interconnection.

Interconnection to SCPs is a highly controversial issue at this time. Until appropriate mediation techniques and the associated software and hardware are developed to safeguard the network, access to SCPs or databases is not technically feasible.

With regard to providing elements of the SS7 network on an unbundled basis, the ability of GTE to provide such elements is necessarily limited by the way the SS7 network is designed. Unbundling GTE's SS7 signaling network suggests that SLs, STPs, and/or SCPs within the GTE signaling network could be purchased and/or provisioned independent of each other. This implies, for example, that SLs could be provisioned independently, and by multiple providers, without regard to purchase, or ownership, of the signaling node to which it connects. Similarly, this implies that a signaling node could be provided independent of other nodes and the links between them.

However, it is generally not possible to unbundle every SL, STP and/or SCP because it is not possible for ALECs to self provision,

either singly or in combination, every SL, STP, and/or SCP within the GTE signaling network.

Q. WHY IS IT NOT POSSIBLE TO UNBUNDLE SIGNALING LINKS?

A. It is not possible for an ALEC to self-provision a signal link for routing its own signaling messages within the GTE signaling network. As described earlier, signaling links within the GTE network connect signaling nodes (e.g., SSP, STP and SCP) to one another. Current industry standards, in the interest of maintaining an efficient network structure, give various elements of the network specific functions which are not resident in others. These standards do not support the unbundling of the signaling link connecting a GTE SSP or SCP to its primary GTE STP pair as neither the SSP nor the SCP can perform appropriate screening, routing or translation functions necessary to separately distinguish and route messages to multiple links. Each GTE SSP and SCP relies upon the STPs to perform these functions and properly route messages throughout the GTE signaling network and on to interconnected signaling networks.

Similarly, it is not possible to allow a third party to provide the signal link between an SCP and its primary STP pair. As described earlier, the SCP is not capable of providing various screening and routing functions necessary to distinguish links of multiple providers and must rely upon its primary STP pair for these functions. Therefore, the

signaling links must be provided between the STP pair and the SCP by the SCP provider.

Q. WHY IS IT NOT POSSIBLE TO UNBUNDLE THE SCP?

A. As discussed above, the SCP cannot perform screening and routing functions necessary to distinguish links and/or STPs of multiple providers. The SCP relies upon its primary STP pair for this capability. Under current standards and within GTE's network the SCP must therefore be provided in conjunction with an associated link and primary STP pair -- the SCP cannot be unbundled and independently provided. Thus, access to the SCP is gained through the primary STP pair and the associated links.

Q. IS IT POSSIBLE TO UNBUNDLE THE STPs?

A. No, it is not possible to provide STPs on an unbundled basis, since the STP pair was designed to be the point of interconnection to SS7 networks. Access at other points of the SS7 network is not technically feasible. Only the STP directs message flow and provides necessary network mediation functions. These functions are not performed at other points in the GTE SS7 network.

Q. IS IT POSSIBLE FOR THE NEW ENTRANT TO PROVISION SOME SS7 NETWORK COMPONENTS?

A. Yes. In some situations it is feasible for an ALEC to self-provision some of the SS7 network components and interconnect to the GTE

signaling network, creating a "network of networks." This can be accomplished in a variety of ways, depending upon the ALEC's choice of network elements and providers. There are two options for interconnection of an ALEC SS7 capable switch with the GTE signaling network. The first option is for an ALEC SS7 capable switch (SSP) to connect directly to a GTE STP pair. The GTE STP pair would then provide all of the screening, routing and translation functions for the ALEC SSP, just as it does today for GTE's SSPs. The second option is for an ALEC SSP to connect to an ALEC STP pair or to an STP pair provided by a third party. The ALEC or the third party STP pair would then establish an interconnection with the GTE network at an appropriate STP pair. These interconnections would be accomplished by interconnecting the two signaling nodes via SLs. The signaling link could be provisioned in a variety of ways, including:

- self-provisioned by the ALEC via collocation;
- purchased from GTE as special access lines (SALs);
- provisioned over jointly constructed facilities; or
- provisioned in other methods that may be identified as local interconnections are discussed and negotiated.

Q. WHY IS TECHNICAL MEDIATION OF SS7 MESSAGES NECESSARY?

A. As I previously indicated, interconnection with the SS7 network requires mediation in order to safeguard the integrity of the SS7 network. Mediation refers to a number of functions. In this discussion, mediation refers to the STP functions of gateway screening. AIN mediation is another aspect of mediation that must be resolved prior to the new entrant getting access to AIN and the related data bases. Mediation may also refer to intermediate interface with other network elements to address security and reliability issues. The gateway screening functions of the STP include screening to prevent passage of inexecutable or dangerous messages to the SCP, rejecting inconsistent messages and preventing unauthorized access to proprietary information. Neither the SCP nor any other point in the SS7 network can perform these functions. Also, access to the SCP or its associated database(s) is technically feasible only through the STP pair associated with that SCP, whether the SCP is owned by the incumbent LEC or another entity. Therefore, the SCP cannot be unbundled from the associated STPs.

GTE provides STP interconnection for call setup, access to the 800 data base and access to GTE's LIDB. STP interconnection for call setup and for DB800 queries takes place at the local STP pairs serving the LATA or LATAs in which the message is originated.

DB800 queries are directed to the DB800 database from an appropriately-equipped end office or access tandem in the local exchange network to determine the appropriate carrier for routing an 800/888 dialed call. All switches which are equipped to perform this function (i.e., SSP functionality) must have access to a DB800 database. Offices which are not equipped to perform this function must route all 800/888 dialed calls to a switch which can perform this function. Interconnection for access to GTE's line information database (LIDB) takes place through the regional STP pair associated with the SCP and LIDB database in Indiana (local STPs in the network are connected to regional STP pair). Queries are directed and processed according to industry standards for calling card verification, third-party and reverse billing of operator-assisted calls.

Interconnection at the STP pair will provide ALECs with the ability to establish service and compete in the local service arena, since ALECs can obtain access to all SS7 functions at the STP pair. With interconnection at the STP, ALECs will also have access to all GTE databases needed for call routing and completion. Failure to obtain access to GTE's SS7 network at other points will not impair the ALEC's ability to provide their subscribers with any SS7 service equivalent to that offered by GTE today to GTE's subscribers.

Q. WHAT ARE THE POTENTIAL OUTCOMES IF INTERCONNECTION IS IMPLEMENTED AT THE SCP?

A. Setting aside that technical standards do not presently exist for interconnection at points other than the STP pair and that no standards have been established and accepted for direct interconnection into the SCP, if direct interconnection at the SCP were accomplished the consequences could be extreme and wide-ranging. Even if a resourceful engineer were able to modify the hardware and logic of an SCP to accomplish such an interconnection, several undesirable events are possible, depending on the quality of the design and software development.

- Customer proprietary network information (CPNI) contained in the SCP could be compromised thereby resulting in improper disclosure and/or modification of private customer information by unauthorized persons, entities or "hackers." Access to such information could not be prevented, controlled or managed as it is with STP mediation.

- Other interconnected SS7 networks might not be able to appropriately route messages to the correct destination.

- Without mediation by the STP, the SCP would not be capable of distinguishing potentially conflicting instructions for the same customer, originating from two different networks.

- Maintenance, operational and administrative messages from the interconnecting SS7 network could affect the network of the owner of the SCP and potentially, some or all of the SS7 networks interconnected with the SS7 network of the SCP owner.

If any of the above-referenced events were to happen, customer service would be affected, ranging from minor impact (e.g., routing of calls to the wrong destination) to catastrophic (e.g., isolating a number of switching offices, or disabling portions of an SS7 network).

The conditions that have been discussed in regard to SS7 network unbundling and interconnection are not unique to the GTE signaling network. The GTE signaling network is designed to conform with current industry standards. The types of screening, routing and translation capabilities needed to provide for third party access to individual network nodes, i.e., SSPs and SCPs, are not supported by current standards.

Q. WHAT OPTIONS DOES GTE PROPOSE IN ORDER FOR THE NEW ENTRANT TO HAVE INTERCONNECTION TO GTE'S NETWORK?

A. GTE proposes the following options for ALEC interconnection through the STP to GTE's SS7 network. The options for interconnection are limited by the technological and network reasons discussed above.

Component	Options
SLs to the STP:	• SLs may be self provisioned by the ALEC via collocation; or • SLs may be purchased from GTE as special access lines; or • SLs may be provisioned over jointly constructed facilities; or • SLs may be established by other methods which are identified as local interconnections are discussed and negotiated.
STP Port:	• Access to GTE's SS7 system is provisioned only through the STP Port .
Database Queries:	• Requires STP port interconnection. • LIDB queries provisioned under terms and conditions reflected in GTOC1, GTE's Federal access tariff. • DB800 queries provisioned under the terms and conditions reflected in

GTE's Carrier Selection Service, which is offered to all LECs.

- Provisioning of other database queries will be established as such databases are developed.

These options are diagramed in Schedule DNM-5.

Pricing for ALEC interconnection to GTE's signaling SS7 signaling network will be as follows:

Component	Options
Links to STP:	• Pricing for the individual link "pieces" negotiated for the interconnection will be at the tariffed rate for these "pieces" (e.g., collocation, special access facilities, etc.); or
	• If the ALEC wishes GTE to provide the signaling link to GTE's STP pair(s), GTE will provide Dedicated Switched Access Line (DSAL) and Dedicated Switched Access Termination (DSAT) facilities from the Customer Designated Location (CDL),

with pricing from GTOC1, GTE's Federal access tariff.

STP Ports:

- The pricing for STP Ports will be the STP Port rate referenced in GTOC1, GTE's Federal access tariff.

Databases:

- Pricing for database queries will be either: (1) from GTOC1, GTE's Federal access tariff (in the case of LIDB); or (2) at the current pricing for GTE's services offered to other LECs (in the case of DB800/Carrier Selection Service).

Q. DOES GTE BELIEVE THAT THE PRICES FOR THE SS7 NETWORK COMPONENTS CAN BE SET FORTH IN A COMPREHENSIVE TARIFF?

A. GTE proposes using the above-referenced arrangements for SS7 network interconnection instead of an all-inclusive tariff arrangement, since SS7 network interconnections are complex and not reducible to a single element. A "one size fits all" approach is not well-suited for establishing SS7 interconnection.

Contractual arrangements in regard to interconnection of the link between the ALECs to a GTE STP can be established at the time of negotiation of an overall interconnection agreement. Depending upon the manner in which the ALECs are linked, certain GTE tariffs will apply. GTE believes that this manner of establishing interconnection will provide the most efficient, most effective, and lowest cost solution for the ALEC.

SECTION E: SUMMARY

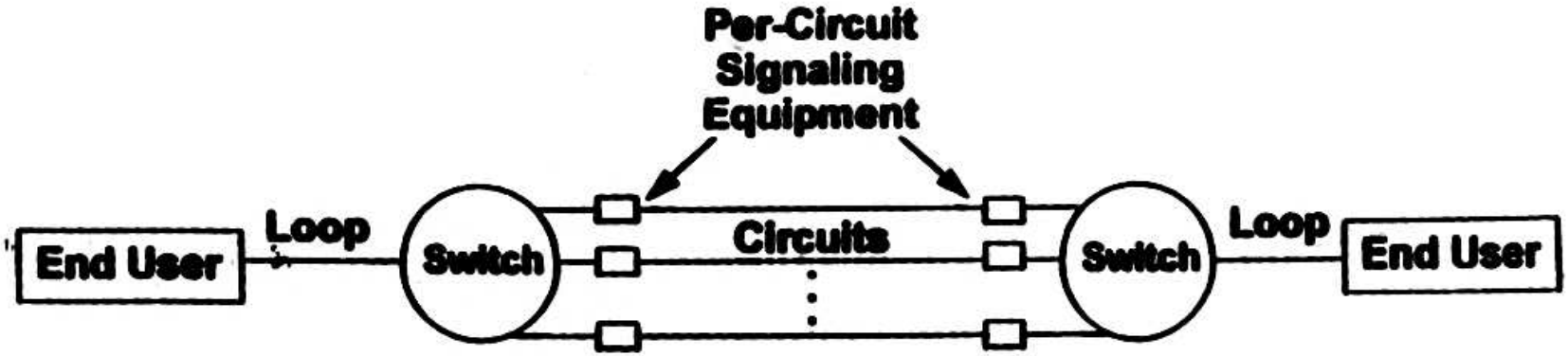
Q. DO YOU HAVE A BRIEF SUMMARY OF YOUR TESTIMONY?

A. Yes. In summary, GTE's SS7 network cannot be unbundled at this time to permit physical interconnection at any point other than the STP, which provides a vital role in safeguarding network reliability and integrity. Access at the STP pair will enable the ALECs to obtain access to any SS7 service equivalent to that offered by GTE today. GTE will charge its federally tariffed prices for interconnection into the SS7 network except where contractual negotiation is better suited to meet the needs of the ALECs in regard to the provision of particular interconnection links to the STP. Where negotiation results in provision of facilities covered by state tariffs, the state tariff rate or rates will be applicable.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

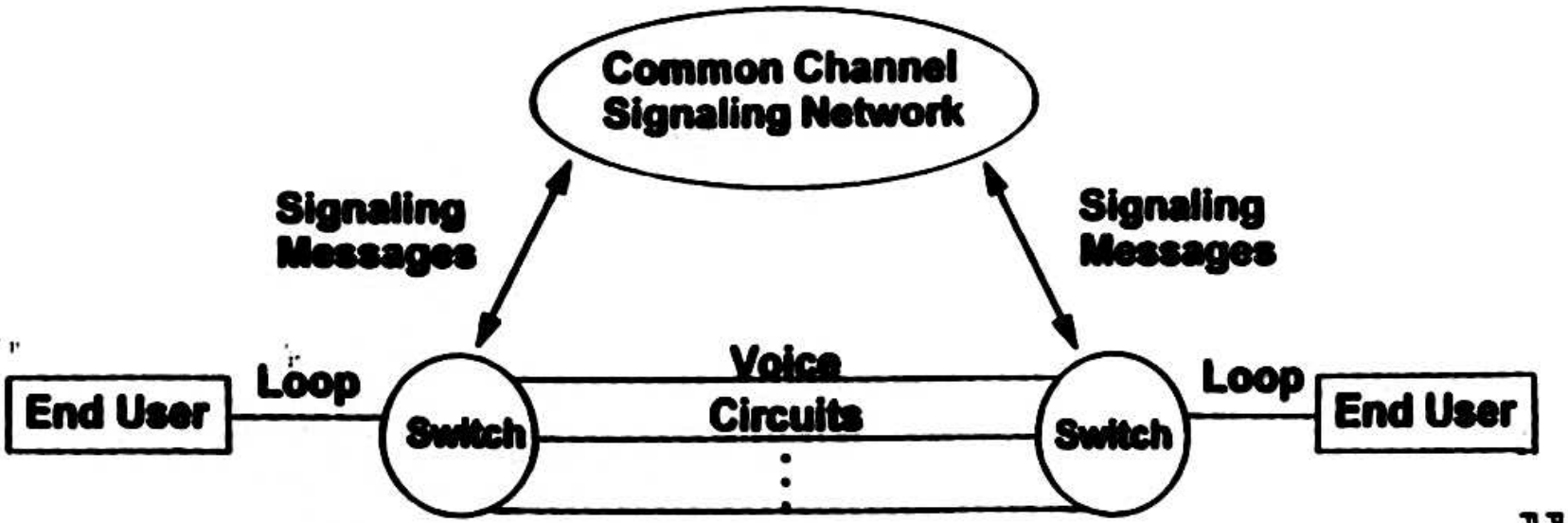
A. Yes, it does.

ATTACHMENT 1 -- TRADITIONAL SIGNALING



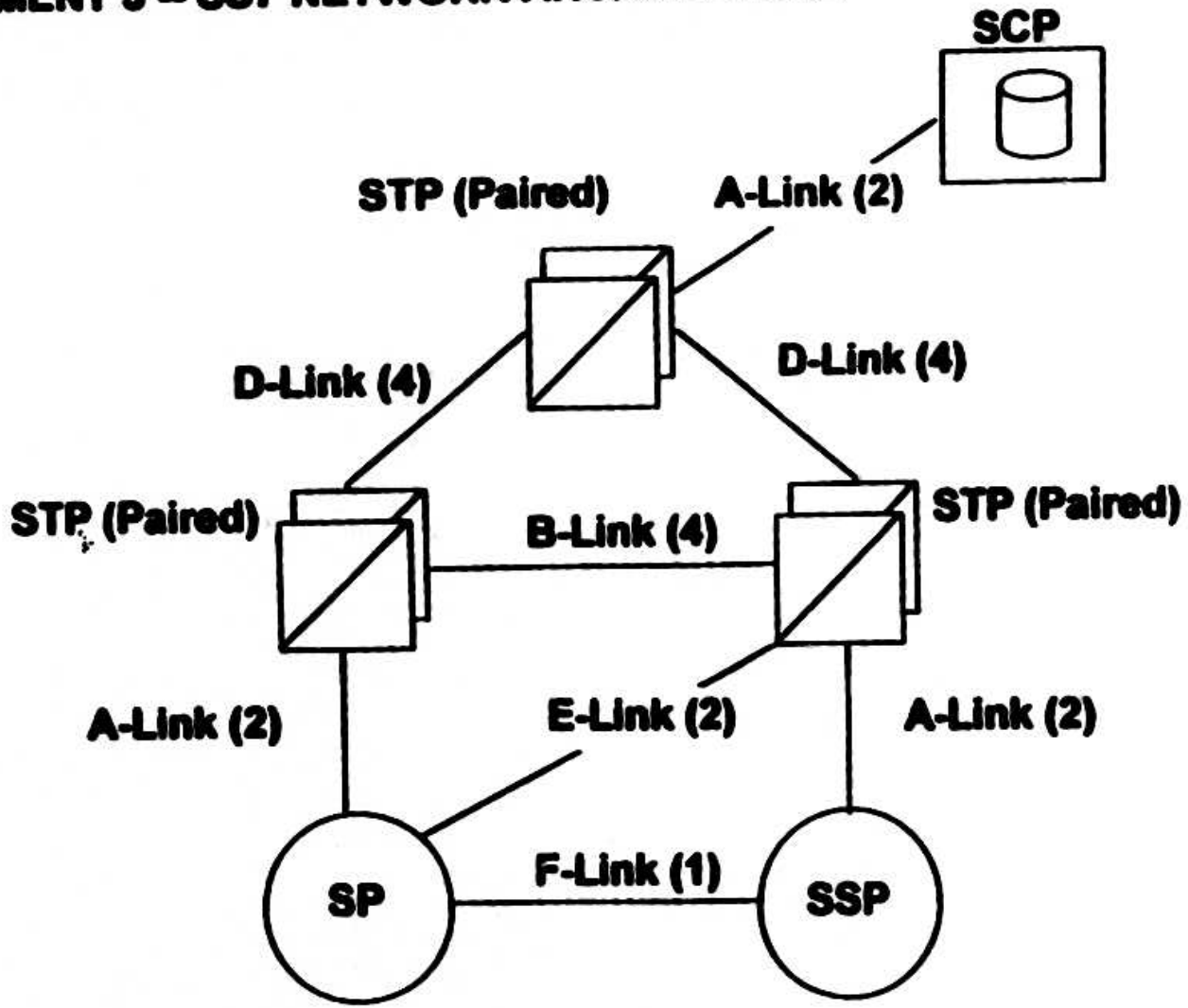
Docket No. 961173-TP
Direct Testimony of Douglas N. Morris
Exhibit No. DNM-1
Page 1 of 1
FPSC Exhibit No. ____

ATTACHMENT 2 -- COMMON CHANNEL SIGNALING



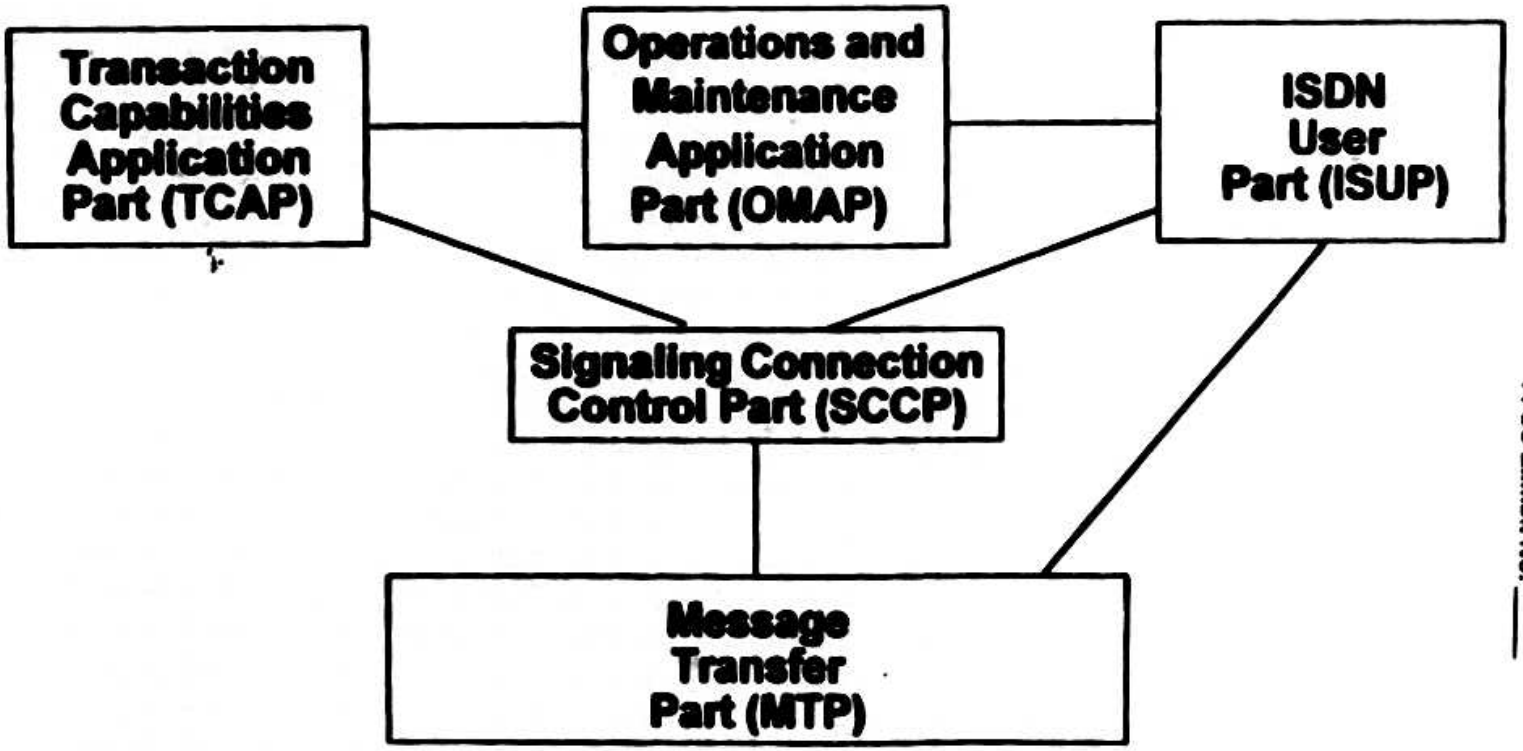
Docket No. 981173-TP
Direct Testimony of Douglas N. Morris
Exhibit No. DNM-2
Page 1 of 4
FPSC Exhibit No. ____

ATTACHMENT 3 -- SS7 NETWORK ARCHITECTURE



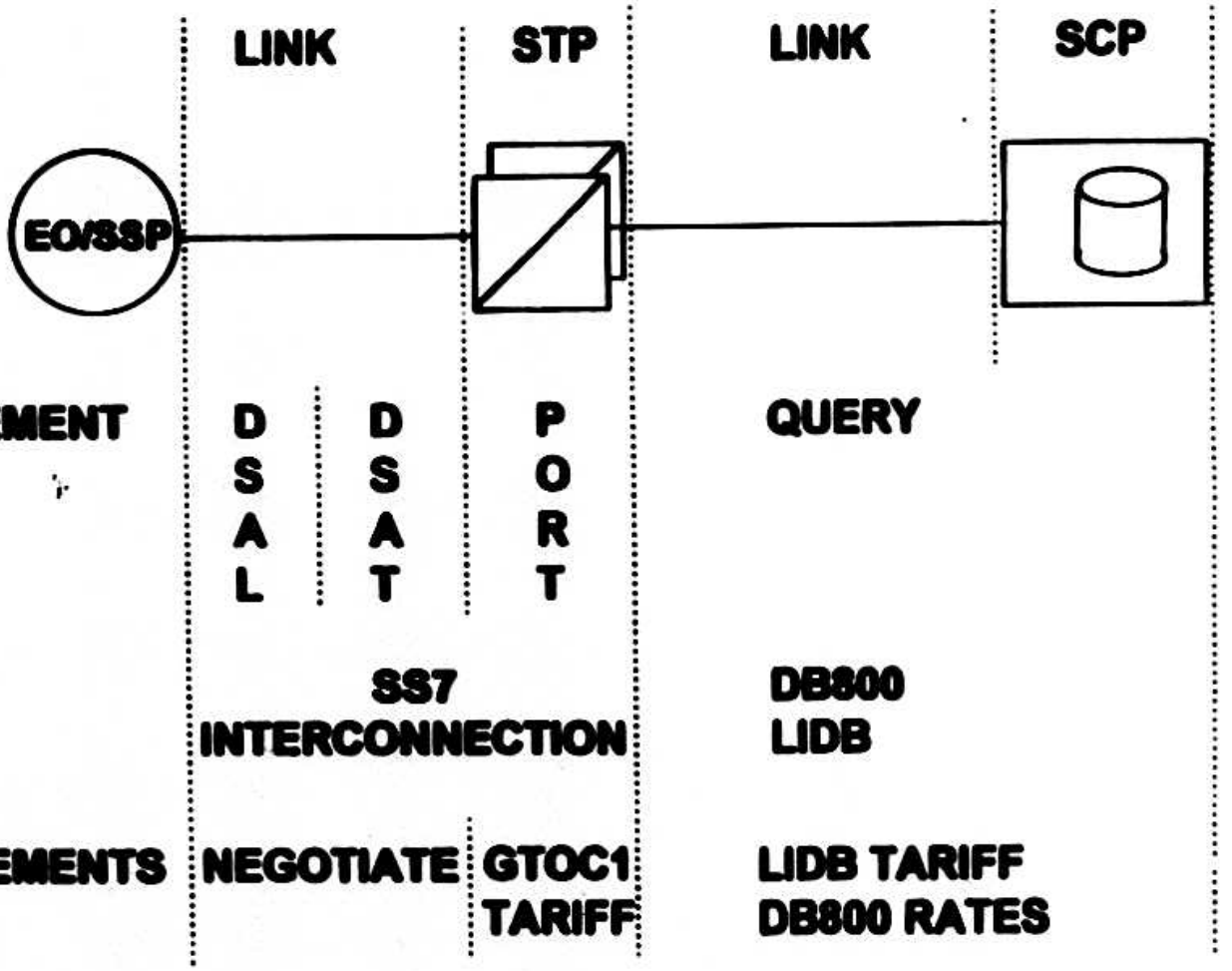
Docket No. 961173-TP
Direct Testimony of Douglas N. Morris
Exhibit No. DNM-3
Page 1 of 1
FPSC Exhibit No. ____

ATTACHMENT 4 – SS7 PROTOCOL STRUCTURE



Docket No. 961173-TP
Direct Testimony of Douglas N. Morris
Exhibit No. DNM-4
Page 1 of 1
FPSC Exhibit No. ____

ATTACHMENT 5 – LOCAL INTERCONNECTION STRUCTURE



Docket No. 961173-TP
Direct Testimony of Douglas N. Morris
Exhibit No. DNM-5
Page 1 of 1
FPSC Exhibit No. ____

PART III

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF DOUGLAS E. WELLEMEYER

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Douglas E. Wellemeyer. My business address is 4100 North Roxboro Road, Durham, North Carolina.

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

A. I am employed by GTE Telephone Operations as Manager - South Area Pricing and Tariffs. I am providing testimony in this proceeding on behalf of GTE.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATION AND EXPERIENCE IN THE TELECOMMUNICATIONS INDUSTRY.

A. I graduated from Duke University, Durham, North Carolina in 1976 with a Bachelor of Science degree in Engineering. During 1978, I began graduate study, and in 1980 earned a Masters Degree in Business Administration, also from Duke.

I was employed by General Telephone Company of the Southeast, now GTE South, in 1976 and held various positions in the Network Engineering organization. In 1983, I was named Staff Manager - Network Program Management with GTE Service Corporation of Stamford, Connecticut and in 1985 I was reassigned to the position

of Staff Manager - Separations and Access Costs in Irving, Texas. In both positions, my responsibilities involved development and administration of separations and access cost study procedures used by the domestic GTE telephone operating companies.

In May 1987, I was named Pricing and Tariffs Manager for GTE South, responsible for the development of rates for all products and services offered under tariff, and for preparing and executing GTE South's tariff filings as required by the various state regulatory commissions. In January 1989, I was named Manager - Separations and Access Costs for GTE Telephone Operations, with responsibility for the development of jurisdictional separations and access cost studies in accordance with applicable Federal Communications Commission (FCC) Rules and Regulations, and for the preparation of jurisdictional and access service cost support for various intrastate compensation arrangements and tariff filings in GTE's South Area states. I assumed the responsibilities of my current position in January, 1993.

Q. WHAT ARE THE RESPONSIBILITIES OF YOUR CURRENT POSITION?

A. As Manager - South Area Pricing and Tariffs, I am responsible for the development and implementation of pricing and costing policy and procedures; the design of corresponding price structures for toll and local network service offerings; and the design and execution of cost

studies necessary to support certain pricing proposals. I am also responsible for filing tariffs for these services, as well as the intrastate access service tariffs, according to the state commission rules and regulations.

I am responsible for these activities in Alabama, Florida, Kentucky, North Carolina, South Carolina and Virginia, and in other states as the need may arise from time to time.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY REGULATORY COMMISSIONS?

A. Yes. I have previously testified before the state regulatory commissions in North Carolina, Florida, Georgia, Kentucky, South Carolina, and West Virginia.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony addresses the development of GTE's proposed wholesale prices for all services offered for resale. In my testimony, I offer and explain two avoided cost studies prepared by GTE in support of the proposed prices. The two studies are provided under Tab 20 of the cost work papers included with GTE's filing in response to Sprint's request for arbitration. Both GTE studies produce avoided cost results that are lower than the FCC's avoided cost discount rates.

The first study is GTE's Avoided Cost Study, where GTE's proposed prices are calculated as the price of the retail offering less costs avoided when service is offered through wholesale, rather than retail, distribution channels. My testimony describes the methodology and results of GTE's analysis of avoided costs.

The second study is a modification of the ARMIS-based avoided cost analysis conducted by MCI, upon which the FCC relied, in part, to establish its default avoided cost discount range. Based on analysis of actual "direct expenses" (i.e., marketing and customer service expenses), GTE has modified the ARMIS model to reflect all costs that can reasonably be expected to be avoided in a manner that conforms with the FCC's proposed avoided cost study criteria. GTE believes that its Avoided Cost Study best reflects the intent of the Act, and offers this Modified Avoided Cost Study based on an ARMIS model as an alternative for use only if the FCC's rules on avoided cost are held to be lawful. Nevertheless, the Modified Avoided Cost Study clearly shows that the FCC's avoided cost discount for GTE is artificially high and economically burdensome.

Finally, my testimony discusses GTE's positions on various issues related to resale service offerings and restrictions.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. Section II of my testimony discusses GTE's methodology for determining avoided retail costs, and discusses the application of that methodology in the GTE Avoided Cost Study. Section III discusses GTE's methodology for determining avoided retail costs under the Modified Avoided Cost study using an ARMIS-based model. Section IV compares the results of the GTE Avoided Cost Study and the Modified Avoided Cost Study to the FCC's rate of 18.81% for GTE overall, and responds to Sprint's position on an appropriate avoided cost discount rate. Section V addresses the resale issues.

Q. WHY DID GTE PERFORM AVOIDED COST STUDIES?

A. The Telecommunications Act of 1996 (the Act) states that it is the duty of each incumbent local exchange carrier (ILEC) "to offer for resale at wholesale rates any telecommunications service that the carrier provides at retail to subscribers who are not telecommunications carriers" (47 U.S.C. § 251(c)(4) (1996)). The Act further states that for this purpose "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" (47 U.S.C. § 252(d)(3) (1996)). To comply with the requirements of the Act, it is necessary to determine avoided retail costs to establish the required wholesale rates for services offered for resale. GTE's Avoided Cost Study was conducted for this purpose.

In addition, the FCC's First Report and Order in CC Docket No. 96-98, released August 8, 1996, provided for the addition of Part 51 Rules governing local interconnection. Subpart G of these Rules defines specific avoided cost study requirements and criteria. GTE prepared its Modified Avoided Cost Studies in conformance with Part 51 Rules, for use if the Rules are determined to be lawful.

Q. PLEASE SUMMARIZE THE RESULTS OF GTE'S AVOIDED COST STUDY AND THE MODIFIED AVOIDED COST STUDY, AND COMPARE THESE RESULTS TO MCI's PROPOSAL AND TO THE FCC'S DISCOUNT RATE FOR GTE OF 18.81%.

A. GTE's Avoided Cost Study analyzes avoided costs separately for each of five major service categories. The avoided costs for residential services are $0.83 per line per month; avoided costs for business services are $1.06 per line per month. Since the amount of the avoided costs per line is the same for all rate groups, the effective discount rate varies by rate group. For example, if the monthly residential line rate in a given rate group is $10.00, the avoided cost discount is $0.83, or 8.3%.

For the remaining service categories, the avoided cost discount rates are as follows:

Usage Services	7.1%
Vertical Services:	
Business	5.5% .

Residence	6.6%
Combined	6.2%
Advanced Services	15.3%

The Modified Avoided Cost Study determines a single discount rate for each tariff entity. Each single rate is appropriate for application to all retail services offered for resale. The avoided cost discount rates calculated using the ARMIS-based model are as follows:

GTE Florida	11.25%

In all cases the rates calculated by GTE are lower than the FCC's default avoided cost discount rates.

II. GTE'S AVOIDED COST STUDY

Q. HOW ARE AVOIDED COSTS DEFINED FOR THE PURPOSES OF THE GTE AVOIDED COST STUDY?

A. Avoided retail costs are defined as the difference in total costs with and without the offering of service for resale, i.e., the costs avoided when a service is offered through wholesale, rather than retail, distribution channels.

Q. WHAT IS THE BASIS FOR THIS DEFINITION OF AVOIDED COSTS?

A. This definition is consistent with the Act, and properly positions wholesale prices for competitive markets. Setting wholesale prices too high could result in undercutting the ability of resellers to recover a sufficient retail mark up to allow for a viable resale market. On the other hand, if the adjustment for avoided retail costs is too large, the ILECs will not be compensated for their true costs. Moreover, facilities-based competing local exchange carriers (ALECs) could be placed at a competitive disadvantage in pricing their retail service if ALEC resellers are able to purchase wholesale local exchange services below its cost. Finally, appropriately-set wholesale prices will encourage facilities-based competition.

GTE's definition of avoided costs also recognizes the inescapable fact that while some retail costs are avoided for certain activities, a similar activity is often required to offer the same service on a wholesale basis for resale. For example, some incremental retail customer billing activities may be avoided when the service is offered instead for resale, but a wholesale billing function must still be performed. The avoided billing cost is, logically, the difference between the costs of these two activities.

Q. BASED ON THIS DEFINITION, WOULD YOU PLEASE DEFINE THE COMPONENTS OF AVOIDED RETAIL COSTS AS USED IN THE AVOIDED COST STUDY?

A. Yes. When a retail service is offered instead on a wholesale basis for resale, the resulting avoided costs can be separated into two components. First, total costs are decreased because it is no longer necessary to provide some incremental retailing functions in support of the service. Second, total costs are increased to the extent that it becomes necessary to provide substitute wholesaling functions in support of the resale service.

Therefore, avoided retail costs are equal to: (1) costs associated with displaced retail activities (affected retail costs) minus (2) added costs associated with replacement wholesale activities (substitute resale costs).

Q. HOW WAS THE FIRST COMPONENT OF AVOIDED COSTS, THE AFFECTED RETAIL COSTS, QUANTIFIED IN THE AVOIDED COST STUDY?

A. The first component of avoided costs was calculated by examining all activities involved in the provision of retail services, and identifying the cost of performing those activities that are affected when services are provided on a wholesale, rather than a retail, basis (affected costs). Some activities are required regardless of whether the service is offered on a retail or a wholesale basis, so the associated costs would be unaffected when service is provided on a wholesale, rather than a retail, basis (unaffected costs). These activities were ignored

in the Avoided Cost Study, since none of the associated costs will be avoided.

For example, in the Avoided Cost Study, the total costs of affected activities required to provide residential services were calculated to be $1.36 per line per month. This amount for the first component represents the decrease in total costs when a residential basic service is offered on a wholesale basis.

Q. HOW WAS THE SECOND COMPONENT OF AVOIDED COSTS, THE SUBSTITUTE RESALE COSTS, QUANTIFIED IN THE AVOIDED COST STUDY?

A. The second component of avoided costs was calculated by first identifying existing wholesale services similar in nature to those in each of the retail service categories. Then, using these services as a proxy for the new wholesale distribution channel, the cost of substitute wholesale activities required when services are offered on a wholesale, rather than a retail, basis was analyzed.

For example, the cost of substitute activities for the residential services category was assumed to be the same as the cost of the same activities currently performed in providing wholesale special access service to interexchange carrier customers. In the Avoided Cost Study, the total costs of affected activities required to provide special access services were calculated to be $0.53 per line per

month. This amount for the second component represents the increase in total costs when a residential basic service is offered on a wholesale basis.

Q. USING THESE TWO COMPONENTS, HOW ARE THE AVOIDED COSTS CALCULATED FOR YOUR RESIDENTIAL SERVICES EXAMPLE?

A. Avoided costs are calculated as the first component, affected retail costs, less the second component, substitute resale costs. In the Avoided Cost Study, the costs avoided when residential service is provided on a wholesale basis were calculated as $1.36 minus $0.53, or $0.83 per line per month.

Q. WHAT DATA WERE USED TO CONDUCT THE AVOIDED COST STUDY?

A. The Avoided Cost Study was based on actual annual results for GTE Telephone Operations's total domestic telephone operations for 1995. The data are reported in a managerial accounting framework reflecting the results of the business as it is managed, rather than according to traditional financial accounting rules.

Q. WHY WERE RESULTS FOR GTE'S TOTAL DOMESTIC OPERATIONS USED, RATHER THAN RESULTS SPECIFIC TO THIS STATE?

A. The necessary data are not recorded on a state specific basis, so data specific to operations in this state are not available from GTE's records. This is because the vast majority of the affected activities are performed on a centralized basis from regional and national service centers located throughout the country. Each of these centers handles one or more specific retailing functions for a number of different states.

For example, the National Customer Contact Support Center located in Tampa, Florida provides nationwide support for the customer contact centers by clearing order entry exceptions and processing customer correspondence. A complete listing and description of these centralized functions is provided as Attachment II (Workcenter Glossary) of the Avoided Cost Study. Because the functions are organized and managed in this way, the associated costs for all affected activities taken together are not meaningful at other than a total GTE Telephone Operations level.

Q. HOW WERE AFFECTED RETAIL COSTS QUANTIFIED IN THE AVOIDED COST STUDY?

A. In order to identify the retail costs affected by the offering of services through wholesale rather than retail distribution channels, all of GTE's workcenters were examined to determine which activities would be affected. Resale of existing retail services is defined as the sale of services to a reseller for sale to its end user customers, without any

change in the nature of the product by the reseller. Thus, changes in workcenter costs that result from offering services on a wholesale, rather than a retail, basis arise solely from activities associated with the distribution of services, and not from production activities.

Q. WOULD YOU PLEASE DEFINE THE TERM "WORKCENTER?"

A. A workcenter is defined as a collection of activities that exhibit: (1) common functions; (2) a common unit measure of demand; (3) a common unit measure of resource consumption; (4) a common geographic uniqueness; and/or (5) a common management structure. Most of the workcenters are defined based on common functions or work activities.

For example, the National Customer Contact Support Center I mentioned earlier performs two specific activities in support of the Customer Contact Centers, clearing order entry errors and processing customer correspondence. These off-line customer contact support functions are organized as a workcenter.

Q. WERE THE WORKCENTERS ORGANIZED IN A PARTICULAR MANNER SO THAT THE AFFECTED WORKCENTER ACTIVITIES COULD BE IDENTIFIED?

A. Yes. In general, the affected workcenters are uniquely associated with one of the three lines of business organizations within GTE Telephone Operations. The three lines of business are

Consumer, Business and Carrier. The Consumer line of business organization serves the residence and small business markets; the Business line of business serves the balance of the business market, including national accounts; and the Carrier line of business is responsible for the wholesale relationship with other telecommunications providers. This wholesale relationship currently consists primarily of switched access services, special access services, billing and collection, and operator service agreements.

In addition, as shown in the Workcenter Glossary, workcenters are identified for all Network Operations and Corporate General and Administrative functions. These workcenters were reviewed as well, but are generally not included in the analysis of affected costs because the functions are required for wholesale and retail service provision alike. Finally, Uncollectibles was defined as a workcenter for the purposes of this analysis, and included as such in the Avoided Cost Study.

Once the affected workcenters were identified for study, the total annual costs were determined from the books and records for each affected workcenter. The workcenter costs include labor costs, support and supervision, data processing, training and other employee-related expenses.

The data processing costs were included net of system development and enhancement costs. Development and enhancement costs are "one-time" costs associated with the design and implementation of systems, and were therefore excluded from the Avoided Cost Study. Likewise, projected development and enhancement costs for systems to support the wholesale distribution channel have also been excluded from the Avoided Cost Study. These costs should be recovered from the ALECs who cause them.

Q. DID YOU MAKE ANY ADJUSTMENTS TO THE ANNUAL COSTS BY WORKCENTER?

A. Yes. First of all, the identified workcenter costs were adjusted to include certain payroll overheads not accounted for by workcenter. These costs include health insurance, payroll taxes and management incentives. These costs are recorded and managed separate from the workcenter costs, but are properly included in the Avoided Cost Study, as they would be affected by the offering of resale services in the same way as the related direct labor costs. These adjustments by workcenter are shown in Attachment I of the Avoided Cost Study.

Also, an adjustment was made to workcenter costs to remove any non-recurring costs associated with service ordering activities. The workcenters affected by this adjustment can be identified from the listing provided in Attachment III of the Avoided Cost Study. These costs were identified separately, and not distributed among the

service categories in the Avoided Cost Study. This was done because GTE prepared an independent analysis of service ordering and service connection charges.

Q. HOW WERE THE WORKCENTER NON-RECURRING COSTS ASSOCIATED WITH SERVICE ORDERING ACTIVITIES SEPARATELY IDENTIFIED?

A. The identification of these costs is documented in Attachment VI of the Avoided Cost Study. Generally, the calculations were based on workcenter-specific data representing the percentage of a workcenter's activities associated with service orders.

For example, for GTE's Customer Contact Centers, the number of calls for service orders was counted and then multiplied by the average length of a service order call. GTE's Customer Contact Centers accounted for approximately 40 percent of GTE's total costs in workcenters having affected costs associated with consumer services. The resulting total service order time was expressed as a percentage of the total time spent on all calls received by Customer Contact Centers. This percentage was then multiplied by the workcenter's adjusted total costs to obtain NRCs. In this way, $182,924,000 in non-recurring costs was separately identified as part of the workcenter costs for the Customer Contact Center.

Once the non-recurring costs were separately identified, the next step

was to assign the remaining workcenter costs to the service categories. The target retail service categories are Residential, Business, Usage, Vertical, Advanced and "Other." The Other category was further divided among Directory, Customer Premises Equipment (CPE), CALC and Other.

Q. WHAT SERVICES ARE INCLUDED IN THE FIVE TARGET RETAIL SERVICE CATEGORIES?

A. Residential and Business are simply local residential and business services, respectively. Residential services include both flat rate and measured rate services, while business services include measured rate services, CentraNet® and PBX. The Usage category includes intraLATA toll, discount calling plans, local measured usage, Zone Usage Measurement (ZUM), and Extended Area Services (EAS). Vertical features include such features as call waiting and last number redial, and are offered to both business and residential customers. The Advanced services category includes such services as ISDN BRI and ISDN PRI, Frame Relay, Digital Channel Service, DS-1, and various other dedicated channel services including private line.

Q. HOW WERE THE REMAINING RECURRING COSTS ASSIGNED TO THE SPECIFIC CATEGORIES OF RETAIL SERVICES?

A. For a number of workcenters, sufficient information was available to assign costs directly to specific retail service categories. For

example, all the costs of the Calling Card workcenter could be directly assigned to the Usage category. In other cases, sufficient information was available to directly assign only a portion of costs. In each of the following workcenters, complete or partial direct assignments of affected costs were made:

National Credit Management Center (NCMC): Workcenter costs were allocated to services on the basis of each service's share of consumer and business uncollectibles for the services supported by the NCMC.

Business Sales Center (BSC): Non-attributed Business service costs were allocated on the basis of business revenues relative to total revenues and the remainder of costs were distributed on the basis of the 1995 sales quotas for the BSC associated with each remaining service.

Branch Sales, Market Response, Branch Sales Engineering and Business Operations Support: Costs associated with the sale of CPE products were netted out of non-attributable costs based on time studies for each of these workcenters. The remaining costs were then distributed according to the relative size of the 1995 sales quotas for each of these workcenters.

Branch Sales Support: The Branch Sales Support - East (West) workcenter's costs replicated the combined allocation of other East (West) branch service workcenters' costs.

National Accounts: The distribution of non-attributable costs replicated the combined allocation of both East and West branch sales service costs.

Business Data Processing: The distribution of non-attributable costs replicated the combined allocation of all branch sales services, BSC, National Accounts and Business Operations Support Service costs.

National Customer Support Center: Non-attributable costs were allocated according to the relative number of service specific calls received by the workcenter.

Q. **IF SUFFICIENT INFORMATION WAS NOT ALWAYS AVAILABLE TO DIRECTLY ASSIGN THE WORKCENTER'S TOTAL AFFECTED COSTS, HOW WERE THESE COSTS ASSIGNED TO THE SERVICE CATEGORIES?**

A. In such cases, workcenter costs not directly assigned were assigned to the service categories in proportion to the net revenues for the service categories associated with that workcenter. This method of assignment is known as the relative revenue rule (see generally, D.

Spulber, Regulation and Markets Ch. 3 (1989)). Attachment III of the Avoided Cost Study identifies the method of assignment used for each workcenter. Attachment V, page 1, displays the results of assigning costs for all workcenters to the retail service categories.

Q. HOW WAS THIS INFORMATION USED TO CALCULATE THE AFFECTED COSTS PER UNIT FOR RETAIL SALES?

A. The units for each of the retail service categories are shown on page 2 of Attachment V of the Avoided Cost Study. For local residential, local business, and advanced services, avoided costs were divided by the number of lines. For usage, avoided costs were divided by the number of minutes. Per unit affected costs for vertical services were not calculated, because data for the second component of avoided costs, substitute resale costs, are not available. I will discuss this issue later in my testimony in the context of substitute resale costs. The results of these calculations are also shown on Attachment V, page 2.

Q. WHAT ARE THE PER UNIT AFFECTED COSTS ASSOCIATED WITH RETAIL SALES FOR EACH SERVICE CATEGORY?

A. The per unit affected retail costs for each retail service category are:

Residential	$1.36 per month per line;
Business	$1.60 per month per line;
Usage	$0.01006 per minute; and
Advanced	$4.30 per month per line.

Q. HOW WAS THE SECOND COMPONENT OF AVOIDED RETAIL COSTS, SUBSTITUTE RESALE COSTS, CALCULATED?

A. Since retail services have not yet been offered for resale for any length of time, their substitute costs cannot be measured directly. Instead, GTE's substitute costs associated with offering service on a wholesale, rather than a retail, basis were calculated by determining the affected costs of an existing wholesale service similar in nature to the services to be offered at resale.

Q. WHAT EXISTING WHOLESALE SERVICES WERE USED TO CALCULATE SUBSTITUTE RESALE COSTS?

A. The offering of local residential, local business, and advanced services for resale was assumed to be analogous to the current wholesale provision of special access service. The wholesale offering of retail usage services was assumed to be analogous to the current provision of originating and terminating switched access.

Q. WHY DID YOU CHOOSE THESE PARTICULAR EXISTING SERVICES AS PROXIES FOR RESALE SERVICES?

A. Special and switched access services are existing wholesale services provided through a well-established provisioning process. As such, they constitute GTE's most accurate information on the cost of the wholesale provision of line-based and usage-based services. Special access is a logical choice as a proxy for the retail line-based service, because it is also line-based. Likewise, switched access is a logical

choice as a proxy for all usage services.

Q. WHAT EXISTING WHOLESALE SERVICE DID YOU USE AS A PROXY FOR THE RESALE OF VERTICAL FEATURES?

A. GTE was not able to identify an existing wholesale service corresponding to the offering of vertical features for resale. Consequently, an alternative approach, which I will describe later, was used to estimate these substitute resale costs.

Q. WHAT WAS THE FIRST STEP IN CALCULATING SUBSTITUTE RESALE COSTS?

A. The workcenters were examined to see which ones were applicable. In the case of substitute resale costs, the affected workcenters are organized within the carrier line of business. A workcenter was included in the Avoided Cost Study if it was part of the wholesale access structure.

Once the workcenters applicable to substitute resale costs were determined, the affected costs were distributed among resale service categories using essentially the same methodology I described earlier for the retail workcenters. Sufficient information was not available to assign costs directly to specific service categories. Consequently, the relative revenue rule was used to assign costs according to carrier revenues.

The assignment of substitute resale costs for all included workcenters is displayed along with the retail affected costs in Attachment V, page 1. The Access column contains the affected costs of providing originating and terminating switched access, which serves as a proxy for the costs of offering switched services, such as intraLATA toll service, for resale. The Advanced column contains the affected costs relating to both retail and wholesale workcenters.

Q. HOW WAS THIS INFORMATION USED TO CALCULATE THE SUBSTITUTE COSTS PER UNIT FOR RESALE SALES?

A. The units for the Advanced and Access wholesale service categories are shown on page 2 of Attachment V of the Avoided Cost Study. The per unit substitute costs of Advanced services were determined by dividing total substitute costs by the corresponding number of lines. Likewise, the per unit substitute costs for access services are calculated by dividing total substitute costs by the corresponding number of minutes.

Q. WHAT ARE THE PER UNIT RESALE SUBSTITUTE COSTS FOR EACH OF THE TWO PROXY SERVICE CATEGORIES?

A. The per unit substitute resale costs for each category are:

Access	$0.00414 per minute, and
Advanced	$0.53 per month per line.

Q. **PLEASE EXPLAIN THE DEVELOPMENT OF THE AVOIDED COST RESULTS.**

A. Avoided retail costs are defined as the difference in total costs with and without the offering of service for resale. Thus, avoided retail costs are equivalent to the affected retail costs less the substitute resale costs. Since both of these components were calculated on the same per unit basis, the avoided cost results for each retail service category were simply determined by subtraction. The avoided cost results are:

- GTE's avoided retail costs of providing local residential service for resale are equal to $1.36 (affected retail costs) less $0.53 (substitute resale costs), or $0.83 per line per month.

- GTE's avoided retail costs of providing local business service for resale are equal to $1.60 (affected retail costs) less $0.53 (substitute resale costs), or $1.06 per line per month.

- GTE's avoided retail costs of providing intraLATA toll service for resale are equal to $0.01006 (affected retail costs) less $0.00414 (substitute resale costs), or $0.00592 per minute.

- GTE's avoided retail costs of providing advanced services for resale are equal to $4.30 (affected retail costs) less $0.53 (substitute resale costs), or $3.77 per line per month.

Q. HOW WAS THE AVOIDED COST DISCOUNT FOR VERTICAL FEATURES DETERMINED?

A. Since GTE was unable to identify an existing service whose costs would approximate the cost of providing vertical features, it was not possible to calculate avoided costs for vertical features offered for resale. The best alternative available was to apply avoided cost relationships associated with basic exchange services. Thus, the avoided cost discount rates for residential and business basic exchange service were used to approximate the relative avoided costs for vertical features. Consequently,

- the avoided cost discount rate for residential vertical features was set equal to the avoided cost discount of local residential service, 6.6 percent;

- the avoided cost discount rate for business vertical features was set equal to the avoided cost discount of local business service, 5.5 percent; and

- the avoided cost discount rate for vertical features not segregated in the tariff as either residential or business was set equal to the composite avoided cost discount of local residential and business services, 6.2 percent.

Q. WHAT WAS THE BASIS FOR THE CALCULATION OF GTE'S PROPOSED WHOLESALE RATES?

A. I relied on the pricing rules presented in the testimony of GTE witness Dr. Doane. Generally, the wholesale price for a resale service can be calculated as the retail price for that service less the avoided retail costs.

In the case of basic exchange access services, however, an adjustment to costs should be made to acknowledge the foregone contribution associated with complementary services, such as intraLATA toll service. As explained in Dr. Doane's testimony, the ALEC reseller is very likely to package and self-provision intraLATA toll with the resold local exchange service, rather than purchase intraLATA toll from GTE for resale. Therefore, the "bundle" of services resold includes not only basic exchange access, but also profitable intraLATA toll.

Q. HAVE YOU DONE ANY ANALYSIS TO QUANTIFY THE OPPORTUNITY COST THAT ARISES FROM TOLL CONTRIBUTION LOSSES WHEN BASIC EXCHANGE ACCESS SERVICES ARE PROVIDED BY GTE TO AN ALEC FOR RESALE?

A. Yes. In performing the analysis, I first determined the average intraLATA toll revenue and minutes for GTE's current retail customers by type of local service. I then calculated the current level of contribution from intraLATA toll service, based on the cost studies

which have been filed by GTE. I then converted the average toll minutes per customer to access minutes, based on the assumption that in a resale scenario the ALEC reseller would self-provision intraLATA toll and pay switched access to GTE instead. Finally, I calculated the level of contribution that would be provided by the substitute access service, again based on the cost studies filed in this docket.

This analysis is summarized and provided with my testimony as Exhibit No. DEW-1. The resale opportunity cost for each basic exchange access service is calculated as the difference between the current toll margin per line and the access margin per line.

Q. BASED ON THE PRECEDING DISCUSSION AND ANALYSIS, WHAT ARE YOUR PROPOSED WHOLESALE RATES FOR THE BASIC EXCHANGE ACCESS SERVICES UNDER DISCUSSION?

A. For all basic local exchange services the proposed wholesale rates should be determined, using the pricing rules proposed by Company witness Doane and the contribution analysis above, as follows:

(1) the retail price,

less (2) the avoided costs per line from the Avoided Cost Study,

plus (4) toll opportunity cost (toll contribution),

less (5) access opportunity gain (access contribution).

Q. DR. DOANE DISCUSSES TWO EXCEPTIONS THAT MAY AFFECT THE ASSESSMENT OF FOREGONE TOLL CONTRIBUTION UNDER THE RESALE SCENARIO YOU HAVE JUST DISCUSSED. WOULD YOU PLEASE IDENTIFY THEM?

A. Yes. First, it is possible that an ALEC reseller such as Sprint has self-provided toll service to the end user prior to the time resale was initiated. In this case, GTE would not experience any further foregone toll contribution. Second, the ALEC reseller may not actually self-provision toll service. In this case, GTE would continue to provide intraLATA toll, and again there would be no opportunity loss.

Q. HAVE YOU ACCOUNTED FOR THESE SITUATIONS IN YOUR ANALYSIS, BOTH OF WHICH WOULD OFFSET GTE'S RESALE OPPORTUNITY LOSSES TO SOME DEGREE?

A. No, the analysis assumes that the ALEC reseller will self-provide intraLATA toll 100 percent of the time. To properly accommodate these situations, I propose to establish a credit rate equal to the opportunity cost I included in the calculation of the resale price for each basic exchange access service. This "toll provider credit" would be a MRC. Upon certification by the ALEC local reseller that it was the toll provider prior to the authorization of local resale, GTE will apply the toll provider credit rate to the account. Likewise, upon certification that the ALEC local reseller is not also the toll provider for the end user customer, GTE will apply the same toll provider

credit. This procedure is administratively simple for both the ALEC and GTE, and properly addresses both of the exception conditions.

Q. WOULD THE PROPOSED TOLL PROVIDER CREDIT REMAIN CONSTANT OVER TIME, OR WOULD YOU RECOMMEND THAT IT BE ADJUSTED PERIODICALLY?

A. The toll provider credit should vary over time with changes in the levels of the underlying toll and access contributions. Inasmuch as local, toll and access rates will be rebalanced over time, the toll provider credit should be adjusted whenever toll and access rates are adjusted. Ultimately, the toll provider credit will be replaced entirely by rebalanced rates for both retail and resale services.

Q. WHAT RATES DO YOU PROPOSE FOR USAGE RELATED SERVICES, INCLUDING MEASURED LOCAL SERVICE, EAS AND INTRALATA TOLL, AND HOW ARE THEY DEVELOPED?

A. The Usage services category of the Avoided Cost Study includes all of these services. For this category, the results of the Avoided Cost Study are expressed as a discount rate of 7.1 percent to be applied to the various retail prices. As there are no additional opportunity costs associated with offering these usage services for resale, the proposed rates are based on the retail price less avoided costs.

Q. WHAT ARE YOUR PROPOSED WHOLESALE RATES FOR VERTICAL FEATURES, INCLUDING VERTICAL SERVICES,

CENTRANET® BASIC FEATURE PACKAGES, AND COCOT FEATURES, AND HOW ARE THEY DEVELOPED?

A. The Vertical features category of the Avoided Cost Study includes all of these services. For this category, the results of the Avoided Cost Study are expressed as a set of discount rates to be applied to the respective retail prices:

Residential vertical features	6.6%
Business vertical features	5.5%
Composite	6.2%

The composite discount rate is applied to vertical feature offerings that are not offered separately in the tariff as either residence or business features. As there are no additional opportunity costs associated with offering vertical features for resale, the proposed rates are based on the retail price less avoided costs.

III. THE MODIFIED AVOIDED COST STUDY

Q. DID GTE PERFORM ANOTHER TYPE OF AVCIDED COST STUDY?

A. Yes. GTE's second study is a modification of the MCI avoided cost study, which the FCC relied upon, in part, to calculate its default avoided cost discount range. GTE has modified certain inputs to the ARMIS-based model used in preparing this study to properly identify avoided costs in accordance with the FCC's proposed avoided cost

criteria. As I discussed above, GTE strongly believes that its Avoided Cost Study best reflects the intent of the Act, and offers this Modified Avoided Cost Study as an alternative to be used only if the FCC's rules on avoided costs are held to be lawful.

Q. PLEASE DESCRIBE THE MCI MODEL, AS EMPLOYED BY THE FCC.

A. Generally speaking, the MCI model is an ARMIS-based model which has been used by the FCC and others to greatly simplify the determination of avoided retail expenses. I refer to the model as "ARMIS-based" because it applies avoided cost factors to ARMIS data as filed with the FCC by the LECs according to established reporting requirements.

In the model, both direct and indirect expense allocations are performed. Direct expenses are those marketing and customer service expenses reported in accounts 6611, 6612, 6613, 6621, 6622 and 6623. In its proposed rules, lacking any specific actual study data, the FCC designated that expenses in accounts 6621 and 6622 would be presumed 100% avoidable, and expenses in the remaining accounts would be presumed 90% avoidable. These were cast by the FCC as rebuttable assumptions.

Indirect expenses generally include support and overhead expenses, which the FCC found to be presumptively avoidable in the same

proportion as direct expenses to total expenses. The model performs the necessary allocations internally, based on the treatment of direct expenses.

Q. WOULD YOU PLEASE DESCRIBE YOUR PREVIOUS WORK WITH AVOIDED COST STUDY MODELS?

A. Yes. I have worked with various AT&T and MCI models continuously since June, 1996. AT&T and MCI filed testimony in California supporting their studies; MCI's testimony was later withdrawn *(Rulemaking on the Commission's Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks, R. 93-04-003 and I. 93-04-002)*. MCI's model filed in California was the same model filed by MCI with the FCC in response to the NPRM, which the FCC relied upon for its analysis which is discussed in the First Report and Order. GTE's Modified Avoided Cost Study was designed based in part on this analysis. A comparative analysis between MCI's model and GTE's Modified Avoided Cost Study is included as Exhibit No. DEW-2 with this testimony.

Q. PLEASE IDENTIFY GTE'S MODIFICATIONS TO THE ARMIS-BASED STUDY MODEL.

A. Three basic modifications were made to data inputs used in GTE's Modified Avoided Cost Study; the model itself was not altered, and

GTE believes it conforms, as presented, with the FCC's proposed avoided cost criteria.

The three principal modifications are as follows:

1) GTE developed allocators for direct expenses in the model, based on analysis of actual costs. These allocators are used in place of the FCC's presumptions of either 90% or 100% avoidable for each of the six direct expense accounts. A detailed study proves the validity of GTE's replacement allocators;

2) Revenues for services to which the avoided cost discount rate is not to be applied were identified and subtracted from operating revenues to determine the appropriate revenue base for calculating the resale discount rate; and

3) Plant-related expenses, return and taxes were identified as attributable to avoidable land and support assets, and included as avoidable costs. These elements were apparently not included in the FCC's analysis using the MCI model.

Q. PLEASE DESCRIBE THE DETAILED STUDY USED BY GTE TO DEVELOP THE DIRECT EXPENSE ALLOCATORS INPUT TO THE ARMIS-BASED MODEL.

A. This study was developed for the purpose of determining an "avoided retail expense" factor to be applied in the ARMIS model to each of the six direct expense accounts. The FCC's preliminary analysis established and applied presumptive factors for this purpose.

The study was based on the same workcenter cost detail used in GTE's Avoided Cost Study. Workcenters were grouped by function to facilitate a determination of activities that could reasonably be expected to be avoided in a resale environment. Generally, the costs for each workcenter were either classified as "all avoided" or "none avoided"; the allocation of "sales" workcenter expenses is the only exception to this general approach. Avoided expenses identified in this way were then summarized by account, and divided by total expenses excluding "General and Administrative" and "Support" workcenter costs to determine the avoided retail percent by account.

Q. PLEASE IDENTIFY THE KEY AVOIDED COST ASSUMPTIONS UNDERLYING THIS STUDY, AND GIVE THE RATIONALE FOR EACH.

A. The key assumptions and rationale inherent in the study are as follows:

1) Carrier Access expenses recorded in account 6623 are not avoided costs, since access services are not offered for

resale, and the associated expenses are not included in the retail rates for services that are offered for resale.

2) Public Telephone expenses recorded in account 6623 are not avoided costs because they are similar in nature to expenses in Account 6351 discussed in Paragraph 927 of the FCC's First Order and Report. The FCC states that these expenses are not avoided because "they are unrelated to the retail services being discounted." The FCC further explains that it "would not expect these expenses to be included in retail service rates for resold services; but if these expenses were included in retail rates, they would not be avoided when the services are purchased by resellers."

3) Service ordering costs recorded in account 6623 are not avoided costs, because ordering activities will still be required to provide retail services to ALECs for resale. Services will be ordered by ALECs in virtually the same manner as retail services are presently ordered by end user customers. Any efficiencies attributable to the wholesale nature of the ordering process will be nominal, and are offset at least in part by additional ordering activities required as part of the wholesale ordering process.

4) Operator services expenses are not avoided, since there are

separate tariff rates for operator services (i.e., the services are offered on an unbundled basis today), and the associated expenses are not included in the rates for other retail services offered for resale. The FCC erred when they allowed that operator services expense avoidance was somehow dependent upon whether an ALEC uses their own operators; in fact, this option has nothing to do with avoided costs.

5) Product Management expenses are not avoided, since product planning, product development and product rollout activities, which account for the preponderance of expenses recorded in this account, are required regardless of whether the products are offered at retail or wholesale. This assertion is further proven simply by observing that the reseller incurs none of these types of expenses, and so to the extent that product planning, development and introduction occurs, the associated costs will continue to be borne by GTE and will not be avoided.

Q. WOULD YOU PLEASE ELABORATE ON GTE'S POSITION ON THE TREATMENT OF OPERATOR AND DIRECTORY ASSISTANCE SERVICE COSTS IN THE AVOIDED COST STUDY?

A. GTE proposes to offer tariffed operator services and directory assistance services for resale on the same terms and at the same rates as the corresponding retail offerings. This position is justified based on the fact that there are no costs that can reasonably be

avoided when the services are offered for resale; the services are offered and provided in the same manner, and require the same activities, whether provided on a wholesale or a retail basis. Except for any DA call allowance bundled with basic exchange service, the costs for these services are recovered through separate rates, and are not included in the rates for other services offered for resale. Therefore, it is appropriate to reflect that none of the costs for operator services can reasonably be avoided. As a further concession, operator services revenues have been removed from the revenue base for the calculation of the avoided cost discount rate in GTE's Modified Avoided Cost Study. The services will be made available for resale, but there is no basis for a wholesale rate that differs from the retail rate, because there are no avoided costs.

Q. WHY SHOULD OPERATOR COSTS *NOT* BE TREATED AS AVOIDABLE WHEN A REQUESTING CARRIER CLAIMS TO HAVE PLANS TO USE ITS OWN OPERATORS?

A. Any line of reasoning to the contrary is flawed because it confuses costs of production with retailing costs. The intent of the resale entry option is to permit prospective resellers to buy services on a wholesale basis, and provide their own retailing functions to compete as an end-user service provider. To that end, the FCC has established rules to determine the costs avoided by ILECs when they offer the service on a wholesale basis, and the reseller provides the retailing function. Sprint's witness defines avoidable costs as costs

that the ILEC does not incur when they sell the service on a wholesale basis; the assumption implicit in this definition is that the service is produced by the ILEC in either case, retail or wholesale.

Under the flawed reasoning that operator costs should somehow be considered avoidable, (1) the identification of avoided costs is confounded by including costs incurred by GTE to produce operator services, not retail them, and (2) this artificial inflation of avoided costs is then leveraged into a higher discount rate that will apply to other services the requesting carrier may buy for resale. Sprint may well decide to provide operator services using their own operators, but this would simply mean that they will not purchase any of the separately tariffed operator services offered by GTE. It has nothing at all to do with costs that can reasonably be avoided if GTE offers service on a wholesale basis instead of on a retail basis, which is the definition of avoided costs.

Q. WOULD YOU NOW PLEASE DESCRIBE EXHIBIT NO. DEW-2?

A. Yes. This exhibit presents a comparison of the MCI model used by the FCC in their avoided cost analysis, and GTE's Modified Avoided Cost Studies for the GTE Florida tariff entity. The comparison is based on four iterations of an avoided cost study presented side by side so the changes from one iteration to the next can be easily identified.

The first iteration shows the MCI calculations in the form submitted to the FCC, and is included only to help clarify the changes the FCC made when they used MCI's model in their analysis. MCI's submission to the FCC included avoided cost data from four GTE states (Washington, California, Texas and Florida), which when composited together produced the FCC's 18.81% avoided cost estimate for GTE. Page 1 of Exhibit No. DEW-2 displays the summary results of calculations shown on pages 2 through 4, and would result in an avoided cost discount of 26.33% for example.

The second iteration shows the results from MCI's ARMIS model as modified by the FCC, including the FCC's presumptions of avoided costs for each of the ARMIS "direct expense" accounts; these modifications are described in the FCC's First Report and Order. With these changes, the FCC's avoided cost discount for the GTE Florida tariff entity, for example, would be 17.27%.

The third iteration presents the avoided cost calculation based on the FCC's model, and changing *only* the factors applied to the direct expense accounts. Allocation factors resulting from analysis of actual financial records at the necessary level of detail (Part 1 of the Modified Avoided Cost Study) were used in place of the FCC's presumptive factors of either 90% or 100%. This iteration would produce an avoided cost discount of 7.83% for GTE Florida, and

demonstrates the considerable significance of the allocation factors applied to the direct expense accounts.

The final iteration is GTE's Modified Avoided Cost Study as filed in GTE's response to AT&T's request for arbitration. The study makes further changes to address issues discussed by the FCC but not included in their analysis, such as uncollectibles. The study as filed results in an avoided cost discount of 11.25% for the GTE Florida tariff entity. Because of the nature of a number of concessions incorporated in this analysis, this avoided cost study should be viewed as an upper bound on the range of costs GTE can reasonably be expected to avoid when services are offered for resale.

Q. WHY WOULD IT BE INAPPROPRIATE TO USE THE FCC'S PRESUMPTIVE AVOIDED COST FACTORS?

A. The FCC created their presumptions about avoided direct expenses for the purpose of establishing a default avoided cost discount range, and nothing more. The FCC made their intent clear when they stated at paragraph 909 of the First Report and Order that "our rules for identifying avoided costs are cast as rebuttable presumptions", and further clarified their expectations at paragraph 917, stating that "(t)hese presumptions regarding accounts 6611-6613 and 6621-6623 may be rebutted if an incumbent LEC proves to the state commission that specific costs in these accounts will be incurred with respect to

services sold at wholesale, or that costs in these accounts are not included in the retail prices of the resold services."

Q. WHAT IS THE AVOIDED COST DISCOUNT RATE INDICATED BY GTE'S MODIFIED AVOIDED COST STUDY?

A. The avoided cost discount rates calculated using the ARMIS-based model is as follows:

GTE Florida	11.25%

IV. COMPARISON OF RESULTS

Q. HAVE YOU PREPARED A COMPARISON OF THE RESULTS OF GTE'S STUDIES WITH FCC'S AVOIDED DISCOUNT RATE FOR GTE OVERALL?

A. Yes. For the purposes of this comparison, GTE's Avoided Cost Study results by service category are composited together into one discount factor (GTE's study results are not to be applied in this manner; this is done simply to facilitate a comparison of the various avoided cost proposals).

The results are tabulated as follows:

GTE's Avoided Cost Study	7.00%
Modified Avoided Cost Study:	
GTE Florida	11.25%

FCC's Estimated Avoided Costs

for GTE 18.81%

Q. DO YOU AGREE WITH SPRINT'S CLAIMS THAT GTE HAS NOT PROVIDED AVOIDED COST STUDIES THAT SATISFY THE REQUIREMENTS OF THE ACT AND THE ORDER?

A. No, I do not. The studies I have described in this testimony were prepared in direct response to the Act and the FCC's First Report and Order. GTE's Avoided Cost Study conforms precisely with the "avoided cost" standard established in the Act. Sprint prefers the "avoidable cost" standard created by the FCC, which GTE believes is not in conformance with the Act, either in spirit or in word. Nonetheless, GTE's Modified Avoided Cost study was prepared to conform precisely with the FCC's "avoidable cost" requirements, and addresses all of the requirements identified in Sprint's testimony.

Q. HAS SPRINT BEEN PROVIDED ACCESS TO THESE STUDIES?

A. As I stated earlier, both studies were included in the Company's response to Sprint's request for arbitration. In addition, it is my understanding that GTE's Avoided Cost Study was provided to Sprint early this past summer, during the course of negotiations.

Q. WHAT AVOIDED COST DISCOUNT RATE HAS SPRINT RECOMMENDED?

A. Sprint has no specific recommendation for an avoided cost discount rate. Sprint has identified the default discount rates calculated by the FCC in the First Report and Order, but cautions that "the FCC's proxies are to be used only in the interim period while appropriate cost studies are being conducted."

Q. ARE YOU AWARE OF ANY POSITIONS PREVIOUSLY TAKEN BY SPRINT WITH RESPECT TO SPECIFIC AVOIDED COST DISCOUNT RATES?

A. Yes, I am. In the California OANAD docket to which I referred earlier in my testimony, Sprint's witness Mr. David S. Brevitz observed that GTE California's avoided cost estimations were consistent with those made in other states, and stated that "United Telephone-Southeast recently filed in Tennessee a detailed avoided cost analysis that indicate net avoided costs of $.91 per month per access line (5.71% of retail revenues) and 10.41% of retail revenues for other services" (Direct testimony at 46). A copy of Mr. Brevitz's testimony is included in GTE's response to Sprint's request for arbitration. Mr. Brevitz further stated that "(r)esale discounts of the size identified by GTEC and the United/Tennessee studies are appropriate for the Commission to adopt" (Direct testimony at 46).

Q. WHAT AVOIDED COST STUDY, REFERRED TO BY MR. BREVITZ, WAS USED IN SUPPORT OF GTE CALIFORNIA'S PROPOSALS IN THAT DOCKET?

A. The Avoided Cost Study filed in that docket was GTE's Avoided Cost Study, the same study GTE is recommending be used in this docket to set prices for all services offered at wholesale rates for resale.

Q. SPRINT ALSO RECOMMENDS THAT AVOIDED COST STUDIES SHOULD BE DESIGNED USING AT LEAST FIVE SERVICE CATEGORIES, DESIGNED TO RECOGNIZE THE POTENTIALLY DIFFERENT AVOIDED COST CHARACTERISTICS EXHIBITED BY DIFFERENT TYPES OF SERVICES. DO YOU AGREE?

A. Yes. In fact, GTE's Avoided Cost Study was designed, for precisely that reason, based on five resale service categories. GTE's five service categories are not defined in precisely the same manner as the five categories Sprint suggests, but they do address the same objective. It should be noted that little flexibility exists to define numerous service categories for study, or to expect that all ILECs could prepare a study using precisely the same categories. The reason for this limitation is simply that the management information necessary to support such a study is not readily available in general from an ILEC's pre-wholesale operations. Therefore the definition and number of service categories is dependent upon how much information is available at that level of detail for use in the avoided cost study.

V. RESALE

Q. WHAT IS GTE'S POSITION REGARDING RESALE RESTRICTIONS?

A. GTE seeks to have several resale restrictions and conditions established in the course of this proceeding in accordance with guidelines and procedures established by the FCC. It is GTE's position that the need for certain resale restrictions is contemplated by the FCC's Part 51 Rules, and authority is reserved to the state commission to permit specific resale restrictions that are reasonable and non-discriminatory. GTE's specific proposals for resale restrictions should, therefore, not be dismissed out of hand based on representations that resale restrictions are prohibited by the FCC's Rules.

GTE will offer for resale at wholesale rates all of the services it currently offers on a retail basis except for: below-cost services, promotional services, services that are already provided on a wholesale basis, non-recurring charge services, pay phone lines, semi public pay phone lines, and COCOT coin and coinless lines. The specific resale restrictions proposed by GTE can be classified into two groups: (1) services that GTE will not agree to offer for resale; and (2) services that GTE will not agree to offer for resale at wholesale rates.

Q. CAN YOU OFFER A COMPREHENSIVE SUMMARY OF THE PROVISIONS FOR RESALE RESTRICTIONS THAT ARE INCLUDED IN THE FCC'S PART 51 RULES?

A. Yes. The FCC's Part 51 Rules state that an ILEC shall not impose restriction on resale except as explicitly allowed. The following types of resale restrictions are expressly provided for by the Rules:

(1) Cross-class selling. When purchasing for resale services the ILEC offers only to residential customers (or to a limited class of residential customers) a requesting carrier may be prohibited from offering service to customers not eligible to subscribe to the service from the ILEC;

(2) Withdrawn (grandfathered) services. ILEC services offered only to a limited group of customers who subscribed to such a service in the past must also be offered at wholesale rates to requesting carriers for resale to the same limited group of customers;

(3) Promotions. An ILEC is not required to discount special promotional rates, provided such rates will not be in effect for more than 90 days; and

(4) Otherwise, an ILEC may impose such a restriction by proving to the state commission that the restriction is reasonable and nondiscriminatory.

It is important to acknowledge that this fourth provision of the FCC's Part 51 Rules contemplates that further resale restrictions may be required and reserves to the state commission the authority to permit further restrictions that are reasonable and nondiscriminatory.

Q. WHAT SERVICES WILL GTE NOT AGREE TO OFFER FOR RESALE?

A. GTE will not offer for resale the following services:

(1) Services priced below cost. Under GTE's current rates, certain services are priced below cost. These services receive contributions from other services, such as intraLATA toll, access, and vertical and discretionary services, all of which are priced above incremental cost. If GTE were required to offer its below-cost services on a wholesale basis, then other carriers would: (1) obtain avoided-cost discounts for both below-cost and above-cost services; and (2) be able to pocket the contributions from the above-cost services that had been used to price the other services below-cost. Accordingly, GTE could not cover its total costs unless these services are

excluded from GTE's wholesale offerings or are repriced to cover their costs.

It is noteworthy that the FCC "declined to limit" resale offerings to exclude below-cost services, but did not prohibit a resale restriction.

(2) Any promotional offerings. GTE should not be required to offer services such as promotions on a wholesale basis; otherwise, GTE would not be able to differentiate its retail services from those of competing carriers. Put another way, a competitor will be able to offer any service it wants on any terms and conditions it desires to attract new customers, and GTE needs this same flexibility to respond to competition on a retail basis and give its customers more choices.

For example, if GTE offers a special promotion to its customers but is required to provide that same promotion to Sprint on an avoided-cost basis, then GTE could never differentiate its offerings from those of Sprint. Importantly, GTE would have absolutely no incentive to develop additional promotions and other new services that would benefit customers because Sprint could take and use them for its own marketing and economic advantage. In fact, GTE could never differentiate its offerings from Sprint's. This result is contrary

to the purpose of the Act by limiting choices to customers. The Act should be implemented in a manner that allows all carriers to respond to competition, including GTE.

It is noteworthy that if all avoided costs are properly reflected in the wholesale price for the underlying service, then promotional offerings have no anti-competitive implications, regardless of the duration of the offering.

(3) Public pay telephone lines. These are not retail service offerings.

(4) Semi-public pay telephone lines. There are a number of reasons why GTE will not agree to offer these services for resale. The most prominent reason is that GTE will not agree to offer for resale the coin station apparatus essential to the service offering as it is currently defined. In addition, the service is not currently priced to support maintenance and collection activities desired without substantial support from toll collections.

(5) GTE will not agree at this time to offer all future AIN-based services for resale. It is my understanding that issues requiring further discussion involve trigger access to a competing carrier's network platform and services. However,

AIN services that are currently offered in GTE's retail tariffs will be offered for resale at wholesale rates.

Q. **WHAT SERVICES WILL GTE NOT AGREE TO OFFER FOR RESALE AT WHOLESALE RATES?**

A. GTE will offer for resale, but not at wholesale rates, the following services:

(1) Any services already priced at wholesale rates. Such services include special access and private line services tariffed under the special access tariff, and COCOT coin and coinless lines.

(2) Operator services and directory assistance services. Because the provision of these services requires the same activities to be performed whether offered on a retail or a resale basis, there are no avoided costs for these services. As previously discussed, except for the DA call allowance bundled with the basic local service offering, the costs for these services are recovered through separate rates, and are not included in the rates for other services offered for resale.

(3) Non-recurring charge services. There are no associated costs that can reasonably be expected to be avoided for these offerings. Therefore, the rates for primary service ordering and installation should not be based on the application of an

avoided cost discount to the associated retail rate, but rather on an appropriate study reflecting the costs of the wholesale provisioning process.

Q. ARE THERE ANY OTHER RESALE RESTRICTIONS OR CONDITIONS THAT GTE IS PROPOSING AT THIS TIME?

A. Yes. A requesting carrier should not be permitted to purchase unbundled loop and unbundled port services in combination at unbundled service rates for the purpose of avoiding a higher resale rate. The FCC certainly did not intend to enable this sort of tariff arbitrage when they stated that the requesting carrier should be able to combine unbundled elements in any way they wish. It is GTE's position that unbundled loop and port services purchased in combination constitutes the purchase of basic local services for resale, and should be priced accordingly.

Q. WHAT IS GTE'S POSITION WITH RESPECT TO THE OFFERING OF VOICEMAIL AND INSIDE WIRE SERVICES?

A. These services are not "telecommunications services" as defined in the Telecommunications Act of 1996 (the Act), and GTE is therefore not required to offer them for resale.

Q. WHAT IS GTE'S POSITION WITH RESPECT TO THE OFFERING OF CONTRACT SERVICES FOR RESALE?

A. Contract services are offerings that are made, by definition, on an individual case basis. A rational consideration of this issue requires that a distinction be drawn between existing contract services and new contract offers.

Existing contract services are offered under terms and conditions of a standing contract between a retail customer and GTE. Termination liabilities would be defined in the contract as necessary to protect GTE's investment to provide the service, and would apply if GTE's customer should choose to change to a different service provider during the term of the contract. GTE will not agree to offer existing contract services for resale at wholesale rates.

GTE will agree to offer new contract services for resale. Pricing for these services will be established on a nondiscriminatory individual case basis, and will reflect the avoidance of any costs that would only be associated with the retail provision of the same service.

Q. WHAT IS GTE'S POSITION WITH RESPECT TO SUBSCRIBER LINE CHARGES ASSOCIATED WITH RESALE SERVICES?

A. GTE intends to bill all associated subscriber line charges to the ALEC reseller. GTE assumes the ALEC will, in turn, bill its end-user customer a like amount.

VI. SUMMARY

Q. WOULD YOU PLEASE SUMMARIZE YOUR TESTIMONY?

A. Yes. Both of the avoided cost studies prepared by GTE produce results that are lower than the FCC's default avoided cost discount range of 17% to 25%.

Wholesale prices for resale services should be determined based on retail rates less avoided costs, as calculated using GTE's Avoided Cost Studies. The FCC's avoided cost discounts both are artificially high and economically burdensome.

Also considered in developing the resale rates for basic exchange services is the fact that resellers do not generally endeavor to sell only the basic local service, but rather the entire bundle of services currently offered by GTE. GTE loses considerable contribution associated with any complementary services, notably intraLATA toll, and this lost contribution is properly included as an opportunity cost in developing the proposed resale rates.

Finally, I have reviewed GTE's position with respect to various resale issues.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Table 1.
Resale Opportunity Cost Summary

Tariff Entity:
GTE Florida

Class of Service	Toll Contribution	Access Contribution	Resale Opportunity Cost
Residence	$1.83	$1.34	$.49
Business	$2.87	$2.11	$.76

Tariff Entity: GTFL
GTE Florida

GTE Avoided Cost Study
Analysis of MCI's ARMIS Model

Exhibit_____ DEW - 2

Source: ARMIS - FCC Report 4303 (Jan 95 - Dec 95, $000's omitted)		MCI's ARMIS model as filed			MCI's ARMIS model as modified by the FCC			FCC's ARMIS model using GTE's direct expense factors			GTE's modified avoided cost study		
Acct	Description	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses
		(a)	(b)	(c)=(a)*(b)	(d)	(e)	(f)=(d)*(e)	(g)	(h)	(i)=(g)*(h)	(j)	(k)	(l)=(j)*(k)
	SUMMARY:												
1	Total Operating Revenues												$1,289,837
2	plus Uncollectibles												$26,126
3	Total Revenues plus Uncollectibles												$1,295,063
4	less Network Access Revenues												$456,051
5	less Operator Services Revenues												$56,540
6	less Public Telephone Revenues												$14,468
7	less MTC/International Revenues												$0
8.1	Revenue Base for Resale Discount												$768,004
8.2	Total Operating Expenses	$908,638	(sum(a))		$908,638	(sum(d))		$908,638	(sum(g))				
	Avoided Reselling Costs:												
9	Marketing Expenses	$35,325	(p.7,l)		$31,793	(p.7,l)		$22,260	(p.7,l)		$22,260	(p.7,l)	
10	Customer Service Expenses	$97,666	(p.8,l)		$90,714	(p.8,l)		$33,282	(p.8,l)		$33,282	(p.8,l)	
11	Support Expenses	$26,354	(p.8,l)		$12,644	(p.8,l)		$8,732	(p.8,l)		$8,518	(p.8,l)	
12	Maintenance Expenses	$5,793	(p.4,l)		$0	(p.4,l)		$0	(p.4,l)		$0	(p.4,l)	
13	Access Expenses	$0	(p.6,l)		$0	(p.6,l)		$0	(p.6,l)		$0	(p.6,l)	
14	Depreciation Expenses	$0	(p.5,l)		$0	(p.5,l)		$0	(p.5,l)		$2,824	(p.5,l)	
15	Corporate Operations Expenses	$71,030	(p.9,l)		$21,773	(p.9,l)		$8,873	(p.9,l)		$14,689	(p.9,l)	
16	Other Expenses		(p.9,l)			(p.9,l)			(p.9,l)		$0	(p.9,l)	
17	Uncollectibles		(p.9,l)			(p.9,l)			(p.9,l)		$1,721	(p.9,l)	
18	Return and Taxes		(p.9,l)			(p.9,l)			(p.9,l)		$3,252	(p.9,l)	
19	Total Avoided Reselling Costs	$236,287	(p.6,c18)		$158,924	(p.6,c18)		$71,157	(p.6,c18)		$86,536	(p.6,c18)	
20.1	Percent Avoided Costs (Calculated to represent the discount rate applicable to retail prices in conformance with the Telecommunications Act of 1996.)											11.26%	(p.10-c20.1)
20.2	Percent Avoided Costs (Calculated to represent the ratio of total avoided retailing costs to total expenses.)	26.33%	(p.10-c20.2)		17.37%	(p.10-c20.2)		7.89%	(p.10-c20.2)				

Docket Nos. 961169-TP/961173-TP
Direct Testimony of Douglas E. Wellemeyer
Exhibit No. DEW-2
FPSC Exhibit No. _____

Tariff Entity: GTFL
GTE Florida

GTE Avoided Cost Study
Analysis of MCI's ARMIS Model

Exhibit_____ DEW - 2

Source: ARMIS - FCC Report 4303 (Jan 95 - Dec 95, $000's omitted)			MCI's ARMIS model as filed			MCI's ARMIS model as modified by the FCC			FCC's ARMIS model using GTE's direct expense factors			GTE's modified avoided cost study		
	Acct	Description	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses
			(a)	(b)	(c)=(a)*(b)	(d)	(e)	(f)=(d)*(e)	(g)	(h)	(i)=(g)*(h)	(j)	(k)	(l)=(j)*(k)
21		**Marketing Expenses**	$35,325		$35,325	$35,325		$31,793	$35,325		$22,260	$35,325		$22,260
22	6611	Product Management	$8,370	100.0000%	$8,370	$8,370	80.0000%	$6,733	$8,370	1.7600%	$112	$8,370	1.7600%	$112
23	6612	Sales	$17,454	100.0000%	$17,454	$17,454	80.0000%	$15,709	$17,454	64.2300%	$11,211	$17,454	64.2300%	$11,211
24	6613	Product Advertising	$11,501	100.0000%	$11,501	$11,501	80.0000%	$10,351	$11,501	95.1000%	$10,937	$11,501	95.1000%	$10,937
25		**Customer Service Expenses**	$97,888		$97,888	$97,888		$90,714	$97,888		$33,282	$97,888		$33,282
26	6621	Call Completion Services	$11,343	100.0000%	$11,343	$11,343	100.0000%	$11,343	$11,343	0.0000%	$0	$11,343	0.0000%	$0
27	6622	Number Services	$14,988	100.0000%	$14,988	$14,988	100.0000%	$14,988	$14,988	24.3000%	$3,645	$14,988	24.3000%	$3,645
28	6623	Customer Service	$71,525	100.0000%	$71,525	$71,525	80.0000%	$64,373	$71,525	41.4900%	$29,647	$71,525	41.4900%	$29,647
29		**Support Expenses**	$83,313		$26,354	$83,313		$12,644	$83,313		$5,732	$83,313		$8,518
30	6110	Network Support Expenses	(5468)			(5468)			(5468)			(5468)		
31	6112	Motor Vehicles	$1,486	0.0000%	$0	$1,486	0.0000%	$0	$1,486	0.0000%	$0	$1,486	0.0000%	$0
32	6113	Aircraft	$817	100.0000%	$817	$817	0.0000%	$0	$817	0.0000%	$0	$817	0.0000%	$0
33	6114	Special Purpose Vehicles	$3	0.0000%	$0	$3	0.0000%	$0	$3	0.0000%	$0	$3	0.0000%	$0
34	6115	Garage & Work Equipment	$55	0.0000%	$0	$55	0.0000%	$0	$55	0.0000%	$0	$55	0.0000%	$0
35	6116	Other Work Equipment	($2,827)	0.0000%	$0	($2,827)	0.0000%	$0	($2,827)	0.0000%	$0	($2,827)	0.0000%	$0
36	6120	General Support Expenses	$83,779			$83,779			$83,779			$83,779		
37	6121	Land & Buildings	$29,495	29.3631%	$8,661	$29,495	13.4825%	$3,977	$29,495	6.1139%	$1,803	$29,495	9.0834%	$2,679
38	6122	Furniture & Artworks	$2,248	29.3631%	$660	$2,248	13.4825%	$303	$2,248	6.1139%	$137	$2,248	9.0834%	$204
39	6123	Office Equipment	$4,734	29.3631%	$1,390	$4,734	13.4825%	$638	$4,734	6.1139%	$289	$4,734	9.0834%	$430
40	6124	General Purpose Computers	$57,302	29.3631%	$16,826	$57,302	13.4825%	$7,726	$57,302	6.1139%	$3,503	$57,302	9.0834%	$5,205
41		**Maintenance Expenses**	$214,164		$5,793	$214,164		$0	$214,164		$0	$214,164		$0
42	6210	Central Office Switching	$54,673	0.0000%	$0	$54,673	0.0000%	$0	$54,673	0.0000%	$0	$54,673	0.0000%	$0
43	6220	Operator Systems	$4,462	0.0000%	$0	$4,462	0.0000%	$0	$4,462	0.0000%	$0	$4,462	0.0000%	$0
44	6230	Central Office Transmission	$5,445	0.0000%	$0	$5,445	0.0000%	$0	$5,445	0.0000%	$0	$5,445	0.0000%	$0
45	6310	Information Org/Term Expenses	$10,385			$10,385			$10,385			$10,385		
46	6311	Station Apparatus	$0	0.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0
47	6341	Large PABX	$0	100.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0
48	6351	Public Telephone Equipment	$3,428	100.0000%	$3,428	$3,428	0.0000%	$0	$3,428	0.0000%	$0	$3,428	0.0000%	$0
49	6362	Other Terminal Equipment	$6,957	0.0000%	$0	$6,957	0.0000%	$0	$6,957	0.0000%	$0	$6,957	0.0000%	$0
50	6410	Cable & Wire Facilities	$80,539	0.0000%	$0	$80,539	0.0000%	$0	$80,539	0.0000%	$0	$80,539	0.0000%	$0
51	6510	Other PP&E Expenses	$2,385			$2,385			$2,385			$2,385		
52	6511	Property Held for Future Use	$0	100.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0
53	6512	Provisioning	$2,385	100.0000%	$2,385	$2,385	0.0000%	$0	$2,385	0.0000%	$0	$2,385	0.0000%	$0
54	6530	Network Operations Expenses	$76,085			$76,085			$76,085			$76,085		
55	6531	Power	$8,488	0.0000%	$0	$8,488	0.0000%	$0	$8,488	0.0000%	$0	$8,488	0.0000%	$0
56	6532	Network Administration	$18,814	0.0000%	$0	$18,814	0.0000%	$0	$18,814	0.0000%	$0	$18,814	0.0000%	$0
57	6533	Testing	$22,283	0.0000%	$0	$22,283	0.0000%	$0	$22,283	0.0000%	$0	$22,283	0.0000%	$0
58	6534	Plant Operations Administration	$19,602	0.0000%	$0	$19,602	0.0000%	$0	$19,602	0.0000%	$0	$19,602	0.0000%	$0
59	6535	Engineering	$8,910	0.0000%	$0	$8,910	0.0000%	$0	$8,910	0.0000%	$0	$8,910	0.0000%	$0

Docket Nos. 961169-TP/961173-TP
Direct Testimony of Douglas E. Wellemeyer
Exhibit No. DEW-2
FPSC Exhibit No. _____

Tariff Entity: GTFL
GTE Florida

GTE Avoided Cost Study
Analysis of MCI's ARMIS Model

Exhibit_____ DEW - 2

Source: ARMIS - FCC Report 4303 (Jan 95 - Dec 95, $000's omitted)			MCI's ARMIS model as filed			MCI's ARMIS model as modified by the PSC			FCC's ARMIS model using GTE's direct expense factors			GTE's modified avoided cost study		
	Acct	Description	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses
			(a)	(b)	(c=a*b)	(d)	(e)	(f=d*e)	(g)	(h)	(i=g*h)	(j)	(k)	(l=j*k)
60	6540	Access Expenses	($1)	0.0000%	$0	($1)	0.0000%	$0	($1)	0.0000%	$0	($1)	0.0000%	$0
61	6560	Depreciation Expenses	$308,484		$0	$308,484		$0	$308,484		$0	$308,484		$2,624
62	6561	Telecommunications Plant in Service	$308,589	0.0000%	$0	$308,589	0.0000%	$0	$308,589	0.0000%	$0	$308,589	0.8241%	$2,624
63	6562	Property Held for Future Use	$0	0.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0
64	6563	Amortization - Tangible	$695	0.0000%	$0	$695	0.0000%	$0	$695	0.0000%	$0	$695	0.0000%	$0
65	6564	Amortization - Intangible	$0	100.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0
66	6565	Amortization - Other	$0	0.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0
67		General Operations Expenses	$161,487		$71,830	$161,487		$21,773	$161,487		$8,573	$161,487		$14,689
68	6710	Executive & Planning	$7,914			$7,914			$7,914			$7,914		
69	6711	Executive	$4,869	39.7354%	$1,935	$4,869	13.4825%	$656	$4,869	6.1139%	$298	$4,869	0.8034%	$442
70	6712	Planning	$3,045	39.7354%	$1,210	$3,045	13.4825%	$411	$3,045	6.1139%	$186	$3,045	0.8034%	$277
71	6720	General & Administrative	$153,573			$153,573			$153,573			$153,573		
72	6721	Accounting & Finance	$14,152	39.7354%	$5,623	$14,152	13.4825%	$1,908	$14,152	6.1139%	$865	$14,152	0.8034%	$1,285
73	6722	External Relations	$8,367	100.0000%	$8,367	$8,367	13.4825%	$1,128	$8,367	6.1139%	$512	$8,367	0.8034%	$760
74	6723	Human Resources	$11,009	39.7354%	$4,374	$11,009	13.4825%	$1,484	$11,009	6.1139%	$673	$11,009	0.8034%	$1,000
75	6724	Information Management	$64,222	39.7354%	$25,519	$64,222	13.4825%	$8,659	$64,222	6.1139%	$3,926	$64,222	0.8034%	$5,834
76	6725	Legal	$2,125	39.7354%	$844	$2,125	13.4825%	$287	$2,125	6.1139%	$130	$2,125	0.8034%	$193
77	6726	Procurement	$1,536	39.7354%	$610	$1,536	13.4825%	$207	$1,536	6.1139%	$94	$1,536	0.8034%	$140
78	6727	Research & Development	$4,515	100.0000%	$4,515	$4,515	13.4825%	$609	$4,515	6.1139%	$276	$4,515	0.8034%	$410
79	6728	Other General & Administrative	$47,647	39.7354%	$18,933	$47,647	13.4825%	$6,424	$47,647	6.1139%	$2,913	$47,647	0.8034%	$4,328
80	6780	Provision for Uncoll Notes Rec	$0	0.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0	$0	0.0000%	$0
81		Other Expenses										$8,425		$0
82	7370	Special Charges										$3,519	0.0000%	$0
83	7540	Other Interest Deductions										$5,904	0.0000%	$0
84	5300	Uncollectibles				$26,126		$2,554	$26,126		$1,198	$26,126		$1,721
85	5301	Uncollectibles - Telecommunications				$18,948	13.4825%	$2,554	$18,948	6.1139%	$1,198	$18,948	0.8034%	$1,721
86	5301	Uncollectibles - Other				$7,180	0.0000%	$0	$7,180	0.0000%	$0	$7,180	0.0000%	$0
87		Rents and Taxes										$351,876	0.8241%	$3,252

Docket Nos. 961180-TP/961173-TP
Direct Testimony of Douglas E. Wallemeyer
Exhibit No. DEW-2
FPSC Exhibit No. _____

Tariff Entity: GTFL
GTE Florida

GTE Avoided Cost Study
Analysis of MCI's ARMIS Model

Exhibit_____ DEW - 2

Source: ARMIS - FCC Report 4303 (Jan 89 - Dec 89, $000's omitted)		MCI's ARMIS model as filed			MCI's ARMIS model as modified by the FCC			FCC's ARMIS model using GTE's direct expense factors			GTE's modified avoided cost study		
Acct	Description	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses	Total Operating Expenses	Avoided Retail Percent	Avoided Retailing Expenses
		(a)	(b)	(c=a*b)	(d)	(e)	(f=d*e)	(g)	(h)	(i=g*h)	(j)	(k)	(l=j*k)
86	A = Known Avoidable Expenses, i.e., 100% avoidable			$152,883									
89	B = Total Expenses - General Support Expenses			$814,859									
90	C = Total Expenses - Depreciation Expenses			$802,154									
91	GS = General Support Expenses			$93,778									
92	GA = General & Administrative Expenses to be allocated, i.e., less External Relations and R&D			$148,605									
93	GA Avoid % = (BxA)/(CxB-CxGS-BxGA)			39.7354%									
94	GS Avoid % = (CxA)/(BxC-BxGA-CxGS)			29.3631%									
95	External Relations and R&D Avoid %			100.0000%									
96	Total Operating Expenses				$808,639			$808,639			$918,081		
97	Total Depreciation Expenses				$0			$0			$306,484		
98	Total Operating Expenses less Depreciation				$808,639			$808,639			$611,577		
99	Avoidable Marketing Expenses				$31,793			$22,260			$22,260		
100	Avoidable Customer Service Expenses				$90,714			$33,292			$33,292		
101	Avoidable Direct Expenses				$122,507			$55,552			$55,552		
102	Retail Share of General Expenses				13.4625%			6.1139%			9.0834%		
103	2001 Telecommunications Plant in Service										$3,807,087		
104	2111 Land										$21,135		
105	2121 Buildings										$308,699		
106	2122 Furniture & Artworks										$9,954		
107	2123 Office Equipment										$71,584		
108	2124 General Purpose Computers										$75,999		
109	Subtotal Land & Support Plant										$397,320		
110	Land & Support Share of Plant in Service										10.1737%		
111	Retail Share of General Expenses										9.0834%		
112	Retail Share of Plant-Related Expenses										0.9241%		
113	Net Operating Revenues										$1,288,857		
114	Total Operating Expenses										$918,081		
115	Return and Taxes (Incl Other Operating Taxes)										$381,676		

Docket Nos. 961169-TP/961173-TP
Direct Testimony of Douglas E. Wellemeyer
Exhibit No. DEW-2
FPSC Exhibit No. _____

PART IV

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF WILLIAM E. MUNSELL

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME AND YOUR BUSINESS ADDRESS.

A. My name is William E. Munsell. My business address is 600 Hidden Ridge, Irving, TX 75038.

Q. BY WHOM ARE YOU EMPLOYED, AND WHAT IS YOUR POSITION?

A. I am employed by GTE Telephone Operations as Senior Product Manager-Switched Access Service.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATION AND WORK EXPERIENCE.

A. I have an undergraduate degree in Economics from the University of Connecticut, and a masters degree from Michigan State University in Agricultural Economics. I joined GTE in 1982 with GTE of Florida. During the course of my career with GTE, I have held positions in Demand Analysis, Pricing and Product Management.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to identify the issues that are disputed between GTE and Sprint relating to interconnection and transport and termination.

Q. HOW IS YOUR TESTIMONY STRUCTURED?

A. My testimony will be presented in five sections. Section A is a general description of interconnection, transport and termination and the issues raised by each; Section B is a discussion of the Act's requirements; Section C sets forth the respective parties' open issues with regard to these network functions; Section D discusses GTE's position on these issues, and Section E provides a brief summary.

Q. PLEASE PROVIDE AN OVERVIEW OF YOUR TESTIMONY.

A. The Telecommunications Act of 1996 (the "Act") requires GTE to (1) permit any requesting telecommunications carrier to interconnect with its network and (2) establish reciprocal compensation arrangements for the transport and termination of telecommunications. Further, the Act sets forth certain minimum conditions and rate standards for interconnection, transport and termination. Sprint's position is that these conditions require GTE to interconnect at any point in GTE's network that Sprint requests, provide interconnection at rates below cost, and use bill-and-keep as a billing methodology. While the Act allows significant flexibility in the parties' arrangements for interconnection, transport and termination, it nevertheless imposes fair and rational limits. As provided under the Act, Sprint should be permitted to interconnect only at technically feasible points within the ILEC's network. Furthermore, GTE should be allowed to charge rates for interconnection, transport and termination that are just, reasonable

and nondiscriminatory and that allow GTE full recovery of its costs and a reasonable profit.

SECTION A: DESCRIPTION OF TRANSPORT, INTERCONNECTION AND TERMINATION

Q. PLEASE DESCRIBE WHAT IS MEANT BY THE TERMS INTERCONNECTION, TRANSPORT AND TERMINATION AS USED IN THE ACT.

A. At their basic levels, the terms interconnection, transport and termination refer simply to functions within and between telephone networks. Interconnection means the physical linking of two networks for the mutual exchange of traffic. The terms are more fully described in the Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, First Report and Order, CC Docket No. 96-98, FCC 96-325 (released Aug. 8, 1996) (the "Order") ¶ 176.

Interconnection takes place at a point of interconnection. Transport means carrying a call between switches, or from a point of interconnection to a switch. Thus, transport may involve transmission of a call from a tandem switch to an end office switch or from one end office switch to another end office switch. End offices are the facilities housing the switches that serve local calling areas. Each end office "subtends" a tandem switch, meaning that the end office is

connected via a trunk to the tandem switch. Tandem switches aggregate traffic from end offices and either redistribute that traffic to other subtending end offices, pass it on to other tandem switches or pass the traffic on to an interexchange carrier. An incumbent local exchange carrier may, but does not always, own the tandem switch which its end offices subtend.

Termination means switching that is performed at the end office, and the delivery of the call to the called party.

Interconnection has been taking place among local telephone companies for many years. Historically, local telephone service was provided in a given local calling area by a single company. This company was the local exchange carrier ("LEC") or, under the Act, an incumbent local exchange carrier ("ILEC"). If a customer wanted to call a number in the same local calling area, the ILEC was able to accomplish origination, switching and termination of the call within its own single network. If, however, the customer wished to call a number in a calling area serviced by a different ILEC, the customer's call would have to be passed to and terminated by the other ILEC's network. The two ILECs exchanged traffic through interconnection arrangements which allowed each ILEC to terminate the other ILEC's calls.

Q. WHAT IS THE PURPOSE OF THE INTERCONNECTION

PROVISIONS OF THE ACT?

A. The Act seeks to create a competitive environment for local telephone service and, thus, requires telephone companies competing in the same local calling area to interconnect. In addition to the ILEC, there may be one or more alternative local exchange carriers ("ALECs") in the same local calling area in the near future. Without interconnection, ALECs would not be able to terminate calls to customers served by the ILEC or another ALEC, and ILECs would not be able to terminate calls to ALECs. Thus, interconnection under the Act makes competition in local telephone service possible.

Q. WHAT DETERMINES WHERE INTERCONNECTION WILL TAKE PLACE BETWEEN TWO LECs?

A. Interconnection between ILECs for the exchange of traffic between two local calling areas takes place at mutually acceptable meet points. Under the Act, interconnection may take place only at points where interconnection is technically feasible. The following factors, among others, may frustrate or even prevent interconnection:

- compatibility of the ALEC's equipment with the ILEC's equipment at the point of interconnection;

- the number of ALECs desiring interconnection at a given point;

- whether an ILEC's switching and transport equipment can

handle additional traffic; and

- to the extent that collocation of the ALEC's equipment at the ILEC's end office is necessary, the availability of physical space at an ILEC end office, tandem switch or other facility.

Accordingly, end offices, tandem switches and mutually acceptable meet points are most often used as points of interconnection as they usually pose the fewest technical problems. Interconnection at an end office allows the interconnector access to the line equipment, and thus the customers, served by that end office. Interconnection at a tandem switch allows access to all end offices subtending that tandem.

Q. PLEASE DESCRIBE THE MANNER IN WHICH COSTS ARE INCURRED WITH RESPECT TO INTERCONNECTION TRANSPORT AND TERMINATION.

A. Once an ILEC interconnects with an ALEC, the ILEC can complete the ALEC's calls by transporting and terminating those calls over its network system, and vice versa. When an ILEC or ALEC transports and terminates its own traffic, the costs of transport and transmission are part of the carrier's overall costs. With interconnection, an ILEC or an ALEC still incurs costs for the transport and termination of calls it terminates for other carriers. Thus, in interconnection agreements, ILECs and ALECs usually quantify these costs at a given rate per

minute of usage.

These costs may differ depending on the extent to which completion of calls from the point of interconnection involves tandem switching and transport. If an ALEC interconnects with an ILEC at an end office, the ILEC will incur the cost of switching at the end office and termination to the end user. If, on the other hand, an ALEC interconnects with an ILEC at a tandem switch, the ILEC incurs the costs of switching at the tandem office, transport to the end office, switching at the end office and termination to the end user. Thus, parties to an interconnection agreement will take into account the functions of tandem switching, transport and termination involved and generally price these elements separately.

Q. WILL THE COSTS OF INTERCONNECTION BE THE SAME FOR AN ILEC AS FOR AN ALEC?

A. No. The cost of transport and termination will generally be higher for an ILEC than an ALEC because ILEC equipment is older and also because ILEC equipment will tend to have a lower throughput than ALEC equipment. Generally, ILECs have older switches and transmission plant in their networks. ALECs are just now entering the local exchange business and are installing currently available switches and transmission plant. New equipment is often less expensive per unit of traffic than older equipment already deployed by the ILECs. With regard to GTE specifically, traffic on GTE's

network is usually dispersed throughout a large network of end offices and tandem switches, which serves a relatively large number of low volume residential or rural customers. By contrast, an ALEC will have relatively few end office switches which can be expected to serve a relatively large number of high volume business customers. Thus, because an ALEC's network is handling a relatively higher volume of traffic through a fewer number of switches, an ALEC's switches and transmission plant can be expected to have a higher throughput than an ILEC's switches and transmission plant. Because the total capacity of an ALEC's network tends to be more fully utilized than the capacity of the ILEC's network, the ALEC's per unit cost for carrying that capacity will be lower than the ILEC's per unit cost.

Therefore, if a transport and termination agreement accurately reflects the true relative costs incurred by an ALEC and an ILEC for terminating each other's traffic, the agreement will, most likely, provide that the ILEC recovers its costs at a higher rate than the ALEC. If, however, a transport and termination agreement provides for symmetrical rates (i.e., each carrier charges the other the same price), the agreement does not necessarily reflect the actual costs of interconnection for each party.

Q. ARE COMPENSATION ARRANGEMENTS NORMALLY INCLUDED IN INTERCONNECTION AGREEMENTS?

A. Transport and termination agreements usually include a

compensation arrangement to allow the parties to bill the amounts owed to one another on a periodic basis. Alternatively, transport and termination agreements may provide for a "bill-and-keep" system whereby each party keeps whatever it bills to the end user and does not pay the other party for the costs of transport and termination. Where traffic exchanged between the two carriers is approximately equal, a bill-and-keep system may be appropriate. Moreover, as discussed above, the cost of transport and termination for an ILEC is unlikely to be equivalent to the cost of transport and termination for an ALEC. As such, rendering periodic bills is quite often the only way an ILEC can recover its reasonable costs of transporting and terminating traffic for an ALEC.

SECTION B: THE "ACT"

Q. WHAT ARE THE REQUIREMENTS OF THE ACT WITH REGARD TO INTERCONNECTION, TRANSPORT AND TERMINATION?

A. Section 251(a) of the Act requires all telecommunications carriers, including ILECs and ALECs, "to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers" (47 U.S.C. § 251(a)(1) (1996)). Section 251(b) requires all local exchange carriers, including ILECs and ALECs, "to establish reciprocal compensation arrangements for the transport and termination of telecommunications" (47 U.S.C. § 251(b)(5) (1996)).

Furthermore, Section 251(c) requires ILECs to provide, for any requesting telecommunications carrier, interconnection

> (A) for the transmission and routing of telephone exchange service and exchange access;
>
> (B) at any technically feasible point within the carrier's network;
>
> (C) that is at least equal in quality to that provided by the local exchange carrier to itself or any subsidiary, affiliate, or any other party to which the carrier provides interconnection; and
>
> (D) on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, in accordance with the terms and conditions of the agreement and the requirements of this section and section 252.

(47 U.S.C.§ 251(c)(2)(A)-(D) (1996)).

Q. DOES THE ACT ADDRESS THE METHOD FOR PRICING INTERCONNECTION SERVICES?

A. Although the parties are free to negotiate the price of interconnection,

in the event the parties seek arbitration by a State commission under section 252 of the Act, rates for interconnection set by the State commission shall be "based on the cost (determined without reference to a rate-of-return or other rate-based proceeding) of providing the interconnection . . . and . . . nondiscriminatory, and . . . may include a reasonable profit" (47 U.S.C. § 252(d)(1)(A)-(B) (1996)).

With regard to transport and termination, the Act provides that a State commission may not consider the terms and conditions of reciprocal compensation to be just and reasonable unless such terms and conditions "provide for the mutual and reciprocal recovery by each carrier of costs associated with the transport and termination on each carrier's network facilities of calls that originate on the network facilities of the other carrier" and determine costs "on the basis of a reasonable approximation of the additional costs of terminating such calls" (47 U.S.C. § 252(d)(2)(A)(i)-(ii) (1996)). Section 252(d) also states that such pricing standards shall not be construed to prevent parties from arranging for "the mutual recovery of costs through the offsetting of reciprocal obligations, including arrangements that waive mutual recovery (such as bill-and-keep arrangements)" (47 U.S.C. § 252(d)(2)(B)(i) (1996)).

Q. WHAT IS THE EFFECT OF THE FCC ORDER 96-325 OF AUGUST 8, 1996 ON INTERCONNECTION ARRANGEMENTS?

A. The FCC, interpreting these provisions, established a minimum set of technically feasible points of interconnection at end offices and tandem switches (Order, ¶¶ 207-212). These points are (1) the line-side of a local (i.e., end office) switch, (2) the trunk-side of a local switch, (3) the trunk interconnection points for a tandem switch, (4) central office cross-connect points, (5) out-of-band signaling transfer points and (6) the points of access to unbundled elements (Order ¶ 212). Furthermore, the FCC interpreted technical feasibility to require modification of ILEC equipment if necessary to facilitate interconnection (Order ¶ 202). The FCC emphasized, however, that the obligation to interconnect wherever technically feasible is warranted only because an ILEC is entitled to recover from the ALEC its costs of providing interconnection, including a reasonable profit (Order ¶ 199). Moreover, an ILEC may refuse interconnection if it can demonstrate specific and significant adverse impacts to network reliability and security (Order ¶ 203). Finally, with regard to technical feasibility, the FCC stated that interconnection "at a particular point in a network, using particular facilities, is substantial evidence that interconnection or access is technically feasible at a given point, or substantially similar points in networks employing substantially similar facilities" (Order ¶ 204).

Q. DOES THE FCC ORDER PROVIDE GUIDANCE ON HOW STATE COMMISSIONS ARE TO SET RATES FOR INTERCONNECTION?

A. The pricing aspects of the FCC's Order has been stayed pending the

8th Circuit's decision regarding the constitutionality of the Order. That Order required State commissions to set rates for interconnection under a forward-looking economic cost pricing methodology (Order ¶¶ 630-740). This methodology is the Total Element Long-Run Incremental Cost ("TELRIC") of interconnection, plus a reasonable allocation of forward-looking joint and common costs (Order ¶¶ 672-673). In computing TELRIC, State commissions should not assume a hypothetical network. Instead, TELRIC should be computed based on the "most efficient technology deployed in using the [ILEC's] current wire center locations" (Order ¶ 685). TELRIC does not include embedded costs, ILEC opportunity costs, universal service subsidies or access charges (Order ¶¶ 704-732). If a State commission cannot determine rates based on TELRIC for interconnection, the FCC established default rates for a number of elements including end office switching, tandem switching and transport (Order ¶¶ 787-827).

Q. HOW DOES THE FCC ORDER ADDRESS TRANSPORT AND TERMINATION PRICING?

A. Although the Act separates transport and termination from interconnection, and establishes separate pricing standards for them, the FCC stated that the two pricing standards are sufficiently similar "to permit the use of the same general methodologies for establishing rates under both statutory provisions" (Order ¶ 1054). Thus, State commissions must set rates according to one of three options. First,

they can set the rates for transport and termination at TELRIC plus a reasonable allocation of joint and common costs (Order ¶¶ 1056-59). Second, they can set rates at default rates pending completion of a TELRIC study (Order ¶¶ 1060-62). Third, they can impose a bill-and-keep arrangement if traffic is approximately equal (Order ¶¶ 1111-18).

With regard to TELRIC and default rates, the FCC established the presumption that an ILEC's prices for transport and termination are a suitable proxy for an ALEC's costs of transport and termination (Order ¶ 1085). Thus, the FCC ruled that TELRIC and default rates should be presumed to be symmetrical unless this presumption can be rebutted (Order ¶ 1089).

With regard to bill-and-keep, the FCC ruled that State commissions may impose bill-and-keep arrangements if (1) neither carrier has rebutted the presumption of symmetrical rates and (2) the volume of terminating traffic from one network to the other is "approximately equal to the volume" of terminating traffic flowing the other way "and is expected to remain so" (Order ¶ 1111).

SECTION C: UNRESOLVED ISSUES

Q. PLEASE IDENTIFY THE ISSUES THAT ARE IN DISPUTE BETWEEN GTE AND SPRINT AND THEIR RESPECTIVE

POSITIONS.

A. Although contract language has yet to be worked out, I understand that Sprint and GTE seem to have agreed in principle to a range of interconnection issues that will not be addressed here. However, there are some general issues yet to be resolved. GTE contends that Sprint's positions on open issues are not warranted by the Act, and amount to little more than an attempt by Sprint to place GTE at a competitive disadvantage by compromising GTE's network and denying GTE recovery of its costs.

(1) *At which points in GTE's network is GTE required to provide interconnection?*

Sprint's Position: Sprint may interconnect at any feasible point and have one point of interconnection per local calling area or LATA.

GTE's Position: Sprint may interconnect with GTE at any of the minimum technically feasible points required by the FCC. Interconnection at additional points where other ALECs have already interconnected is not presumptive. Interconnection can only occur if technically feasible, if it will not threaten network reliability or security and if GTE's costs can be recovered.

(2) *Should GTE allow Sprint to route calls between its tandem switches?*

Sprint's Position: GTE must allow Sprint to switch traffic between tandem switches ("inter-tandem switching").

GTE's Position: GTE will not provide this service absent Sprint's participation in established methods for billing inter-tandem traffic.

(3) *What should be the rate for interconnection and for transport and termination?*

Sprint's Position: GTE's rates should be equal to TELRIC and forward looking joint and common costs.

GTE's Position: Rates should be determined according to the Market-Oriented Efficient Component Pricing Rule ("M-ECPR").

Pending judicial review of the FCC's Order, rates should be set at TELRIC plus forward looking joint and common costs. Additionally, GTE should be allowed a true-up of its costs should it be eventually allowed to recover its costs under M-ECPR.

I am generally aware of these positions on pricing, with respect to transport and termination, although pricing is addressed by other witnesses.

(4) *Should the rate for transport and termination be symmetrical?*

Sprint's Position: The FCC's Order requires symmetrical rates that are set according to GTE's costs.

GTE's Position: Rates for transport and termination should not be symmetrical as such rates would not provide for mutual and reciprocal recovery of costs.

Pending judicial review of the FCC's Order, a comparison of cost studies by GTE and Sprint should justify a departure from symmetrical pricing.

(5) *Should bill-and-keep be used as a reciprocal compensation arrangement for transport and termination?*

Sprint's Position: At least for an interim period, a bill-and-keep system should be used.

GTE's Position: While GTE's preferred position is asymmetrical rates as stated above, the Company is willing to

enter into bill and keep arrangements initially, but only where traffic is approximately equal and other specified parameters are met. As and when traffic becomes out of balance by plus or minus 10%, then individual charges should be issued.

(6) *Should Sprint be required to route traffic to GTE over multiple trunk groups?*

Sprint's Position: Yes, Sprint should be allowed to combine local, intraLATA toll, and interLATA access traffic over a single trunk group, unless it can be shown to be not technically feasible.

GTE's Position: GTE requires that a minimum of two trunk groups be provisioned; one trunk group for local and intraLATA toll traffic not routed to and from an interexchange carrier, and a second trunk group for access traffic routed to and from interexchange carriers. GTE requires a minimum of two trunk groups in order to create AMA terminating access records on the local/intraLATA toll trunk group. The terminating access records enable GTE to bill Sprint for transport and termination for local and intraLATA toll traffic originated by Sprint end users. Certain switches in GTE's network are designed such that GTE cannot route terminating traffic from an interexchange carrier to a trunk group where

AMA terminating access records are created. The second trunk group (which carries access traffic destined to and from an interexchange carrier), is not measured by GTE, and therefore the terminating traffic from an interexchange carrier is routed to this trunk group.

(7) *What installation standards should be followed in the provisioning of facilities to the POI?*

Sprint's Position: GTE should be required to complete installation of facilities to the POI in 30 days or less.

GTE's Position: Determination of the installation interval for the facility between the POI and the GTE switch should be negotiated between the two parties. The two parties could agree to allow an outside source to complete construction of the facility if costs or interval cannot be agreed to.

SECTION D: GTE'S POSITION

Q. ARE SPRINT'S POSITIONS CONSISTENT WITH THE PURPOSES OF THE ACT?

A. The Act was intended to remove barriers to entry and create a level playing field for competition -- it was not intended to endanger the

security of an ILEC's network, require significant capital investment by the ILEC or result in ILECs paying a subsidy to ALECs in the form of below cost rates for interconnection. Yet an unlimited approach to interconnection, transport and termination may compromise the security of GTE's network and fail to allow GTE to recover its costs, much less "a reasonable profit" as the Act permits.

Accordingly, GTE herein maintains its negotiating positions on the disputed issues. To the extent these positions may be considered inconsistent with the FCC's interpretation of the Act, GTE offers alternative interim positions on several issues should the Commission determine the FCC's conclusions to be binding pending judicial review, including the 8th Circuit's decision on the constitutionality of the FCC Order.

Q. IS THE ASSERTION CORRECT THAT GTE MUST PROVIDE INTERCONNECTION AT ANY POINT WHERE GTE HAS ALREADY PROVIDED INTERCONNECTION?

A. No. While parties may have considerable flexibility as to where and how they may wish to interconnect, interconnection cannot take place at any point and in whatever manner a new entrant wants. The Commission should not presume that it is technically feasible to provide a new entrant with interconnection anywhere GTE has already provided interconnection. This approach is not required by the FCC's Order, which states only that interconnection at a particular

point using particular facilities is "substantial evidence" of technical feasibility at that point, or at "substantially similar points in networks employing substantially similar facilities" (Order, ¶ 204). Accordingly, a new entrant's requested point must be substantially similar and employ substantially similar facilities, and even then interconnection is only "substantial evidence" of technical feasibility -- technical feasibility is not presumed.

Q. IS IT A CORRECT ASSUMPTION THAT COSTS OF INTERCONNECTION AT ANY PARTICULAR POINT IN GTE's NETWORK ARE ABOUT THE SAME?

A. It would be incorrect for the Commission to adopt such a blanket presumption given the reality of how ILEC networks are constructed. First, switches, transmission equipment and computer software may be interoperable within the GTE network, but they are not necessarily uniform throughout the network. For example, GTE deploys a wide variety of switches. While GTE may use a Northern Telecom switch in one end office, another end office in the same geographic area may use an Lucent switch. Second, interconnection of an ALEC with GTE at one point may have been the result of lengthy negotiations in which the interconnecting ALEC agreed to pay for and use certain technology that is compatible with the GTE equipment at that point. Thus, while superficially simple, it is incorrect in presuming that technical feasibility at a given point implies technical feasibility at all other similar points for all other ALECs.

Q. SHOULD THERE BE A CHARGE FOR THE PROVISION OF THE POINT OF INTERCONNECTION?

A. On the trunks which ride the facility, GTE assesses an ordering charge for ALEC-initiated orders. On the facility that each party would construct to the point of interconnection, the compensation should be left to be worked out on a case-by-case basis, as the facility might be 100% GTE's, or 100% the ALEC's, or some split between them.

Q. ARE THERE ANY CRITICAL ISSUES THAT MUST BE RESOLVED BEFORE INTER-TANDEM SWITCHING CAN BE PROVIDED?

A. GTE only has one tandem in Florida. Therefore, inter-tandem trunking should not be an issue today. However, there is nothing to prevent a new entrant from establishing a tandem sometime in the future, such that the tandem switching issue might present itself later. In that case, GTE's position is that it would not perform inter-tandem switching unless Sprint agreed to current methods for billing inter-tandem traffic. While interconnection generally takes place between the end office of the ALEC and the tandem switch or end office of the ILEC, interconnection at a tandem switch allows access to all end offices that subtend that tandem switch. As such, completion of calls for an interconnecting ALEC which interconnects at a tandem switch will typically involve tandem switching, transport between the tandem switch and the subtending end office and termination from the end office to the customer, but does not involve transport between tandem

switches.

Sprint, however, wants to change this structure. In a local access and transport area ("LATA"), Sprint wishes to interconnect at a single tandem switch, but nevertheless gain access to all end offices in the LATA, regardless of whether the end offices subtend the tandem switch where Sprint has interconnected. Accordingly, GTE would have to perform switching between tandem switches -- inter-tandem switching -- in order to complete Sprint calls.

GTE cannot agree to this kind of interconnection arrangement. Such interconnection is technically possible -- GTE engages in inter-tandem switching with many ILECs in order to route ILEC intra-LATA toll traffic. However, unless a new entrant agrees to the billing methods necessary to implement inter-tandem switching, such interconnection is not technically feasible from a practical standpoint because there would be no way to bill for all of the network elements involved in the completion of calls from the new entrant. Specific billing methods are necessary because of the way inter-tandem traffic is exchanged. Signaling information from the switch, as well as the current industry standard Automatic Message Accounting ("AMA") record format, does not identify more than one tandem switching occurrence. Thus, if more than one tandem switch is used to route a telephone call, the additional switches are not reflected in the billing record.

Q. CAN YOU ILLUSTRATE THE NATURE OF THE PROBLEM?

A. The problem can be shown with a brief illustration. If a call originates in end office "A," the call is transported to tandem switch "B," which end office A subtends. The call would then be trunked to a second tandem switch "C" and then switched to end office "D," where the call would be completed. The signaling message information and AMA record only provides information that is normally necessary to complete the call -- it will identify end office A, tandem switch B and the terminating end office D. **There will be no billing information with regard to tandem switch C.** Accordingly, the service provider that owns tandem switch C will not be able to recover tandem switching charges from the service provider that owns end office A.

Q. HAVE BILLING METHODS BEEN DEVELOPED FOR INTER-TANDEM SWITCHING BETWEEN ILECS?

A. Yes, where ILECs engage in inter-tandem switching for intra-LATA toll traffic, billing methods have been developed to allow the recovery of tandem switching in the above scenario. To recognize the lack of necessary data in signaling message information and AMA records, ILECs recover the cost of inter-tandem switching through the use of various "clearinghouse" systems. In these clearinghouse systems, the end office of the ILEC originating an intraLATA toll call creates an Electronic Message Record ("EMR") call record which contains information such as the originating number, terminating number, time

and date of the call. These records are forwarded by the ILEC to the clearinghouse. The clearinghouse then identifies the terminating number from the EMR call record as being served by a specific terminating ILEC and, based on the most probable pathway for the call, returns billing information to the ILECs identified as service providers of portions of the call route. GTE is not aware of any other method for ensuring that carriers providing inter-tandem switching are reimbursed for their costs.

Q. ARE YOU AWARE OF ANY OTHER BILLING METHODS CURRENTLY AVAILABLE TO IDENTIFY AND RECOVER THE COSTS OF INTER-TANDEM SWITCHING?

A. No. Unless a new entrant were willing to enter into such an arrangement, there would be no way for GTE to recover the costs of traffic switched by its tandems. This result would run directly contrary to the Act and the FCC's Order, which requires that GTE recover the costs of interconnection (47 U.S.C. § 252(d)(1)(A)(i) (1996); Order, ¶¶ 29, 199, 618-24). Sprint's position is thus surprising, considering that it is by no means a new entrant into the telecommunications market and is entirely familiar with access billing and switching standards. The Commission should thus reject Sprint's request for inter-tandem switching out of hand.

Q. DOES SPRINT'S METHOD FOR CALCULATING THE COST OF INTERCONNECTION, TRANSPORT AND TERMINATION

ACCURATELY STATE GTE'S COSTS?

A. No. Pending judicial review of the Order's mandate of TELRIC plus a reasonable allocation of forward-looking joint and common costs as a method for computing the cost of interconnection and transport and termination, GTE disagrees with Sprint's calculation of GTE's TELRIC, and Sprint's general cap on joint and common costs. GTE's basis for disagreeing with Sprint over this calculation is discussed in the direct testimony of Mr. Trimble and/or other GTE cost witnesses.

Q. **DOES SYMMETRICAL PRICING ALLOW RECIPROCAL AND MUTUAL RECOVERY OF COSTS AS A REASONABLE APPROXIMATION OF THE COST OF TERMINATING CALLS?**

A. Although required by the FCC, symmetrical pricing is completely at odds with the requirements of the Act. Section 252(d)(2)(A)(i) of the Act requires that the terms and conditions for transport and termination must "provide for the mutual and reciprocal recovery by each carrier of costs . . . of calls that originate on the network facilities of the other carrier." The terms and conditions for transport and termination must "determine such costs on the basis of a reasonable approximation of the additional costs of terminating such calls" (47 U.S.C. § 252(d)(2)(A)(ii) (1996)).

Symmetrical pricing between Sprint and GTE will not afford GTE recovery of its costs. Sprint's costs for terminating calls will, most likely, be less than GTE's costs for terminating calls. As discussed

above, this is due to the expectation that Sprint will have deployed newer equipment in its network using a relatively higher percentage of its network's capacity. Using symmetrical pricing, Sprint will receive a subsidy from GTE, because it will be receiving far more than the cost it incurs to complete a call. Thus, GTE's costs are not a suitable proxy for determining the actual costs of interconnection, meaning that symmetrical pricing does not allow for mutual or reciprocal recovery of costs and is not based on a reasonable approximation of the additional cost of terminating calls. Accordingly, the Commission should adhere to the letter and intent of the Act and allow the parties to recover their respective true costs of transport and termination.

At a minimum, pending judicial review of the FCC's Order, the cost studies submitted by GTE justify a departure from symmetrical pricing, as GTE believes its costs for transport and termination to be significantly higher than Sprint's costs. See Direct Testimony of Dennis Trimble and attachments thereto. GTE's costs are thus not a suitable proxy for Sprint's costs, and symmetrical pricing is not justified. The FCC's Order can be read to limit the right to rebut the presumption to the requesting ALEC as opposed to the ILEC (Order, ¶ 1089). Such a reading, however, is illogical – if an ALEC can prove higher costs than the ILEC, thus justifying a departure from symmetrical pricing, there seems to be no reason an ILEC cannot similarly make such a showing, nor does the Act give any indication

that an ILEC should be barred from doing so. Moreover, the FCC stated that State commissions could impose bill-and-keep if, among other things, "neither carrier has rebutted the presumption of symmetrical rates" (Order ¶ 1111) (emphasis added). Hence, the Order actually does allow both parties to challenge the presumption of symmetrical pricing.

If, however, the Commission decides symmetrical pricing is justified pending judicial review of the Order, GTE should be allowed a true-up of its costs in the event the FCC's requirement of symmetrical pricing is eventually overturned.

Q. IS THE BILL-AND-KEEP METHOD OF PRICING APPROPRIATE OR NECESSARY?

A. The Act requires that transport and termination arrangements allow for "the mutual recovery of costs through the offsetting of reciprocal obligations" (47 U.S.C. § 252(d)(2)(B)). Among the other possible options for mutual recovery of costs, parties may opt for "arrangements that waive mutual recovery (such as bill-and-keep arrangements)," but are not required to do so. Thus, the Act does not require or permit the Commission or the FCC to impose bill-and-keep on GTE and Sprint.

The Commission is likewise not required to impose bill-and-keep under the FCC's Order. The Order states that a State commission

"may" impose bill-and-keep if neither party has rebutted the presumption of symmetrical pricing and if the volume of traffic exchanged is approximately equal (Order ¶ 1111). Not only has GTE rebutted the presumption of symmetrical pricing, but there presently exists no way for the Commission to determine whether the volume of traffic exchanged will, in fact, be equal. Thus, neither precondition has been met. Moreover, because the FCC allows State commissions to impose bill-and-keep if both preconditions are met, it has misread the statute, which clearly allows bill-and-keep arrangements but does not mandate them under any circumstances.

While GTE's preferred position is as stated above, the company is willing to enter into a bill and keep compensation arrangement given certain parameters. The proposed arrangement, predicated upon approximately equivalent traffic flows, would be for the transport and termination of end-user local traffic. The arrangement would specifically exclude any toll or access traffic. Also, interLATA access traffic must be carried over separate trunk groups and may not be included with the local and local toll traffic.

GTE, in an effort to expedite the competitive process, is proposing a fairly broad definition of roughly balanced. The Company is proposing that roughly balanced equates to plus or minus ten percentage points. This means that the originating/terminating split could be up to 60/40.

GTE is willing, in the spirit of the Act, to reach a compromise position regarding the issue of bill and keep. This definition, in conjunction with certain parameters, provides a reasonable approach.

The following parameters are fundamental to GTE's proposed bill and keep arrangement:

1) The arrangement applies to the termination of interconnected calls and does not apply to internetwork facilities.

2) The arrangement applies to local and EAS traffic only and has no implications to access (or wireless) compensation. For purposes of traffic compensation, local and EAS calling scopes are as defined in the GTE exchange services tariff, and does not include optional wide area calling scopes.

3) Traffic must be local end-user traffic. An ALEC may not aggregate traffic other than its end-user local/mandatory EAS traffic for the purposes of this arrangement. Toll/access type traffic should be compensated via access charges.

4) Traffic is assumed to be roughly balanced unless there are records available which would indicate otherwise. Either party may request traffic studies be performed on not more frequently than a quarterly basis.

5) If traffic studies indicate that traffic is outside of the roughly balanced range, either party may request that billing commence utilizing agreed-upon rates no lower than GTE's TELRIC plus the appropriate joint and common costs.

6) Either party may terminate the arrangement with twelve months' notice.

SECTION E: SUMMARY

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. While interconnection is a significant step towards creating a competitive market for local exchange services, this step is not intended to open up GTE's network to interconnection at any point for any price. Rather, interconnection, as well as the transport and termination facilitated by interconnection, is intended to allow ALECs access to the local exchange consistent with the integrity of the network at a rate that is just and reasonable. Accordingly, the Commission should:

- allow interconnection at the points specified by the FCC, and determine technical feasibility for other points only in accord with the evidence set forth in this proceeding;

- reject inter-tandem switching, unless GTE can recover its costs;

- use M-ECPR to determine the cost of interconnection, transport and termination, or at least reject Sprint's gross underestimate of TELRIC and joint and common costs and allow GTE a true-up if TELRIC is eventually rejected through judicial review of the Order;

- reject symmetrical pricing for transport and termination, or allow GTE a true-up if symmetrical pricing is rejected through judicial review of the Order; and

- allow bill-and-keep compensation only within the parameters specified herein.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

PART V

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF KIRBY D. CANTRELL

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Kirby D. Cantrell. My business address is 201 N. Franklin Street, Tampa, Florida 33601.

Q. WHO IS YOUR EMPLOYER AND WHAT IS YOUR POSITION?

A. I am employed by GTE Florida Incorporated (GTEFL) as Technical Support Administrator in Carrier Markets.

Q. PLEASE DESCRIBE YOUR EDUCATION AND WORK EXPERIENCE.

A. I graduted from the University of Florida in 1972 with a Bachelor of Science degree in Business Administration. I joined GTEFL in 1973 and have held management positions in Sales, Product Management and Carrier Markets.

Q. WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT POSITION?

A. I am responsible for providing technical support for alternative local exchange carriers accessing GTEFL's network, and I am the GTE collocation administrator for Florida.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS DOCKET?

A. The purpose of my testimony is to identify the issues that are disputed between GTE and Sprint related to collocation and then set forth the position of GTE concerning those disputed issues.

Q. HOW IS YOUR TESTIMONY STRUCTURED?

A. My testimony is separated into five sections as follows: Section A provides a general overview of collocation; Section B sets out the collocation provision of the Act; Section C provides a list of the issues presented and a summary of the respective parties' positions; Section D presents GTE's position in detail; and Section E presents a summary of my testimony.

SECTION A: AN OVERVIEW OF COLLOCATION

Q. WHAT IS COLLOCATION?

A. A central objective of the Act is to facilitate competition in local exchange markets by allowing new entrants to interconnect with unbundled elements of an ILEC's network. For example, alternative local exchange carriers ("ALECs") may wish to terminate its own transmission links and interconnect them with an ILEC's switch, located in the central office, for routing to individual customers. In doing so, it may want to utilize its own circuit termination equipment rather than purchase termination and transport service from the ILEC.

For technical reasons (e.g., the cable required to cross-connect two communications circuits cannot exceed a certain length), the ALEC's circuit termination equipment must be in close proximity to the ILEC's network equipment. In these circumstances, it may be necessary to allow the ALEC to "collocate" its equipment on the ILEC's premises.

Collocation can take two forms, "physical collocation" and "virtual collocation."

Q. PLEASE DESCRIBE PHYSICAL COLLOCATION.

A. Essentially, physical collocation enables an interconnector to set up a mini-facility on the premises of a local exchange carrier ("LEC"). The LEC leases a portion of the space in its facility to the interconnector, which then places its own equipment in the segregated space. Typically, that space is enclosed by "cages" or similar structures to provide security for the ILEC facilities and the installed equipment. The interconnector is permitted to enter the facility to install, maintain, and repair collocated equipment.

Q. WHAT IS VIRTUAL COLLOCATION?

A. In the case of virtual collocation, the interconnector does not occupy a portion of the ILEC's facility, nor does it own the equipment that is used to interconnect with the ILEC's network. Instead, the LEC owns or leases the equipment necessary to terminate the interconnector's circuits and dedicates that equipment to the exclusive use of the

interconnector. This dedicated equipment is housed inside the ILEC's facility (usually the central office) and is linked to the interconnector's circuits outside the facility (typically at a manhole). As opposed to physical collocation, the ILEC provides installation, maintenance and repair services for the equipment.

SECTION B: COLLOCATION AND THE ACT

Q. IS COLLOCATION ADDRESSED IN THE TELECOMMUNICATIONS ACT OF 1996?

A. Yes. The Act takes into account the technical need to provide some level of collocation to enable ALECs to interconnect with an ILEC's network and access to unbundled network elements. Section 251(c)(6) of the Act sets out an ILEC's collocation obligations:

> COLLOCATION.-- The duty to provide, on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, for physical collocation of equipment necessary for interconnection or access to unbundled network elements at the premises of the local exchange carrier, except that the carrier may provide for virtual collocation if the local exchange carrier demonstrates to the State commission that physical collocation is not practical for technical reasons or because of space limitations.

47 U.S.C. § 251(c)(6) (1996).

The FCC has interpreted this provision to require collocation to be provided:

- on a physical or virtual basis at the request of an ALEC;
- at "all buildings or similar structures owned or leased by the incumbent LEC that house LEC network facilities";
- for transmission equipment "used" or "useful" for interconnection or access to unbundled elements, but not for switching equipment;
- for "cross-connects" between collocated ALEC equipment; and
- consistent with reasonable security measures, including cages.

See In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, First Report and Order, CC Docket No. 96-98, FCC 96-325 (released Aug. 8, 1996) (the"Order") ¶ 555, et seq.

SECTION C: POSITIONS OF THE PARTIES

Q. WHAT ARE THE POSITIONS OF SPRINT AND GTE CONCERNING COLLOCATION ISSUES?

A. The questions which must be resolved are:

(1) *Should a collocator be able to lease intraoffice or interoffice facilities to meet the collocator's needs?*

Sprint's Position: Collocators must be allowed to lease facilities from the ILEC to meet the collocator's need for placement of equipment, interconnection, or provision of service.

GTE's Position: Sprint should be allowed to order dedicated transport to the collocation facility out of the appropriate tariff.

(2) *Should the Commission mandate a maximum interval for establishing collocations?*

Sprint's Position: A maximum interval of 90 days should generally be established for establishing new collocation arrangements and if the time line is not met a full explanation will be required.

GTE's Position: No. It is unrealistic to take a one-size-fits-all approach to collocation.

SECTION D: GTE'S POSITION RELATIVE TO THE DISPUTED ISSUES

Q. WHAT IS GTE'S GENERAL POSITION RELATIVE TO SPRINT'S COLLOCATION REQUESTS?

A. It is important to keep in mind that collocation is a limited measure, designed to remove technical barriers to new local exchange providers entering the local telephone market and effectively competing with ILECs. Collocation is not intended as a vehicle by which new entrants may avoid offering true facilities-based competition by building their business on the premises of their competitors. GTE sets out in greater detail below the justifications for its positions with respect to the disputed collocation issues, as well as general collocation positions.

Q. WHAT IS GTE'S POSITION CONCERNING WHAT TYPES OF EQUIPMENT SHOULD BE NECESSARY FOR INTERCONNECTION VIA COLLOCATION?

A. An ALEC should not be permitted to collocate on GTE premises any equipment it chooses. If an ALEC takes the position that a collocator should be permitted to place any type of equipment on GTE's premises; which could include switches, enhanced services equipment (such as voice messaging equipment), and customer

premises equipment ("CPE"). This position disregards the language of the Act, which limits collocated equipment to that "necessary for interconnection or access to unbundled network elements." 47 U.S.C. § 251(c)(6) (emphasis added). While the FCC's interpretation of the "necessary" qualifier as "used or useful" is questionable, the FCC correctly concludes that switching equipment, enhanced services equipment and CPE may not be collocated. Order, ¶¶ 579-82. Thus, both the Act and the Order foreclose an ALEC's request to collocate on GTE facilities equipment that is not necessary. Necessity, not convenience, is the touchstone of collocation under the Act.

The fundamental purpose of the "interconnection and access" provisions is to enable an interconnector to use ILEC network components without having to purchase complete switched access or exchange service. A "'fundamental purpose of expanded interconnection . . . is to allow interconnectors to use LEC switches without having to purchase the LECs' end-to-end switched access services. If interconnectors want to do their own switching, they may place switches on their own property' (Expanded Interconnection with Local Telephone Company Facilities, CC Docket No. 91-141, and Amendment of Part 36, CC Docket No. 80-286, Second Report and Order and Third Notice of Proposed Rulemaking, 8 FCC Rcd. 7374 (1993) (the "Switched Access Order" ¶ 62) (quoting PacTel Comments at 46-47)).

The FCC has recognized the importance of limiting the types of equipment that must be collocated on a LEC's premises to equipment that is necessary and directly related to the competitive provision of basic transmission service, and it has consistently rejected suggestions that LECs be required to provide collocation of enhanced services equipment, customer premises equipment, switches, or other non-transmission equipment: "LECs are not required to provide collocation of enhanced services, customer premises, or other non-transmission equipment." (Special Access Order ¶63) "In our earlier orders, we required LECs to permit interconnectors to place . . . in LEC central offices only equipment needed to terminate basic transmission facilities . . . [w]e conclude that the same principles should apply [for the policies] we adopt in this order." (In re Expanded Interconnection with Local Telephone Company Facilities, Memorandum Opinion and Order, 9 FCC Rcd. 5154 (1994) ("Virtual Collocation Memorandum and Order") ¶ 94). Congress was clearly aware of this history when it enacted Section 251(c)(6).

If a collocator were permitted to place any type of equipment it wished on GTE's premises, it would quickly exhaust existing space available for collocation. For example, if the first party seeking collocation were allowed to install large switches, circuit termination equipment, enhanced services equipment, and customer premises equipment, inadequate space would be available for other competitors to collocate equipment essential to offering basic services. That first

collocator -- perhaps Sprint -- would be able to monopolize the limited amount of usable space in GTE's facilities, and deny other interconnectors the opportunity to collocate on GTE's premises in order to compete directly with Sprint and GTE. Such a result would contravene the goals of the Act.

Allowing any one interconnector to use up portions of GTE's facilities with equipment unrelated to providing basic service would give rise to other adverse consequences.

Q. WHAT COULD THOSE OTHER ADVERSE CONSEQUENCES BE?

A. First, it would impinge on GTE's ability to upgrade its equipment and expand its services. Second, the placement of extraneous equipment would place additional demands on the facility's power supply. Switches, for example, demand an inordinate amount of power, and significant modifications would be required to power that equipment if a collocator were permitted to install a switch. Third, similar modifications would be required to maintain the environmental stability required by central office equipment. The public ultimately would bear these unnecessary costs in exchange for limited or no competitive benefits.

Q. PLEASE DESCRIBE THE TYPES OF EQUIPMENT THAT CAN BE COLLOCATED.

A. Collocation equipment is limited to concentration and circuit termination equipment (including optical line terminating equipment and multiplexers). Concentration equipment aggregates multiple loops to a single loop for more efficient transport. Termination equipment allows an ALEC to convert the optical signals on its loops to electrical signals that can be used by GTE's network equipment. Because current cross-connection technology limits the maximum distance between these various pieces of equipment, collocation is necessary and should be permitted for concentration and termination equipment.

Q. ARE THERE TECHNICAL CONSTRAINTS THAT REQUIRE THE COLLOCATION OF OTHER TYPES OF EQUIPMENT?

A. No. Similar justification does not exist for collocating switches, enhanced services equipment and customer premises equipment. Thus, to the extent the FCC's "used or useful" test may be viewed as broader than GTE's position or may be argued in the future to require collocation of additional or different equipment than that described above, GTE submits that such a construction would be contradicted by the Act itself. The FCC left to State commissions the determination whether particular equipment not discussed in the Order is entitled to collocation. Order, ¶ 581

Q. IS GTE WILLING TO ALLOW SPRINT TO COLLOCATE SUBSCRIBER LOOP ELECTRONICS, SUCH AS DIGITAL LOOP CARRIER, IN THE CENTRAL OFFICE, AS SPRINT PROPOSES?

A. Yes. The Act states that basic transmission equipment, which is essential for interconnection, may be collocated. GTE agrees that subscriber loop electronics, such a Digital Loop Carrier, fit within this category. Equipment which provides switching functionality, however, will not be allowed. GTE's position is consistent with the FCC's on this point.

Q. DOES AN ALEC HAVE A RIGHT TO DEMAND VIRTUAL COLLOCATION OVER PHYSICAL IN ANY PARTICULAR INSTANCE?

A. No. I don't believe this is required under the Act, which states that ILECs must offer physical collocation, with virtual collocation as an option only if physical is unavailable. Although GTE believes ILECs should have the option of offering virtual collocation as an alternative to physical, it does not believe virtual collocation can be lawfully mandated. This legal issue is treated in more detail in GTE's Takings Report, included in its Response to Sprint's arbitration petition.

Q. WHAT IS GTE'S POSITION RELATIVE TO SPRINT CROSS-CONNECTING TO ANOTHER PARTY COLLOCATED IN GTE'S FACILITY?

A. Sprint should not be permitted to cross-connect with non-GTE collocators on GTE property. Sprint believes that GTE should allow collocators on its premises to completely bypass GTE's network and cross-connect with each other. Although nothing in the language of the Act suggests that Congress contemplated such action, the FCC recently has required that, at the option of the ILEC, such cross-connects be made available through ILEC-provided or ALEC-provided facilities. Order, ¶ 595.

I have been advised by GTE lawyers that this requirement works a "taking" of ILEC property in excess of the FCC's authority under the Act under Bell Atlantic v. FCC. This issue is treated in more detail in GTE's Takings Report, included in its response to Sprint's arbitration petition.

The Act imposes a duty on ILECs only to interconnect their network elements with a requesting party's collocated equipment. It does not impose a duty to facilitate interconnection between third-parties anywhere, much less on its own premises. In other words, collocation authorized under section 251 permits third parties to make use of their competitors' private property only for the limited purpose of gaining access to critical network elements that are in the ILEC's control. Collocation is not an open invitation for ALECs to use ILEC property for purposes wholly unrelated to the ILECs' network.

Should the Commission deem itself bound to follow the FCC's Order pending further judicial review of the FCC decision, GTE will permit the interconnection via cross-connects of the collocated equipment of different ALECs as long as the provisioning of the cross-connect by GTE or the ALECs shall be at the option of GTE, the connected equipment is used for interconnection with GTE or access to GTE's unbundled network elements, space is available, reasonable security arrangements can be provided, and the ALECs pay all costs associated with the cross-connect.

Q. WHAT ARE THE PRICES THAT GTE WILL CHARGE FOR COLLOCATION?

A. GTE will charge the appropriate tariffed rates for collocation.

Q. PLEASE DESCRIBE HOW GTE DETERMINED COSTS AND RATES FOR THE COLLOCATION ELEMENTS.

A. Costing and pricing for the collocation rate elements were established as follows: forward looking costs were determined for each cost item. A monthly rate was established to recover the monthly recurring costs along with a reasonable allocation towards the Company's common costs.

Q. WOULD GTE USE THE SAME METHODOLOGY TO ESTABLISH THIS RATE AS IT USED TO DEVELOP THE OTHER COLLOCATION RATE ELEMENTS?

A. Yes. GTE would use the forward looking costs of the elements with a reasonable contribution of the Company's common costs.

Q. SHOULD A COLLOCATOR BE ALLOWED TO LEASE FACILITIES FROM GTE TO MEET ITS NEEDS?

A. GTE will allow customers to purchase transport services in order to connect to their collocation equipment, in lieu of the customer having to construct its own facility to connect to its equipment. This is consistent with the FCC's position that the collocator is not required to construct transmission facilities to the ILEC central office (FCC Order at para. 590.)

Q. SHOULD THE COMMISSION MANDATE A MAXIMUM INTERVAL OF 90 DAYS FOR ILECS TO ESTABLISH PHYSICAL COLLOCATIONS?

A. No. GTE believes the Act was intended to reduce unnecessary and unworkable regulations, not add to them, as Sprint's proposal would. Every collocation is different – there are numerous variables that factor into any given construction – so that it is unrealistic to impose maximum intervals for establishing collocation. GTE must properly secure each central office when it receives a physical collocation request. This can include some building modification work in order to segregate GTE's network from the collocation space. Building permits may be required, even in the case of minor construction; therefore the placement of a generic 90-day interval is not

reasonable. Once GTE has received a request and has determined that space is available, GTE will meet with the customer to discuss in-service timelines and will mutually agree upon a date.

Q. DO YOU HAVE ANY OTHER REMARKS THAT ARE PERTINENT TO COLLOCATION?

A. Yes, although not specifically addressed by Sprint, I will offer general remarks concerning structures where ILECs can collocate as well as safety and security measures.

Q. SHOULD A NEW ENTRANT BE PERMITTED TO COLLOCATE AT ANY AND EVERY STRUCTURE OWNED BY GTE, IRRESPECTIVE OF ITS PURPOSE AND CAPABILITIES, IN ORDER TO PROMOTE PARITY?

A. No. A new entrant should not be permitted to have access to any and all of GTE's buildings and structures. This type of request is not limited to what is necessary for interconnection and fails to consider space limitations. Many of GTE's buildings and structures are very small and house network elements that do not perform routing or rating functions. Therefore, interconnection and collocation at many of those points offers few benefits that cannot be obtained by collocating either at a central office (where calls are routed to and from customers), serving wire center (the office closest to an interexchange carrier's point of presence which serves as a rating point, but provides no switching), or a tandem switch (which routes

calls from one central office to another). These latter facilities offer much greater space, the proper environmental conditions, and allow more efficient maintenance and repair of equipment.

Remote units, which are smaller structures housing certain network elements located some distance away from the central office, must be evaluated on an ad hoc basis. GTE maintains two types of remote units. Remote switching units ("RSUs") have some independent switching capability and may direct local transmission traffic within a particular area. Remote line units ("RLUs"), by contrast, contain no such independent capability. RLUs interact with the switch at the central office, which acts as the host computer, directing transmission traffic. Host switches and RLUs often share NXX codes, making it impossible to route terminating traffic to a RLU. Many remote units also lack "rating" capability – the ability to measure and record traffic flow data for billing and other purposes.

Remote units are very small and offer very little space to accommodate collocators. The cramped confines of these facilities also make it difficult to segregate adequately different companies' equipment and to limit third-party access. Consequently, few, if any, ALECs will be able to place equipment in these structures. Since "dumb" remote units, such as RLUs, offer no significant benefits over central offices, serving wire centers and tandem switches (which contain routing and switching functions, have greater space, and offer

the proper environmental conditions) GTE believes that collocation should not be permitted at such locations. For the same reasons, GTE opposes collocation at vaults and manholes which also have very limited space and which, like RLUs, house no routing or rating equipment.

Q. DOES THE FCC'S ORDER REQUIRE COLLOCATION AT ALL STRUCTURES THAT HOUSE NETWORK ELEMENTS?

A. GTE recognizes that the FCC's Order requires collocation to be provided at all structures that house GTE network facilities, including "any structures that house LEC network facilities on public rights-of-way, such as vaults containing loop concentrators or similar structures." Order, ¶¶ 573-75. GTE submits, however, that such an expansion of the FCC's earlier collocation requirements is unauthorized under the Telecommunications Act. To the extent the Commission deems itself to be bound by the FCC's holding in this regard, GTE would be willing, pending judicial review of the FCC's determination, to provide collocation at such structures to the extent space is available, the interconnection requested is technically feasible, security concerns can be adequately addressed, and the collocator bears the costs of the collocation arrangement.

Collocation at RSUs or remote units that offer independent routing or rating capability do provide greater interconnection benefits, but they too suffer from severe space limitations. Nonetheless, because

RSUs contain some unique network functions, GTE will provide collocation at these sites where space is available, the requested interconnection is technically feasible, security concerns can be adequately addressed, and the collocator pays all costs of the collocation arrangement. This position is consistent with the FCC's prior collocation policies. See Special Access Order, ¶¶ 53-57.

Q. DOES GTE DESIRE TO IMPLEMENT SAFETY AND SECURITY MEASURES RELATIVE TO COLLOCATION?

A. Yes. GTE should be permitted to implement reasonable safety and security measures to protect its systems. Collocating two competitors in the same facility gives rise to certain unavoidable risks. Under the Act, GTE will be required to permit a third-party competitor to have access to its private facilities which house highly sensitive equipment and proprietary information. Similarly, those parties that choose to collocate on GTE property also will have their equipment exposed to third-party access. It is reasonable in this highly unusual situation to establish security measures, such as partitioning areas for collocating parties and installing fencing within the partitioned areas for each collocator. This ensures that no party has access to any other party's equipment. As the FCC has recognized, such measures minimize the risk of harm to the public-switched telephone network and are in the best interests of all the parties. Order, ¶ 598.

SECTION E: SUMMARY

Q. DO YOU HAVE A BRIEF SUMMARY OF YOUR TESTIMONY?

A. Yes. The Act was passed to introduce competition into the local telephone market. It recognizes that certain functions of the traditional local exchange network cannot be quickly or easily duplicated by new market entrants, and that competing providers will have to be interconnected in order to switch traffic among their customers. Collocation is a limited measure designed to remove technical and market barriers to interconnection and access to network elements. Because state-mandated physical occupation of a company's private property may offend the Constitution, Congress was careful to limit collocation to equipment "necessary for interconnection." Sprint, however, goes far beyond what is necessary and seeks to collocate whenever Sprint finds it convenient and advantageous to do so. Accordingly, the Commission should adopt GTE's preferred positions as set out above or, at a minimum, GTE's alternative positions as conditioned herein and subject to judicial review of the FCC's Order.

Q. DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

PART VI

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF CHARLES F. BAILEY

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Charles F. Bailey. My business address is 600 Hidden Ridge, Irving, TX 75038.

Q. BY WHOM ARE YOU EMPLOYED, AND WHAT IS YOUR POSITION?

A. I am employed by GTE Telephone Operations as Senior Product Manager - Network Access Services.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATION AND WORK EXPERIENCE.

A. I graduated from Texas A&M University in December of 1987 with a Bachelor of Science degree in Electrical Engineering, and in December of 1991, I graduated from Southern Methodist University with a Masters degree in Business Administration. I joined Contel of Texas in January, 1988, as Associate Engineer and was promoted to Engineer in December of 1989. In August of 1991, I joined GTE Telephone Operations Headquarters as Senior Administrator in Access Pricing and became a Staff Administrator in Access Pricing in September of 1992. In January of 1994, I was promoted to Section Manager - Ancillary Pricing and then in February of 1995 to Section

Manager - State Access Pricing. Finally, in April of 1996, I was named to my current position of Senior Product Manager - Network Access Services.

Q. WHAT ARE THE RESPONSIBILITIES OF YOUR CURRENT POSITION?

A. I am responsible for managing various operational and regulatory issues associated with GTE's poles, conduits and rights-of-way, especially as they relate to the Telecommunications Act of 1996. In this proceeding, I am providing testimony on behalf of GTE.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to identify the issues that are disputed between GTE and Sprint relating to poles, ducts, conduits and rights-of-way.

Q. PLEASE PROVIDE AN OVERVIEW OF YOUR TESTIMONY.

A. The Telecommunications Act of 1996 (the 'Act") requires that access to poles, conduits and rights-of-way be made available to all "cable television systems" and "telecommunications carriers" on a "nondiscriminatory" basis. Sprint takes the position that access to GTE's poles and conduits should not be limited. However, GTE maintains that the Act did not divest GTE of its property rights, and as such Sprint's rights to GTE's poles and conduits are subject to certain limitations.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. I will first provide a brief background regarding the history and nature of GTE's telephone poles, conduits and rights-of-way. Next, I will present an overview of the relevant provisions of the Act and GTE's position with respect to constitutional issues raised by the Act. The overview will be followed by a list of the disputed issues and a summary of the respective positions of the parties; and, finally, an explanation of GTE's position on the issues of dispute.

Q. PLEASE DESCRIBE GTE'S POLE AND CONDUIT NETWORK.

A. GTE owns thousands of telephone poles ("poles") and hundreds of miles of underground conduits ("conduits"). The poles and conduits – which have been placed across public and private property over the span of several decades – facilitate the provision of telecommunication service to GTE's end-user customers through the linking of transmission equipment between GTE's network and the customer's physical location. Facilities placed on poles or in conduits range from basic twisted pair copper wires to fiber optic cables.

Because of the significant investments in time, cost and effort required to place new poles and conduits, GTE must be able to satisfy both its current needs as well as its future space requirements. GTE forecasts its future space requirements on the basis of a five-year horizon. The need to anticipate future demand is particularly important with respect to conduits. Access to conduits requires GTE

to excavate the public infrastructure, such as streets and roadways, after obtaining all necessary authorizations from public authorities -- a long and sometimes troublesome process. The capital investment associated with the ongoing placement of poles and conduits is paid by GTE.

Q. WHAT ARE GTE'S RESPONSIBILITIES REGARDING EXISTING POLES AND CONDUITS?

A. Once poles and conduits have been placed, GTE is responsible for using and maintaining them in a safe manner. This means, for example, that GTE must replace a pole if that pole is no longer able to support the facilities placed on it; that GTE must repair any of its poles that are downed for any reason (typically on an expedited basis); that GTE must repair conduits damaged by natural catastrophe or negligent acts of excavators; and that GTE must comply with all applicable safety standards such as those of the National Electric Safety Code and the Occupational Safety and Health Act.

In addition to policing its own activities in connection with its poles and conduits, GTE also must concern itself with outside companies that are authorized to place their own facilities on GTE's poles and in its conduits. Historically, companies receiving such authorization have been limited, with very rare exceptions, to cable television ("CATV") companies. Since the early 1970s, GTE has allowed CATV

companies access to its poles and in its conduits pursuant to private agreements. In the absence of such an agreement, or in a case involving a dispute over the rates, terms or conditions of access, parties may seek state -- where it has exercised jurisdiction over attachments -- or federal intervention under 47 U.S.C. § 224 (1996).

Despite the addition of CATV facilities to GTE's poles and conduits, GTE has retained sole responsibility for all of the burdens of ownership. GTE must still repair or replace a downed pole; must still excavate and repair a conduit that is struck and damaged; must still ensure the safe use of its poles and conduits; and must still respond and defend against all claims against it for personal injury or property damage involving its poles and conduits.

Q. PLEASE DESCRIBE THE PROCESS FOR ACQUISITION AND USE OF RIGHTS-OF-WAY.

A. Before GTE can place any pole or conduit at any location, it must first obtain all rights-of-way necessary to traverse its facilities across public and private property. In the past, public rights-of-way have been available to GTE, as a public utility, free of charge. More recently, however, a growing number of state and local municipalities have begun exploring ways in which to assess a levy as compensation, such as a "donation" of telecommunications equipment, for the use of their rights-of-way. For example, in a major North Carolina market, GTE must provide free conduit and pole space

to the city. The Company, per the agreement, cannot assign or lease any Company facility located within the right-of-way without the City Council's permission. Private rights-of-way, some in the form of formal easements, must be obtained by GTE from private property owners. The consideration paid for private rights-of-way varies and can be significant in some instances, such as railroad crossings. Similarly, the specific rights and limitations of each right-of-way vary.

Q. WHAT DOES THE ACT REQUIRE REGARDING ACCESS TO GTE'S POLES, CONDUITS AND RIGHTS-OF-WAY?

A. The Act revised section 224 of the Communications Act of 1934 in a number of significant ways. The most important change relating to section 224 is the provision of "nondiscriminatory" access to poles, conduits and rights-of-way to be made available to all "cable television systems" and "telecommunications carriers." 47 U.S.C. § 224(f)(1) (1996). Prior to the Act, section 224 did not require that such access be made available. Rather, it was used by the FCC to determine whether agreements voluntarily entered into between facilities owners and CATV companies contained rates, terms and conditions that were "just and reasonable." Even this level of regulatory intrusion did not occur unless the matter was presented formally to the FCC by an involved party. In fact, it would be accurate to say that the vast majority of pole and conduit access agreements existing prior to the Act have never been subject to regulatory review.

Q. WHAT IS GTE'S POSITION REGARDING THE REVISIONS OF SECTION 224 OF THE COMMUNICATIONS ACT OF 1934 THAT WERE INCLUDED IN THE TELECOMMUNICATIONS ACT OF 1996?

A. As a general matter, it is GTE's position that the Act's requirement that utilities grant access to their facilities constitutes a taking of private property for public use without just compensation. Prior to the Act, section 224 was viewed as authorization for the FCC to review the rents charged by public utility landlords who had voluntarily entered into leases with cable company tenants. It was clear, however, that section 224 did not mandate access. The FCC concluded in a recent pronouncement of the takings issues relating to the revised section 224 that incumbent local exchange carriers ("ILECs"), such as GTE, can no longer even reserve space on their own poles or in their own conduits for future use. In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, First Report and Order, CC Docket No. 96-98, FCC 96-325 (released Aug. 8, 1996) (the "Order") ¶ 1170.

Q. PLEASE DESCRIBE THE AREAS OF DISPUTE BETWEEN SPRINT AND GTE AND THEIR RESPECTIVE POSITIONS.

A. Despite the clear constitutional infirmities of section 224's access requirements, GTE has continued to negotiate access arrangements with Sprint. Virtually every issue that remains unresolved flows from the basic conflict between GTE's attempt to exercise reasonably its

basic ownership rights and Sprint's apparent belief that GTE's poles and conduits are now as accessible as any other property in the public domain. The remaining unresolved issues present the following questions:

(1) *Can access to poles, conduits and the like be denied?*

Sprint's Position: Where facilities are available, GTE must provide any telecommunications carrier requesting access with equal and non-discriminatory competitively neutral access to, by way of example and not limitation, any pole, pole attachment, duct, conduit, and ROW, on terms and conditions equal to that obtained by the ILEC. Other users of these facilities cannot interfere with the availability or use of these facilities by Sprint.

GTE's Position: Access can be denied for purposes of capacity, safety, reliability and for generally applicable engineering purposes. This is the case with electric utilities, and the rule should be the same for ILECs.

(2) *Does an entity obtaining access to a utility's conduits have the unfettered right to "break out" of that utility's manholes?*

Sprint's Position: Sprint must be allowed to "break out" of GTE's manholes or conduits.

GTE's Position: Sprint must obtain prior authorization from GTE before breaking out any GTE manhole. GTE must ensure that the structural and operational integrity of its manholes are maintained. Breaking out of conduits is not allowed because it damages the structural integrity of the conduit.

(3) *Can a utility reserve space on its poles and in its conduits for future use?*

Sprint's Position: GTE cannot reserve space for its future use.

GTE's Position: A basic right of ownership is the ability to use your own property. If GTE cannot reserve space, its rights of ownership will be reduced to that of a mere licensee.

(4) *Are there general administrative issues involved in the issues of Right-of-Way, Poles, Conduits, and the like?*

Sprint's Position: Sprint has certain information and timeline requirements.

GTE's Position: Each requirement must be reviewed individually to determine if it is feasible, and necessary and reasonable.

(5) *What prices should GTE charge for pole attachments?*

Sprint's Position: Compensation should be based upon TELRIC.

GTE's Position: Conceptually, GTE's position is that it should be allowed to recover its direct costs, including a contribution to the company's joint and common costs. If a state (or GTE's tariff) regulates these kinds of attachments, then the state regulations (or tariff) should apply. The FCC has not yet promulgated rules on this subject. GTE recommends that any rate for attachments be imposed subject to a "true up" once lawful rates are established.

Q. PLEASE EXPLAIN GTE'S POSITION ON THE ISSUE OF DENIAL OF ACCESS.

A. GTE can deny access to Sprint on the basis of insufficient capacity, safety reasons, reliability and generally applicable engineering purposes. Section 224(f)(2) permits "a utility providing electric service" to deny access to its poles, conduits or rights-of-way if there "is insufficient capacity and for reasons of safety, reliability and generally applicable engineering purposes." 47 U.S.C. § 224(f)(2) (1996). In its recent Order, the FCC determined that "any utility may take into account issues of capacity, safety, reliability and engineering when considering attachment requests, provided such

assessment is done in a nondiscriminatory manner." Order, ¶ 1176. The FCC added, however, that a denial on any one of these bases "will be scrutinized very carefully, particularly when the parties concerned have a competitive relationship." Order ¶ 1177.

Q. SHOULD GTE BE REQUIRED TO MAKE ADDITIONAL POLE, DUCT, CONDUIT, AND RIGHT-OF-WAY CAPACITY AVAILABLE TO SPRINT IF GTE DOES NOT HAVE SPARE CAPACITY?

A. No, GTE should not have a requirement to make additional capacity available. Requiring GTE to create additional capacity diverts scarce company resources from company projects regardless of what makes business sense for GTE. If GTE and Sprint can negotiate a mutually beneficial agreement by which capacity can be expanded, they should have the option to do so; GTE should not be required to do this.

Q. ARE OVERLASHING, INSTALLING TALLER POLES, AND REARRANGING EXISTING FACILITIES APPROPRIATE METHODS FOR EXPANDING CAPACITY TO ACCOMMODATE AN ALEC'S REQUEST FOR ACCESS?

A. To the extent GTE and Sprint reach a mutually beneficial agreement, installing taller poles and rearranging existing facilities are appropriate. Sprint overlashing their facilities on GTE's facilities is not appropriate because it creates access and maintenance problems for GTE. If Sprint desires to overlash a new facility on top of their

existing facility, this could be appropriate subject to a pole loading analysis by GTE. However, if Sprint chooses to overlash a new facility on their own existing facility an additional pole rental should apply.

Q. DOES THE ACT REQUIRE THAT SPRINT BE GIVEN AN UNRESTRICTED RIGHT TO "BREAK OUT OF" GTE'S MANHOLES ONCE IT HAS SECURED A CONDUIT ACCESS AGREEMENT WITH GTE?

A. No. "Breaking out" of manholes refers to the process by which new holes are placed through the walls of manholes to provide an entrance or exit for underground cables. GTE has proposed that any company desiring to break out of a GTE manhole first should obtain authorization from GTE. In determining whether authorization should be granted, GTE would need to address at least two issues. First, GTE would have to determine whether or not the desired hole would impair the structural and operational integrity of the manhole. Only a limited number of holes can be made in a manhole wall (typically six to eight inches of concrete) before that wall becomes structurally unsound. This requirement would be consistent with the safety concerns underlying the FCC's determination that access can be denied by any utility for reasons of capacity, safety, reliability and engineering. See Order, ¶ 1176.

Second, depending on the extent of the effort required to make the desired hole, GTE may be required to ensure that all work is performed by qualified individuals in a safe, workmanlike manner. Breaking out of a manhole typically involves the use of heavy equipment, such as a jack hammer, which can cause severe damage if not used properly. Moreover, facilities in a manhole must be properly installed, grounded and bonded to avoid future damage. Thus, such a provision would be consistent with the FCC's determination that utilities can require that "only properly trained persons" work in the proximity of their facilities. Order ¶ 1182.

Q. DOES THE "NONDISCRIMINATORY ACCESS" REQUIREMENT OF SECTION 224 PRECLUDE GTE FROM RESERVING SPACE FOR ITS OWN FUTURE NEEDS?

A. No. The requirement of "nondiscriminatory access" does not mean that GTE's rights as an owner of poles and conduits must be relegated to the status of a mere licensee occupant. Rather, "nondiscriminatory access" requires that an owner of poles or conduits treat equally all companies seeking access. Thus, for example, an owner would not be permitted to provide access to a subsidiary or affiliate on terms and conditions more favorable than those offered to all other telecommunications companies.

As a public policy matter, ILECs, such as GTE, have special service obligations by virtue of their status as providers of last resort.

Because GTE must be able to serve new customers readily, it must always have reserve capacity. Depriving GTE of the ability to maintain reserve capacity would impair service to the public and cause extraordinary cost increases. Moreover, depriving GTE of the ability to reserve space on its own facilities will have a significant adverse effect on GTE's future investment in poles and conduits. If GTE cannot reserve space in its own facilities, there is no incentive to construct facilities sufficient to satisfy future needs. As a result, economic and efficient investment will be lost, and long-range strategic planning rendered impossible.

Finally, a determination precluding GTE from reserving space for its own future needs is squarely at odds with the plain meaning of section 224(f)(1), which applies the nondiscrimination requirement only to those for whom access must be "provided," not to the owner, whose "access" is synonymous with its ownership right.

For all of the foregoing reasons, GTE does not agree with the FCC's conclusion that non-electric utilities, such as GTE, are not permitted to reserve space on their own facilities under the nondiscriminatory access requirement of section 224. GTE lawyers have advised me that the FCC's conclusion, coupled with the access rate requirements of section 224 and the FCC's implementing regulations, has the effect of "taking" of GTE's property without providing just compensation. GTE's rights to possess, use and dispose of its poles

and conduits will have been extinguished if the FCC's conclusions are implemented as suggested by Sprint. The power to exclude is one of the most fundamental rights an owner has with regard to poles and conduits. By its interpretation of section 224, the FCC clearly has stripped GTE, as a property owner, of its rights to not only to exclude others, but to make use of its own property in the future.

GTE attorneys have also advised me that the effect of terminating GTE's rights to exclude others and to use its property is the interference with investment-backed expectations of GTE. There can be no question but that the FCC's order eviscerates a critical expectation of GTE in making the investment in these facilities in the first instance -- namely, the expectation that additional space would be available as needed in the future. This issue is addressed in more detail in GTE's Takings Report included in its response to Sprint's request for arbitration.

Whether or not the FCC's prescribed methodology for determining the rates for access allows GTE to recoup its costs is irrelevant to the amount of just compensation. Rather, it is the value of the property that matters. Here, that value is determined through the voluntary transactions of willing parties, not artificial rates developed to benefit CATV providers.

Q. SPRINT BELIEVES THAT GTE SHOULD PROVIDE INFORMATION ON LOCATION AND AVAILABILITY OF ACCESS TO POLES, CONDUITS AND RIGHTS-OF-WAY WITHIN 10 BUSINESS DAYS OF SPRINT'S REQUEST. IS THIS POSITION REASONABLE?

A. GTE will, upon a specific Sprint request, provide it with information on location and availability of access to GTE's poles, conduits, and rights-of-way. However, a mandated 10-day period within which to do so is unreasonable. Many factors determine how fast GTE can get the information Sprint wants. These include, for example, the volume of requests received during a given timeframe; whether easements are assignable in a particular case; the fact that a field visit will often be required to determine availability of space and access; and the ease or difficulty with which GTE can contact a private property owner in a given instance. GTE does not believe a mandated timeframe is necessary or practical. However, if the Commission wishes to order a presumptively reasonable period, it should be no shorter than 30 days.

Q. SPRINT CLAIMS THAT GTE SAID THIS TYPE OF INFORMATION "WILL NEVER BE PROVIDED WITHIN 10 DAYS." IS THIS TRUE?

A. No. GTE's intent is to provide the information as soon as possible. For small simple inquires GTE may be able to meet ten days. However, GTE expects most requests to be more complicated.

Q. IS IT APPROPRIATE FOR GTE TO PROVIDE COPIES OF ENGINEERING RECORDS THAT INCLUDE CUSTOMER-SPECIFIC INFORMATION WITH REGARD TO GTE'S POLES, DUCTS, AND CONDUITS?

A. No. Sprint has no legitimate need for such information. The only information Sprint needs in response to an inquiry about space availability or accessibility is where the conduit runs, where the manholes are, and where the pole line runs. In addition, GTE will give Sprint specific assignment information when it is time to install their cable.

Q. WHO SHOULD PAY FOR THE COST OF PREPARING AND USING GTE'S POLES, CONDUITS, AND RIGHTS-OF-WAY FOR SPRINT'S USE?

A. The ALEC – in this case, Sprint – accessing GTE's facilities should pay, as it is the cost causer and it receives the benefits of access.

Q. WHAT PRICES SHOULD GTE CHARGE FOR ALLOWING ACCESS TO POLES, DUCTS, RIGHTS-OF-WAY, AND THE LIKE?

A. While I am not GTE's pricing or costing witness, my understanding is that from a practical perspective, if a state regulates access to pole and duct space, then the state regulations and rules should apply. Since the FCC has not yet promulgated rules on this subject, if a state doesn't regulate, then GTE recommends that any rental rates for

attachments be imposed subject to a "true up" once lawful rates are established. All other charges for provision of space (e.g., make-ready activities, audits, field surveys, records checks, etc.) should be based on the actual labor and material costs incurred. Charges for actual rights-of-way should be shared equally by all entities utilizing the right-of-way.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. Should the Commission choose to follow the Act and the FCC's guidelines implementing regulations pending judicial review, the Commission nevertheless should recognize GTE's vested property rights and limit Sprint's access to GTE's poles, conduits and rights-of-way accordingly. Specifically, GTE asks that the Commission: (1) permit GTE to deny access to Sprint under certain situations of insufficient capacity and/or reasons of safety, reliability and generally applicable engineering purposes; (2) place restrictions on Sprint's ability to break out of GTE's manholes and requiring Sprint to obtain prior approval, and (3) allow GTE to reserve GTE space on its poles and conduits for future use.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

PART VII

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF MICHAEL J. DOANE

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Michael J. Doane, Analysis Group Economics, Inc., Two Embarcadero Center, Suite 1160, San Francisco, California, 94111

Q. PLEASE STATE YOUR PROFESSIONAL QUALIFICATIONS AND EDUCATIONAL BACKGROUND.

A. I am Vice President and Principal of Analysis Group Economics, Inc., an economic research and consulting firm. I am manager of the firm's San Francisco office and director of the firm's energy and telecommunications practice areas. My expertise is in applied microeconomics and econometrics, and I have over fifteen years of consulting experience in regulatory economics.

I have conducted economic research on a variety of antitrust and regulatory issues in network industries, including the electric power, natural gas, oil pipeline, and telecommunications industries. My research includes econometric analyses of demand; studies of public utility pricing and rate design; analyses of alternative regulatory approaches; cost and productivity measurement; and analyses of competition and industry performance.

I have published articles in a number of academic journals, including the *Journal of Law & Economics*, the *Quarterly Journal of Economics*, the *Journal of Law, Economics & Organization*, and the *Hume Papers on Public Policy*, among others.

I have received my M.A. in Applied Economics from the University of California at Santa Barbara, and my B.A. in Economics from the University of Connecticut.

Q. HAVE YOUR PREPARED A VITAE THAT DESCRIBES YOUR EDUCATION, PUBLICATIONS, AND EMPLOYMENT HISTORY?

A. Yes. A copy of my most recent vitae is attached as Exhibit No. MJD-1

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide an economic analysis of the issues to be arbitrated in this proceeding between Sprint and GTE. In this regard, I adopt the report entitled, "An Economic Framework for Implementing the Pricing Provisions of the Telecommunications Act of 1996" (attached hereto as Exhibit No MJD-2). The report was prepared by J. Gregory Sidak, David S Sibley, Daniel F. Spulber, Michael A. Williams and myself. The report identifies a pricing rule that would satisfy the requirements of the Telecommunications Act of 1996 while ensuring that local exchange carriers received just compensation. The economic analysis set forth in this report is specific to Florida.

Q. IN CONNECTION WITH THE PREPARATION OF YOUR REPORT, WHAT MATERIALS HAVE YOU REVIEWED?

A I reviewed the Telecommunications Act of 1996 and the August 1996 order of the Federal Communications Commission (FCC) in its local competition docket, *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 and Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers, First Report and Order*, CC Dkt. Nos. 96-98, 95-185 (released Aug. 8, 1996) [hereinafter *First Report and Order*]. The report [hereinafter *First Report and Order*] has been stayed by the Eighth Circuit Court of Appeals in St. Louis. I have also reviewed the testimony of Sprint's pricing witnesses Messrs. Carlson, Phelan, and Sywenki. Additionally, I have reviewed the testimony and report prepared on behalf of AT&T by David L. Kaserman et al. entitled "Local Competition Issues and the Telecommunications Act of 1996" and a report prepared by August H. Ankum, et al, entitled "An Economic Analysis of Issues to be Arbitrated Under Section 252 of the Telecommunications Act of 1996."

Q. WHAT IS YOUR IMPRESSION OF THE INTENT OF THE TELECOMMUNICATIONS ACT OF 1996?

A. The Act offers the promise of an end to more than a half a century of monopoly regulation of the local exchange and telephone industry. The Act holds out the further promise of a new "pro-competitive,

deregulatory" system for fostering competition in all segments of the telecommunications industry

Q. WHAT ARE THE CENTRAL PRINCIPLES OF THE TELECOMMUNICATIONS ACT?

A. To open all telecommunications markets to competition so as to provide a procompetitive, deregulatory neutral policy framework designed to accelerate the delivery of advanced communications and information technologies to all Americans.

Q. HOW ARE THESE PRINCIPLES BEING IMPLEMENTED?

A. The Act requires incumbent local exchange carriers to offer their resale services to other carriers at wholesale costs. The Act also contains sweeping interconnection and unbundling provisions Although Congress has provided guidance on the types of services subject to wholesale and unbundling requirements, "just and reasonable" rates must be negotiated or determined state-by-state, in proceedings like this one.

Q. WHAT DO YOU SEE AS THE CONSEQUENCES OF THESE STATE-BY-STATE ARBITRATIONS?

A. These arbitrations can affect the financial viability of GTE and every state's incumbent local exchange carriers. That issue, in turn, will have profound ramifications for the consumers of the state. For

example, if prices are not appropriately set for mandatory network access, that will impair GTE's financial integrity. This will starve the local telecommunications network of future investment. That investment, however, is critical not only to replacing the existing infrastructure as it wears out, but also to maintaining and expanding that infrastructure so that it can serve as the backbone on which new competitors would enter the new competitive marketplace. Finally, many of the benefits that should accrue to all citizens from robust, fair competition will be eroded if GTE and other local exchange carriers are so weakened that they are unable to compete effectively with those companies entering the marketplace.

Q. WHAT DOES ECONOMIC ANALYSIS IMPLY ABOUT THE PROPER OUTCOME OF THIS ARBITRATION PROCESS?

A. Economic analysis indicates that, if GTE is to be required to sell or make available its services and products to Sprint and others, GTE should be reimbursed for all its costs and be allowed the opportunity to earn a reasonable rate of return as expressly authorized by Congress. Anything less would be a taking of GTE's property Importantly, it would also deny the consumers of this state the substantial benefits that ought to flow from robust, fair competition.

Q. WHAT DOES THE ACT REQUIRE WITH RESPECT TO THE PRICE TO BE CHARGED BY INCUMBENT LOCAL EXCHANGE COMPANIES FOR UNBUNDLED NETWORK ELEMENTS?

A. In section 252(d)(1), the Act requires three things. First, it requires that the price be "based on the cost (determined without reference to a rate of return or other rate-based proceeding) of providing the interconnection or network element." Second, it requires that the prices be "non-discriminatory." Third, the Act requires that such prices "may include a reasonable profit."

Q. HAS SPRINT PROPOSED A PRICING RULE FOR THE STATES TO USE FOR SETTING PRICES FOR UNBUNDLED NETWORK ELEMENTS?

A. Yes. According to the report written by Sprint's pricing witness on behalf of Sprint and Sprint's petition for arbitration, Sprint is arguing that prices should be set equal to Total Element Long-Run Incremental Costs (TELRIC) per unit plus a uniform markup not to exceed fifteen percent.

Q. WHAT IS TELRIC?

A. The TELRIC of a network element equals those costs that are incremental (or attributable) to individual network elements. In the attached report, we use the term "TSLRIC" to refer to the long-run incremental costs of a particular retail service, e.g., single-line business service.

Q. DOES SPRINT'S PRICING PROPOSAL SATISFY THE ACT'S REQUIREMENTS?

A. Absolutely not.

Q. WHY DOES SPRINT'S PRICING PROPOSAL FAIL TO SATISFY THE ACT'S REQUIREMENTS?

A. One important flaw in the proposal is that unbundled network element prices equal to TELRIC plus fifteen percent will not recover GTE's forward looking costs. Thus, the Sprint proposal is structured to require monumental subsidies from GTE to Sprint, so that Sprint would become a free rider on GTE's local exchange network.

Q. HOW WOULD YOU CHARACTERIZE SPRINT'S PROPOSAL OVERALL?

A. Sprint's pricing proposal is arbitrary and has no basis in economic or business logic. A uniform markup above TELRIC will fall short of a "reasonable" (market-based) allocation for some network elements and will exceed a "reasonable" (market-based) allocation for others. In the first instance, GTE would under recover its costs, while in the second instance Sprint's proposed price would exceed stand-alone costs ensuring no cost recovery for GTE. Thus, what Sprint proposes is clearly arbitrary. There is no economic or business management basis for equal proportional markups on diverse elements or services. GTE faces competition in may of its markets for services and network elements. Prices that are too high relative to the market will encourage uneconomic bypass and place GTE at a competitive

disadvantage, thus creating economic losses for GTE. Prices that are too low will encourage excessive use and discourage efficient entry. GTE will experience excessive use of services or elements that are priced below cost, thus magnifying economic losses for the company.

Q. PLEASE GIVE EXAMPLES OF COMPETITION FOR UNBUNDLED NETWORK ELEMENTS.

A. There are multiple commercial providers of signaling services. There are competitive commercial providers of switching services, including competitive access providers (CAPS) and adaptation of long distance switching facilities to carry out local exchange switching. According to *Business Week*, October 7, 1996 at 128, AT&T can use its own switches or those leased from CAPS, and AT&T has signed contracts with six CAPS covering over 80 cities. Moreover, there are alternative providers of loops and substitutes for loop services including wireless services (cellular and PSC), cable telephony, CAPS, and facilities established by entering competitive local carriers.

Q. WHY DO YOU THINK TELRIC PLUS FIFTEEN PERCENT IS NOT A REASONABLE PRICING RULE FOR STATE COMMISSIONS TO USE?

A. As the attached report notes, there are at least ten specific problems with using TSLRIC pricing of unbundled network services.

These problems, each of which applies to Sprint's proposal of TELRIC plus fifteen percent are listed below. Specifically, TELRIC pricing:

(1) does not reflect the firm's total direct costs;

(2) does not reflect the firm's economic costs;

(3) is not competitive pricing;

(4) promotes free riding by competitors;

(5) subsidizes entrants;

(6) does not take into account the shifts in costs from attributable costs to joint and common costs due to unbundling, thus creating incentives for excessive and economically inefficient unbundling;

(7) fails to include joint and common cost increases that are due to unbundling,

(8) creates incentives for the incumbent to reduce its joint and common or shared costs;

(9) lacks dynamic pricing flexibility and creates incumbent burdens; and

(10) is discriminatory.

Q. SPRINT'S PRICING WITNESS JUSTIFIES USING THE EQUAL PERCENTAGE MARKUP RULE BECAUSE IT "TREATS THE NON-COMPETITIVE MARKETS AS IF THEY WERE COMPETITIVE" AND "UNIFORM MARKUPS ARE NONDISCRIMINATORY." DO YOU AGREE?

A. No, I do not. Competitive markets do not have equal markups, rather the markups chosen by competitive firms differ considerably across products and markets. Otherwise, teaching management students would be greatly facilitated, as every manager could apply the basic uniform markup rather than taking into account market demand and cost conditions. Uniform markups are more likely to be discriminatory since they create subsidies for some services and result in selling below cost for other services. While it is understandable that Sprint wishes to procure something for less than it costs, a seller cannot stay in business very long if it is forced to sell its services below cost

Q. WHAT DOES SPRINT PROPOSE FOR PRICING OF RESALE SERVICES?

A. Sprint's pricing witness states "I recommend that GTE should offer a specific wholesale discount rate for at least five separate categories of service that reflect the different underlying avoided costs inherent in the five categories.

Q. HOW DO YOU EVALUATE SPRINT'S WHOLESALE PRICING PROPOSAL?

A. Sprint's wholesale pricing proposal is flawed because it is based on "avoidable" costs, that is, it subtracts all costs that might conceivably be avoided without determining whether such costs are indeed avoided. Thus, the proposal is not designed to determine accurately what is the appropriate wholesale discount, but rather to create the

maximum possible discount. Again, the result is to give excessive discounts to Sprint allowing them to freeride on GTE's services at the expense of GTE. Such an approach is discriminatory toward GTE, places it at a competitive disadvantage, and creates economic losses It is interesting that Sprint argues for nonuniform markdowns when it suits its purpose (for wholesale services) and uniform markups when it suits its purpose (for unbundled network elements). The only consistent explanation for these pricing proposals is the desire of Sprint to obtain services and unbundled network elements below their economic cost.

Q. WHAT DOES SPRINT PROPOSE IF ITS PRICING METHODOLOGY IS NOT ADOPTED?

A. Sprint proposes adopting the default prices of the now-stayed FCC *First Report and Order*. The prices for loops and other unbundled network elements generally are below even the TELRICs of GTE and thus create operating losses for GTE, and fail to recover any shared or common costs. All of the problems that I have already identified for TELRIC pricing apply to the default prices, which are, if anything even worse than TELRIC.

Q. HAVE YOU PROPOSED A PRICING RULE THAT DOES MEET THE REQUIREMENTS OF THE ACT?

A. Yes, I have.

Q. WHAT WERE THE UNDERLYING REQUIREMENTS THAT YOU THOUGHT YOU HAD TO SATISFY IN CREATING THIS APPROACH?

A. I wanted an approach that would satisfy all the requirements that Congress established for setting prices for resale and unbundled networks. Specifically, the approach had to generate prices that would be based on cost, would be non-discriminatory, and would allow the Incumbent Local Exchange Carrier (ILEC) the opportunity to earn a reasonable profit. Furthermore, without endorsing all aspects of the pricing proposals contained in the FCC's *First Report And Order*, I wanted the pricing rule to satisfy the FCC's condition "that, under [a total element long-run incremental cost] methodology, incumbent LECs' prices for unbundled network elements shall recover the forward-looking costs directly attributable to the specified element as well as a reasonable allocation of forward-looking common costs." That condition can be found at paragraph 62 of the *First Report And Order*.

Q. WHAT DO YOU CALL YOUR PRICING RULE?

A. The Market-Determined Efficient Component-Pricing Rule, or the M-ECPR.

Q. HOW DOES THE M-ECPR RELATE TO THE ECPR DESCRIBED AND REJECTED BY THE FCC IN ITS *FIRST REPORT AND ORDER*?

A. There are some very important differences. First, to avoid confusion, I will call the rule discussed by the FCC the "FCC-ECPR." The FCC-ECPR was properly rejected by the FCC. It was a very simplistic rule It failed to take into account that there would be competitive entry in setting prices for unbundled network elements. This is a very significant omission when you consider that the entire purpose of the Telecommunications Act of 1996 is to foster competitive entry. That is why I have labeled my pricing rule the Market-Determined Efficient Component-Pricing Rule, or the M-ECPR. In other words, the M-ECPR takes full account of the competitive entry when setting prices for unbundled networks elements. In that respect, the M-ECPR benefits consumers and avoids all of the shortcomings that the FCC quite properly attributed to the FCC-ECPR.

Q. WHAT IS THE M-ECPR?

A. The M-ECPR is a market-based method for determining, as the FCC directed, the reasonable share of forward-looking common costs that should be allocated to the prices for the ILEC's various unbundled network elements. The M-ECPR price for an unbundled network element is equal to the sum of its TELRIC plus its opportunity cost, as constrained by market forces. Opportunity costs refers to the net return that an unbundled network element will bring GTE if it is not sold at wholesale to a competitor. Like the market, the M-ECPR does not permit GTE to charge a price for an unbundled element that exceeds that element's stand-alone cost. That market-determined

outcome coincides precisely with the regulatory prescription in section 51.505(a)(1) of the rules announced in the FCC's *First Report and Order* -- namely, that "[t]he sum of a reasonable allocation of forward-looking common costs and the total element long-run incremental cost of an element shall not exceed stand-alone costs associated with the element."

Q. DOES THE M-ECPR ALSO CALCULATE THE PRICE FOR GTE'S WHOLESALE SERVICES RESOLD TO COMPETITORS?

A. Yes. Again, the M-ECPR is consistent with the resale provisions contained in the Telecommunications Act and the *First Report And Order*.

Q. IS THE M-ECPR A COMPLETE SOLUTION TO ALL PRICING PROBLEMS?

A. No. The M-ECPR does not alter the traditional problems faced by a regulated local exchange carrier operating with a retail rate structure that contains cross subsidies mandated by regulation.

Q. WHAT IS THE PRACTICAL EFFECT OF THAT LIMITATION?

A. The M-ECPR does not afford GTE the opportunity to recover fully its forward-looking common costs, as would regulated rates absent competitive entry. Facilities-based entry and M-ECPR pricing of unbundled network elements will, therefore, permit stranded costs to arise. I define stranded costs to be the present value of the firm's net

revenues under regulation minus the present value of the firm's net revenues under competition. To ensure that GTE receives a reasonable opportunity to recover all of its forward-looking common costs, it is necessary for this arbitration to establish a competitively neutral, non-bypassable end-user charge.

Q. WHAT KINDS OF FORWARD-LOOKING COSTS WOULD THE END-USER CHARGE RECOVER?

A. There are six categories of costs that GTE cannot fully recover through competitive M-ECPR prices but nonetheless will incur on a forward-looking basis to discharge its obligation to serve.

Q. WHAT ARE THEY?

A. They are:

(1) shared costs of network operation, incurred among two or more (but not all) of GTE's services, but not wholly attributable to any single service;

(2) common costs of network operation, incurred among all of GTE's services;

(3) losses incurred in GTE's provision of services to preferred classes of customers at regulated prices that are below GTE's incremental cost of providing such services;

(4) costs incurred as a result of incumbent burdens that GTE continues to bear after the advent of competition, but which

GTE's competitors are not required to bear, such as carrier-of-last-resort obligations;

(5) costs incurred by GTE to accomplish government-mandated unbundling of network elements or resale of network services; and

(6) losses incurred when GTE's avoided costs are incorrectly overstated and are used to establish the discount that competitors receive when purchasing wholesale services from GTE.

Q. WOULD THE END-USER CHARGE ALLOW GTE TO RECOVER MONOPOLY PROFITS OR COSTS INEFFICIENCIES?

A. No. Its sole purpose is to allow GTE a reasonable opportunity to recover the costs that I have just described. Without an end-user charge, GTE would be assured of incurring *losses* on its sale of unbundled network elements.

Q. DO YOU EXPECT THAT THE END-USER CHARGE WILL NECESSARILY BE A PERMANENT RECOVERY MECHANISM?

A. No. The need for an end-user charge will diminish over time as the incumbent LEC recovers the cost of its past investment. Other Commission actions, such as rate rebalancing, can reduce the need for such a charge. It is possible, though, that end-user charges will be needed permanently to cover forward-looking common costs.

Q. WHAT IS YOUR ASSESSMENT OF THE *FIRST REPORT AND ORDER* RELEASED BY THE FCC ON AUGUST 8, 1996?

A. The language of the *First Report and Order* could be read to preclude GTE from recovering all of its forward-looking costs. It also makes no effort to allow GTE to recover its historic costs. Prohibiting GTE from recovering these costs would violate the plain terms of the 1996 Act that requires incumbent local exchange carriers to be compensated for their costs. Even more, as I have been advised by GTE's attorneys, it would lead to a taking of GTE's property.

Q. DOES YOUR REPORT PRESENT PRICES COMPUTED ACCORDING TO ONE OF THE RECOMMENDED METHODS OF ALLOCATING FORWARD-LOOKING COMMON COSTS THAT IS CONTAINED IN THE FCC'S *FIRST REPORT AND ORDER*?

A. Yes. Although I do not endorse any version of fully distributed cost (FDC) pricing, the report calculates prices for GTE's unbundled network elements using a procedure that is equivalent to the FCC's recommended method of allocating forward-looking common costs according to a fixed percentage markup over total element long run incremental cost.

Q. CAN YOU GENERALIZE CONCEPTUALLY THE DIFFERENCES BETWEEN SPRINT'S PRICING RULE AND THE M-ECPR THAT YOU ENDORSE?

A. Yes. First, Sprint's proposal would protect competitors and promote new forms of regulation that would attempt to "manage" competition. The proposal would appear to involve excessive analyses of costs as well as updating of costs studies to support changes in prices over time. GTE's proposal will promote competition and efficient entry, and it will allow regulation to recede as competition develops.

Second, although both parties agree that the pricing of unbundled network elements should be based on economic costs, there is disagreement on what is the proper definition of economic costs. Sprint argues that economic costs should be limited to GTE's TELRIC plus fifteen percent. GTE maintains that economic costs should also include opportunity costs, as constrained by the market. The attached report demonstrates that economic costs include market-determined opportunity costs.

Third, although both parties agree that the pricing of resale services should equal the retail rate minus avoided retail costs in accordance with the 1996 Act, Sprint proposes to exclude GTE's wholesaling costs and asserts that per-unit avoided costs should be calculated assuming GTE ceases to provide retail services. GTE maintains that net avoided retail costs (that is, avoided retail costs net of any additional wholesale costs) should be the discount; moreover, the size of the discount should be determined on the basis of a

reasonable projection of the amount of retail services that GTE will no longer provide as a result of reseller entry. The accompanying report will show that a discount equal to the net avoided retail costs is the economically correct discount.

Q. HOW WOULD YOU SUMMARIZE THE CHOICE THAT THE COMMISSION MUST MAKE BETWEEN SPRINT'S PRICING RULE AND YOUR PRICING RULE?

A. Sprint's pricing formulas would deny GTE recovery of its total costs, require GTE's shareholders to subsidize Sprint's entry into local exchange telephony, and confiscate the private property of GTE's shareholders. GTE's pricing formulas would meet the deregulatory objectives set forth in the Telecommunications Act of 1996, satisfy the FCC's recommendation that prices for wholesale services and unbundled network elements be priced on the basis of forward-looking costs, and allow competition and economically efficient entry into the marketplace.

Q. DO YOU HAVE ANY ATTACHMENTS TO YOUR TESTIMONY?

A. Yes. I attach as Exhibit No. MJD-2, and incorporate into my testimony, "An Economic Framework for Implementing the Pricing Provisions of the Telecommunications Act of 1996," which I have prepared with J. Gregory Sidak, David S. Sibley, Daniel F. Spulber, and Michael A. Williams.

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

A. Yes.

MICHAEL J. DOANE

Michael Doane is a Principal and Vice President of Analysis Group Economics, Inc. and director of the firm's energy and telecommunication practice areas. He is an economist specializing in applied microeconomics. He has provided management and economic counsel to public and private sector clients, primarily in the areas of antitrust and regulatory economics, energy economics, and consumer research. His research includes:

- Analyses of public utility pricing and rate design, cost allocation methodologies, cost and productivity measurement, electricity and natural gas demand, and energy conservation policies and investment
- Economic analysis of entry regulation, rate regulation, and market power, industries examined include natural gas, oil pipeline, electric power and telecommunications
- Valuation of natural resources for severance tax purposes
- Evaluation of the effects of mergers on industry structure and competition
- Studies of economic liability and damages in cases involving such issues as copyright infringement, breach of contract, product liability, product tying, and foreclosure
- Development of statistical models for certification and damage calculations in class action complaints
- Development of customer surveys and econometric models for various retail-based industries to predict product choice and market share; industries examined include transportation, telecommunications, retail gasoline, hotel, computers, food products, and home appliances

Mr. Doane received his M.A. in Applied Economics from the University of California at Santa Barbara and has completed additional graduate study in price theory and econometrics. He holds an B.A. in Economics from the University of Connecticut. He is a member of the American Economics Association, the International Association of Energy Economists, and the American Bar Association - Antitrust Section. Prior to joining Analysis Group, he was a Senior Economist with Arthur D. Little, Inc.

SELECTED CASEWORK

STATE OF CALIFORNIA, PUBLIC UTILITIES COMMISSION
Rulemaking on the Commission's Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Network Carriers. Docket No. R.93-4-003, 1996

Economic analysis of proposed pricing rules.

FEDERAL COMMUNICATIONS COMMISSION
Implementation of the Local Competition Provisions in the Telecommunications Act of 1996. CC Docket No. 96-98, 1996.

Economic analysis of the pricing provisions of the Act. Empirical study and affidavit prepared on behalf of GTE Service Corporation.

STATE OF ILLINOIS, ILLINOIS COMMERCE COMMISSION
Petition for a Total Local Exchange Service Wholesale Tariff from Illinois Bell Telephone Company d/b/a Ameritech Illinois and Central Telephone Company Pursuant to Section 13-505.5 of the Illinois Public Utilities Act, Docket No. 95-0458, 1995.

Economic analysis of the pricing of wholesale telecommunication services

STATE OF CALIFORNIA, PUBLIC UTILITIES COMMISSION
Order Instituting Rulemaking on the Commission's Own Motion into Competition For Local Exchange Carriers, 1995.

Economic analysis of proposed local competition rules, including whether the rules afford the local exchange carrier an opportunity to earn a fair return on invested capital.

STATE OF WISCONSIN, PUBLIC SERVICE COMMISSION
Investigation of the Appropriate Standards to Promote Effective Competition in the Local Exchange Market in Wisconsin, Docket No. 05-TI-138, 1995

Economic analysis of regulatory policy for the establishment of competitive local telephone services, including the pricing of interconnection, unbundled network elements, and wholesale services.

STATE OF MICHIGAN, PUBLIC SERVICE COMMISSION
In the Matter, on the Commission's Own Motion, to Establish Permanent Interconnection Arrangements Between Basic Local Exchange Service Providers, 1995

Economic analysis of the pricing of wholesale telecommunication services

FEDERAL ENERGY REGULATORY COMMISSION
SFPP, L.P., Docket Nos. OR92-8-000, *et al*

Economic analysis of proposed ratemaking method for oil pipeline, and assessment of business risk claims, 1995

STATE OF CALIFORNIA, PUBLIC UTILITIES COMMISSION
In the Matter of Alternative Regulatory Frameworks for Local Exchange Carriers, Docket NO. I.87-11-003.

Economic analysis of customer presubscription for intraLATA toll services, 1995

FEDERAL COMMUNICATIONS COMMISSION
In the Matter of Market Entry and Regulation of Foreign-Affiliated Entities, IB Docket No. 95-22

Economic analysis of competition in international outbound long distance markets, 1995

UNITED STATES DISTRICT COURT, DISTRICT OF COLUMBIA
U.S. v. Western Electric, Inc. and AT&T, Civil Action No. 82-0192 (HHG)

Economic analysis of competition in California long distance telecommunications markets, 1994

UNITED STATES DISTRICT COURT, DISTRICT OF COLUMBIA
U.S. v. AT&T Corp. and McCaw Cellular Communications, Inc.

Economic analysis of proposed merger, 1994

UNITED STATES DISTRICT COURT, DISTRICT OF COLUMBIA
U.S. v. Western Electric, Inc. and AT&T, Civil Action No. 82-0192 (HHG)

Economic analysis of competition in long distance telecommunications, 1994

FEDERAL ENERGY REGULATORY COMMISSION
Stingray Pipeline Company Docket, No. RP94-301-000

Economic analysis regarding the pricing of interruptible transportation services, 1994

STATE OF NEW YORK, PUBLIC SERVICE COMMISSION
P.S.C. Case Nos. 94-E-0098 and 94-E-009

Tariff Design for commercial and industrial electricity customers, 1994

FEDERAL COMMUNICATIONS COMMISSION
PP Docket No. 93-253

Implementation of Section 309(j) of the Communications Act Competitive Bidding Auction Design for Personal Communications Services, 1994

FEDERAL ENERGY REGULATORY COMMISSION
Mojave Pipeline Docket, No. CP93-258-000

Economic analysis of bypass in the natural gas industry, 1993

STATE OF CALIFORNIA, PUBLIC UTILITIES COMMISSION
Application of GTE California for Review of the Operations of Incentive Based Regulatory Framework Adopted in Decision 89-10-031

Economic analysis related to the role of productivity in the price-cap formula, 1993

FEDERAL ENERGY REGULATORY COMMISSION
Great Lakes Gas Transmission Limited Partnership, Docket No RP 91-143-000
Prepared Direct and Rebuttal Testimonies Economic analysis regarding the pricing of pipeline expansion projects, 1992.

MATTER OF ARBITRATION
Between ProGas Limited and Texas Eastern Transmission Corporation
Economic analysis regarding the redetermination of a gas purchase contract, 1992.

U.S. DISTRICT COURT, NORTHERN DISTRICT OF ILLINOIS, EASTERN DIVISION
The Protectoseal Company v. Charles Barancik
Economic analysis pertaining to interlocking directorates, 1992.

INTERNATIONAL CHAMBER OF COMMERCE
Court of Arbitration, Paris, France
Panhandle Eastern Pipeline Company v. Northwest Alaskan Pipeline Company
Affidavit and arbitration testimony Economic analysis regarding the redetermination of a gas purchase contract, 1992

MATTER OF ARBITRATION
Between W&T Offshore, Inc. and Texas Eastern Transmission Corporation
Deposition and arbitration testimony Economic analysis regarding the performance of a natural gas purchase contract, 1991

FEDERAL ENERGY REGULATORY COMMISSION
Great Lakes Gas Transmission Limited Partnership, Docket No RP 91-143-000
Prepared Direct Testimony Economic analysis regarding the pricing of pipeline expansion projects, 1991.

SUPERIOR COURT OF THE STATE OF CALIFORNIA
City of Long Beach v. Pacific Refining Corporation
Deposition testimony and economic analysis of breach of contract claim, 1991

FEDERAL ENERGY REGULATORY COMMISSION
Texas Eastern Transmission Corporation, Docket No CP90-2154
Economic analysis of competition in the natural gas industry, 1991

CANADIAN RADIO-TELECOMMUNICATIONS COMMISSION
Unitel and B.C. Rail/Lightel Applications to provide public long distance voice services and related resale and sharing issues.
Economic analysis of entry into the long-distance voice service market, 1991

STATE OF ALASKA, DEPARTMENT OF REVENUE
Marathon Oil Company, Docket No 89314

Economic analysis of alternative methods for valuing natural gas for severance tax purposes, 1990

U.S DISTRICT COURT, DISTRICT OF CONNECTICUT
Great Northern Nekoosa Corporation v Georgia Pacific Corporation and NM Acquisition Corp , a wholly owned subsidiary of GP Corporation

Economic analysis of the proposed acquisition, 1989-1990

PUBLIC UTILITIES COMMISSION, STATE OF CALIFORNIA
Southern California Edison Company and San Diego Gas and Electric Company, Docket No CP88-12-035

Economic assistance to counsel during merger review, 1989

U.S DISTRICT COURT, WESTERN DISTRICT OF TEXAS
JJ - CC Limited v Transwestern Pipeline Corporation and Enron Corporation

Economic analysis regarding the performance of a natural gas take-or-pay contract, 1988

FEDERAL ENERGY REGULATORY COMMISSION
Mojave Pipeline Company, et al, Docket No CP85-437-000

Economic analysis of the impact of bypass in a regulated natural gas market, 1987

PUBLIC UTILITIES COMMISSION, STATE OF CALIFORNIA
Application of Southern California Gas Company for authority to sell and leaseback its Headquarters Property, Application No 87-07-041

Economic analysis regarding the regulatory treatment of the sale and leaseback of headquarters property, 1987

U.S DISTRICT COURT, WESTERN DISTRICT OF NORTH CAROLINA
H Deadwyler, et al v Volkswagen of America, Inc.

Econometric analysis of the lost resale value of automobiles with design flaws, 1987

U.S. DISTRICT COURT, DISTRICT OF COLUMBIA
Joseph A. Albert, et al. v General Motors Corporation

Economic analysis of damages, 1986

U S INTERNATIONAL TRADE COMMISSION
Investigation No 337-TA-194, Certain Aramid Fibers

Statistical analysis of titanium prices, 1985

INTERSTATE COMMERCE COMMISSION
Sante Fe-Southern Pacific Corporation, Control, Docket No. 30400
Statistical analysis of stock market prices at the time of announced merger, 1985

ARTICLES IN REFEREED JOURNALS

"Transmission Access Pricing and 'Non-Bypassable' Competitive Transition Charges" (forthcoming), *Energy Law Journal* (with Paul W. MacAvoy)

"Forty Years of Regulatory Reform in the Natural Gas Industry," (forthcoming), *Oil and Gas Tax Journal*, (with Paul W. MacAvoy and Michael A. Williams)

"System Average Rates and Management Efficiency: A Statistical Benchmark Study of U.S. Investor-Owned Electric Utilities," *The Energy Journal*, Volume No. 17, No. 3 (with Ernst R. Berndt and Roy J. Epstein)

"Competitive Entry into Regulated Monopoly Services and the Resulting Problem of Stranded Costs," in *Humes Papers on Public Policy: Deregulation and Privatization in the United States*, Volume 3, No.3, University of Edinburgh, Scotland, (with Michael A. Williams).

"Evolution of the U.S. Spot Market for Natural Gas," *Journal of Law & Economics, (1994) Volume XXXVII (2)*, (with D.F. Spulber). Also Kellogg Graduate School of Management, Discussion Paper No. 91-48, Northwestern University. Invited paper presented at the State of California Public Utilities Commission's "En Banc Conference on Natural Gas Procurement," February 1992.

"Consumer Rationality and the Status Quo," *Quarterly Journal of Economics*, (1991) February, (with R.S. Hartman and C.K. Woo)

"Status Quo Bias in the Measurement of Value of Service," *Resources and Energy*, (1990) Vol. 12, (with R.S. Hartman and C.K. Woo)

"Households' Perceived Value of Electrical Service Reliability: An Analysis of Contingent Valuation Data," *The Energy Journal*, (1988) Vol. 9, (with R.S. Hartman and C.K. Woo)

"Household Preference for Interruptible Rate Options and the Revealed Value of Electric Service Reliability," *The Energy Journal*, (1988) Vol. 9, (with R.S. Hartman and C.K. Woo)

"The Use of Hedonic Analysis for Certification and Damage Calculations in Class Action Complaints," *Journal of Law, Economics, and Organization*, (1987) Fall, (with R.S. Hartman).

"Taking the Con Out of Conservation Program Evaluation," *Resources and Energy*, (1987) Vol. 9, (with R.S. Hartman). Also in *Papers and Proceedings of the 8th Annual North American Conference*, (1987) Massachusetts Institute of Technology.

"The Estimation of the Effects of Utility-Sponsored Conservation Programmes," *Applied Economics*, (1986) January, (with R.S. Hartman).

"Household Discount Rates Revisited," *The Energy Journal*, (1986) Vol. 7, (with R.S. Hartman).

OTHER ARTICLES/WORKPAPERS/BOOK CHAPTERS

"Electric Utility Rates and the Evaluation of Management Performance" (1995), *Electricity Journal*, August/September (with Ernst R. Berndt and Roy J. Epstein)

"Environmental Damages," (1995) Book Chapter in *Litigation Services Handbook, Second Edition*, Edited by Roman Weil, Michael Wagner, and Peter Frank, John Wiley & Sons, Inc. New York, New York, (with Mark Egland).

"System Average Rates of U.S. Investor-Owned Electric Utilities: A Statistical Benchmark Study" (1995) Massachusetts Institute of Technology, Center for Energy and Public Policy Research, Workingpaper, MIT-CEEPR 95-005WP (with Ernst R. Berndt and Roy J. Epstein).

"An Evaluation of Public Preferences for Superfund Site Cleanup (January 1995)," University of Colorado, Dept. of Economics, Workingpaper, Presented at the American Economic Association, Annual Meetings, Washington, D.C.

"Design and Implementation of Electric Utility Curtailable Rate Programs," (1990) Kellogg Graduate School of Management, Discussion Paper No. 90-30, Northwestern University, (with D.F. Spulber).

"Policy and Competitiveness Issues in California Long Distance Telephone Service Markets," (December 94), Yale School of Management, Working Paper Series C, #39, Government-Business Relations, (with Paul W. MacAvoy and Michael A. Williams)

"Federal Energy Regulatory Commission Order 636: Divestiture Of Gas Ownership By The Pipelines As The Penultimate Regulatory Reform In The Natural Gas Industry," (December 1994), Yale School of Organization and Management, Working Paper Series C, #38, (with Paul W. MacAvoy and Michael A. Williams)

PRESENTATIONS

"Transmission Access Pricing and 'Non-Bypassable' Competitive Transition Charges," University of New Mexico Law School, Invited Paper, July 1996

"Comments on Phase II Proposed Decisions: Wholesale Rates Established by Local Exchange Carriers," California Public Utilities Commission, All Party Exparte Meeting, February 1996

"Competitive Entry Into Regulated Monopoly Services and the Resulting Problem of Stranded Costs," *Conference on Deregulation and Privatization in the United States*, John M. Olin Foundation Research Program for the Study of Markets and Regulatory Behavior, Yale School of Management, New Haven, May 1995

"On the State of Competition in Long Distance Telecommunication Markets," Presented at Economic Round Table of San Francisco, April 1995

"The Design and Implementation of Electricity Curtailment Programs," presented at the *Journal of Regulatory Economics* Editors' Conference, San Diego, October 1992.

"The Evolution of the U.S. Spot Market for Natural Gas," presented at the 14th Annual International Association for Energy Economics' North American Conference, New Orleans, October 1992.

"The Impact of Open-Access Regulation on the Geographic Scope of the Natural Gas Spot Market," Presented at the Center for Regulatory Studies Conference: "At the Crossroads -- Restructuring the Natural Gas Industry," Chicago, October 1991

"Outage Costs as Design Criteria for Product Differentiation," (with C.K. Woo) New Service Opportunities for Electric Utilities: Creating Differentiated Products, Symposium sponsored by the Electric Power Research Institute and the University of California, Berkeley, September 1990

"Estimating the Welfare Loss of Electrical Power Outages Using Contingent Valuation Survey Methods," presented at the Electric Power Research Institute Conference New Dimensions in Pricing Electricity, Syracuse, NY, September 1988.

"The Contingent Market for Priority Electric Service," (with B. Neenan), presented at Rutgers University's Advanced Workshop in Regulation and Public Utility Economics, New Paltz, NY, May 1988.

"Taking the Con Out of Conservation Program Evaluation," presented at the 8th Annual International Association of Energy Economists North American Conference, MIT, Cambridge, MA, 1987.

"Measuring the Impact of Utility Conservation Programs," presented at the Electric Power Research Institute Symposium: Buildings and Their Energy Systems, Chicago, IL, 1985.

RESEARCH REPORTS

An Assessment of the Factors Affecting San Diego Gas & Electric Company's Electric Rates, prepared for San Diego Gas & Electric Company, May 1995

An Evaluation of Public Preferences for Superfund Site Cleanup, Volume 1: A Preliminary Assessment (with W. Schulze, *et al.*) USEPA Cooperative Agreement # CR-821980, Office of Policy, Planning and Evaluation, U.S. Environmental Protection Agency, March 1994

An Evaluation of Public Preferences for Superfund Site Cleanup, Volume 2: Pilot Study (with W. Schulze, *et al.*), USEPA Cooperative Agreement # CR-821980, Office of Policy, Planning and Evaluation, U.S. Environmental Protection Agency, March 1994

Recommended Rate Redesign for the SC-3 and SC-3A Service Classes, prepared for Niagara Mohawk Power Corporation, 1993

Analysis of the Electricity Tariffs of the Comision Federal de Electricidad, prepared for Secretary of Energy, Mines, and State Industries (SEMIP), 1993

The Market for Electric Power in Niagara Mohawk Power Corporation's Service Territory, prepared for Niagara Mohawk Power Corporation, 1993.

Industrial Outage Cost Survey (with D. McCelland, W. Schulze and C.K. Woo), prepared for Niagara Mohawk Power Corporation, 1990

Residential Outage Cost Survey (with D. McCelland, W. Schulze and C.K. Woo), prepared for Niagara Mohawk Power Corporation, 1990

Recommended Approach for Collecting Data on Outage Cost and the Value of Service Reliability (with R.S. Hartman, W. Schulze and C.K. Woo), prepared for Niagara Mohawk Power Corporation, 1988.

A Review of Electricity Demand Price Elasticity Estimates, prepared for Southern California Edison Company, (with D. Aigner and E. Berndt), 1988

An Econometric Analysis of Customer Subscription to the E-20 Interruptible Rate, prepared for Pacific Gas and Electric Company, (with C.K. Woo), 1988

An Analysis of the Determinants Space Heating Fuel Choice, prepared for Brooklyn Union Gas Company under subcontract to Opinion Research Corp., January 1988

Recent Contributions to the Theory and Measurement of Customer Value of Service Reliability, prepared for Niagara Mohawk Power Corp., September 1987

The Determinants of Savingpower Audit Participation: An Analysis of the Market for Home Energy Audits, prepared for Niagara Mohawk Power Corp., April 1986

An Analysis of Space Heating Fuel Choice in the Homeowner Replacement and New Construction Markets, prepared for the American Gas Association, May 1986

A Survey of Residential Outage Costs, prepared for Pacific Gas and Electric Company under subcontract to Meta Systems, Inc. (with A. Sanghi and K. Van Lier) December 1986

An Analysis of the Fuel Choice Decisions of Commercial Firms, prepared for Boston Gas Company under subcontract to Arthur D. Little, Inc., 1985

A Critical Review of the Maryland Power Plant Siting Commission's Econometric Electricity and Natural Gas Demand Forecasting Models, prepared for the Maryland Power Plant Siting Commission, 1985.

Measuring the Impact of Residential Conservation, Volume II: An Econometric Analysis of Portland Electric Company Data, (with R.S. Hartman) prepared for the Electric Power Research Institute, EA-3606, September 1984

Measuring the Impact of Residential Conservation, Volume III: An Econometric Analysis of General Public Utilities Data, (with R.S. Hartman), prepared for the Electric Power Research Institute, EA-3606, September 1984

Measuring the Impact of Residential Conservation, Volume IV: An Evaluation of Alternative Methods, (with R.S. Hartman), prepared for the Electric Power Research Institute, EA-3606, September 1984.

Electricity and Natural Gas Conservation Potential in the San Diego Gas and Electric Company Service Area, prepared for San Diego Gas and Electric Company before the California Public Utilities Commission, 1982.

Southern California Edison Projections of Conservation Goals: 1982-1986, prepared for Southern California Edison Company before the California Public Utilities Commission, October 1981.

Forecasting the Peak Demand for Residential Natural Gas, prepared for Pacific Gas and Electric Company, 1980

REFEREE

The Energy Journal, *Journal of Economics and Management Strategy*, and *Science*.

Docket No. 961169-TP
Docket No. 961173-TP
Direct Testimony of Michael J. Doane
Exhibit No. MJD-2
FPSC Exhibit No. _____

An Economic Framework for Implementing the Pricing Provisions of the Telecommunications Act of 1996

Michael J. Doane[†]
David S. Sibley[††]
J. Gregory Sidak[†††]
Daniel F. Spulber[††††]
Michael A. Williams[†††††]

[†] Principal and Vice President, Analysis Group Economics, Inc.
[††] John Michael Stuart Centennial Professor of Economics, University of Texas at Austin.
[†††] F.K. Weyerhaeuser Fellow in Law and Economics, American Enterprise Institute for Public Policy Research.
[††††] Thomas G. Ayers Professor of Energy Resource Management and Professor of Management Strategy, J. L. Kellogg Graduate School of Management, Northwestern University.
[†††††] Vice President, Analysis Group Economics, Inc.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

I. INTRODUCTION

II. REGULATION SHOULD RECEDE AS COMPETITION PROGRESSES
- A. The Regulatory Commission Does Not Need to Protect Competitors or Manage Competition in Local Exchange Telecommunications Markets
- B. Regulatory Commissions Do Not Need to Explicitly Safeguard Competition in Local Exchange Telecommunications Markets
- C. Excessive Unbundling Should Be Avoided Because it is Costly to Society

III. DEFINITION AND APPLICATION OF THE MARKET-DETERMINED EFFICIENT COMPONENT PRICING RULE
- A. Cost and Profit Concepts Referenced by Congress and the FCC
- B. The FCC's Pricing Rules for Resale Service and Unbundled Network Elements
- C. Calculating Total Element Long Run Incremental Costs
- D. Calculating Forward-Looking Common Costs
- E. Determining the Reasonable Share of Forward-Looking Common Costs to Allocate to Individual Unbundled Network Elements
- F. What is the Economic Rationale for the Market-Determined Efficient Component Pricing Rule
- G. Conclusions

TABLE OF CONTENTS
(continued)

IV. APPLICATION OF THE MARKET-DETERMINED EFFICIENT COMPONENT-PRICING RULE FOR THE ESTABLISHMENT OF WHOLESALE PRICES

- A. The Top Down Approach for Calculating M-ECPR Wholesale Prices
- B. The Bottom Up Approach for Calculating M-ECPR Wholesale Prices
- C. Conclusions

V. APPLICATION OF THE MARKET-DETERMINED EFFICIENT COMPONENT-PRICING RULE FOR THE ESTABLISHMENT OF UNBUNDLED NETWORK ELEMENT PRICES

VI. ECONOMIC PROBLEMS THAT M-ECPR PRICING AVOIDS

- A. The M-ECPR Does Not Preserve Monopoly Rent
- B. The M-ECPR Does Not Limit Competitive Entry
- C. The M-ECPR Does Not Impede Dynamic Efficiency
- D. The M-ECPR Does Not Require Difficult Measurement of Future Earnings Foregone
- E. The M-ECPR Does Not Recreate Cost-of-Service Regulation
- F. The M-ECPR Is Not Fully Distributed Cost Pricing

VII. DID PROFESSORS BAUMOL, ORDOVER, AND WILLIG REPUDIATE THE ECPR?

- A. Baumol, Ordover, and Willig Endorsed the M-ECPR for Pricing Mandatory Network Access
- B. Does Stand-Alone Cost Equal Incremental Cost, and Are Shared Costs and Common Costs Trivial?
- C. Common Costs and Shared Costs Between Aggregate Categories, and Between Individual Network Elements
- D. Can Incumbent LECs Earn Monopoly Profits?
- E. Stranded Cost Recovery Through Competitively Neutral End-User Charges
- F. Summary

TABLE OF CONTENTS
(continued)

VIII. M-ECPR PRICING SHOULD BE APPLIED TO RESALE AND UNBUNDLED NETWORK SERVICES
- A. M-ECPR Pricing is Efficient and Compensatory Because it Recovers Economic Costs
- B. M-ECPR Pricing is Compensatory but it is not a "Make Whole" Device
- C. M-ECPR Pricing Satisfies Static and Dynamic Efficiency
- D. M-ECPR is Neither an Entry Barrier Nor an Incumbent Burden
- E. M-ECPR Pricing Reflects Forward Looking Costs
- F. M-ECPR Pricing is Nondiscriminatory
- G. M-ECPR Pricing is a Good Start Toward Rebalancing Rates
- H. M-ECPR Pricing is Not Designed to Protect "Monopoly Rents"
- I. M-ECPR Pricing is Straightforward to Calculate

IX. FAILURE TO APPLY THE M-ECPR WILL RESULT IN A GOVERNMENT TAKING OF PRIVATE PROPERTY
- A. Economic Rationales for the Regulatory Contract
  - 1. Cost Recovery for Transaction-Specific Investment
  - 2. Regulatory Opportunism and Asset Specificity
  - 3. Credible Commitments
  - 4. Relational Contracting
- B. The Principal Components of the Regulatory Contract
- C. Remedies for Breach of the Regulatory Contract
  - 1. The LEC's Right to Expectation Damages for the Regulator's Breach of the Regulatory Contract
  - 2. Competition and Mitigation of Damages
- D. Contract Modification: The Replacement of Rate-of-Return Regulation with Incentive Regulation
- E. Mistake and Impossibility
- F. Deregulatory Takings

TABLE OF CONTENTS
(continued)

G. Just Compensation for Takings

H. The Need to Supplement the Efficient Component-Pricing Rule with a Competitively Neutral End-User Charge to Ensure Just Compensation

1. Just Compensation in the Absence of Competition for Network Access
2. Just Compensation in the Presence of Substitutes for Network Access
3. What Cost Does the End-User Charge Recover?

I. *Northern Pacific Railway* and the Regulator's Redefinition of the Intended Use of Dedicated Property

X. ACPR PRICING FOR WHOLESALE SERVICES IS UNWORKABLE AND WILL LEAD TO INEFFICIENCY

A. Total Service Long Run Incremental Costs ($TSLRIC_R$)

B. Retail Production Inefficiencies (X_R)

C. The Role of Monopoly Profits

XI. TSLRIC PRICING OF UNBUNDLED NETWORK SERVICES CREATES ECONOMIC INEFFICIENCY

A. TSLRIC Pricing Does Not Reflect the Firm's Total Direct Costs

B. TSLRIC Pricing Does Not Reflect the Firm's Economic Costs

C. TSLRIC Pricing Should Not Be Confused with Competitive Pricing

D. TSLRIC Pricing Promotes Free Riding By Competitors

E. TSLRIC Pricing Subsidizes Entrants

F. TSLRIC Pricing Does Not Take Into Account the Shifts in Costs From Attributable Costs to Joint and Common Costs due to Unbundling, Thus Creating Incentives for Excessive Unbundling

TABLE OF CONTENTS
(continued)

G. TSLRIC Pricing Fails to Include Joint and Common Cost Increases That are Due To Unbundling
H. TSLRIC Pricing Creates Incentives for the Incumbent to Reduce its Joint and Common or Shared Costs
I. TSLRIC Pricing Lacks Dynamic Pricing Flexibility and Creates Incumbent Burdens
J. TSLRIC Pricing is Discriminatory

XII. THE FCC'S INTERCONNECTION ORDER EFFECTS A TAKING
A. Prohibition on the Recovery of Historic Costs
B. Prohibition of the Recovery of All Forward-Looking Costs
C. Prohibition of the Recover of Shared Costs in the Pricing of the Few Network Elements that Can Contribute to Recovery of Unattributable Costs
D. Prohibition of Pricing Any Element at Stand-Alone Cost

XIII. APPLICATION OF THE FCC'S FULLY DISTRIBUTED COST METHOD FOR ESTIMATING PRICES FOR UNBUNDLED NETWORK ELEMENTS

Executive Summary

The Telecommunications Act of 1996 (Act) promised to end more than a half century of monopoly regulation of the local telephone exchange. The Act held out the promise of what Congress characterized as a "pro-competitive, deregulatory" system for fostering competition in all segments of the telecommunications industry. Unfortunately, the proposals submitted by AT&T seek to skew the new world of competition by establishing special privileges for that firm relative to GTE and other local exchange carriers.

AT&T seeks to do this by proposing a new era of *increased* regulation coupled with subsidies to AT&T. The reason is simple enough. AT&T knows that it will enjoy a tremendous competitive advantage if it can enter this new arena without having to pay the costs imposed on everyone else. In contrast, our pricing proposal would provide AT&T, GTE, and other potential entrants an equal opportunity to compete. AT&T should not be allowed to twist the rules to produce entry subsidies that will preordain the outcome of the competitive process.

Our economic analysis indicates that, if GTE is to be required by the government to sell or make available its services and products to AT&T and others, GTE should be reimbursed for all its costs and be allowed the reasonable rate of return expressly authorized by Congress. Anything less would be a taking of GTE's property. As importantly, it would deny the consumers of this state the substantial benefits of robust, fair competition.

The pricing of government-mandated access to wholesale services and unbundled network elements raises important questions of regulatory economics. But the complexity of those questions should not obscure one simple fact: An incumbent local exchange carrier (ILEC) will become insolvent if it cannot recover its total costs.

GTE's ability to recover its costs has profound ramifications for the consumers of this state. Prices for services and network elements that impair GTE's financial integrity will discourage investment in the local telecommunications network. That investment, however, is critical not only to replacing the existing infrastructure as it

wears out, but also to maintaining and expanding the infrastructure necessary for new competitors to enter the market for local telephony.

However, the pricing formula that AT&T has proposed for the resale of an ILEC's services and unbundled network elements would deny GTE recovery of and a reasonable return on its costs, require GTE's shareholders to subsidize AT&T's entry into local exchange telephony, and cause a taking of property. The same problems arise with some of the pricing rules and default proxy rates established by the Federal Communications Commission (FCC) in its *First Report and Order*.[1]

To limit the taking of property and allow GTE to recover its true costs, this arbitration must properly apply the economic framework explained in this report. Under this economic framework, the "market-determined efficient component-pricing rule" (M-ECPR) is used to calculate GTE's forward-looking costs as determined by the market. However, because of the state-mandated cross subsidies embedded in GTE's rate structure, the M-ECPR used alone will not allow GTE to fully recover its costs. Therefore, if this Commission is to avoid leaving GTE uncompensated for a portion of its costs, this Commission must also establish a competitively neutral, nonbypassable end-user charge.

THE ECONOMIC FRAMEWORK PRESENTED IN THIS REPORT PROMOTES EFFICIENT COMPETITION AND ALLOWS GTE TO RECOVER ITS ECONOMIC COSTS

As explained above, the critical issue presented by this arbitration is whether the incumbent LEC should be permitted to recover all of its costs. Those costs fall into two categories: (1) forward-looking costs, and (2) historical costs. Denying GTE a reasonable opportunity to recover fully both its forward-looking and historical costs would cause a taking.

With respect to the recovery of forward-looking costs, the appropriate pricing rule is the M-ECPR. Unlike the efficient component-pricing rule described in the *First Report and Order* (the FCC-

1. Contrary to the Telecommunications Act of 1996, the FCC established detailed rules for the states to employ when pricing the incumbent LEC's wholesale services and unbundled networks. Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 and Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers, First Report and Order, CC Dkt. Nos. 96-98, 95-185 (released Aug. 8, 1996) [hereinafter *First Report and Order*]

ECPR), which the FCC rejected, the M-ECPR caps prices at the market price level. Thus, where competition exists, the M-ECPR limits GTE's ability to recover its costs to competitive price levels. In addition, the M-ECPR has the added benefit of satisfying the *First Report and Order*'s provisions regarding the recovery of forward-looking joint and common costs.

Absent competitive entry, regulated rates are set to allow the incumbent LEC a reasonable opportunity to recover all forward-looking costs. Because the M-ECPR price is capped at competitive market levels, however, it will not allow GTE to recover all of its forward-looking costs. In addition, competition may not allow GTE to recover fully the cost of past investment. The difference between the recovery permitted under regulated rates and that permitted by the applicable pricing rule (M-ECPR) represents GTE's "stranded costs." Thus, the magnitude of these stranded costs will increase as competition increases. To enable GTE to recover its stranded costs, a competitively neutral end-user charge (that cannot be bypassed) should be permitted. Moreover, such a charge is required unless and until the state ends state-mandated cross subsidies embedded in GTE's rate structure.

As explained above, stranded costs represent the difference between the recovery permitted under regulated rates and that permitted by the applicable pricing rule. Because the *First Report and Order* recommends limiting cost recovery to forward-looking costs, it envisions no recovery of past investment costs. Absent a mechanism for recovering stranded costs, GTE's shareholders will be denied any opportunity to recover a significant portion of the overall investment that they have made. That investment was made with the expectation that regulators would give GTE the reasonable opportunity to recover, and earn a competitive return on, the capital supplied by its investors.

In short, to promote efficient competition under the Act and to avoid a taking of the property of GTE's shareholders, this arbitration must give GTE the reasonable opportunity to recover both its forward-looking and historical costs. This can be accomplished by using the M-ECPR to calculate GTE's forward-looking costs as determined by the market and assessing a competitively neutral end-user charge to allow GTE to recover the costs that GTE cannot recover because of the current rate structure.

THIS ARBITRATION MUST ESTABLISH RATES BASED UPON THE M-ECPR TO ALLOW GTE TO RECOVER FORWARD-LOOKING COMMON COSTS

The M-ECPR satisfies the FCC's recommendation that prices be based on forward-looking costs, and when combined with a competitively neutral end-user charge, satisfies the requirement in section 252(d)(1) of the Communications Act that the incumbent LEC be allowed to earn "a reasonable profit."[2] The *First Report and Order* in turn provides "that, under a [total element long run incremental cost] methodology, incumbent LECs' prices for . . . unbundled network elements shall recover the forward-looking costs directly attributable to the specified element, as well as a reasonable allocation of forward-looking common costs."[3]

As discussed above, the M-ECPR differs from the FCC's description of the efficient component-pricing rule in the *First Report and Order*, which, to avoid confusion, we shall call the FCC-ECPR. We agree that the agency correctly rejected the FCC-ECPR. Unlike the simplistic FCC-ECPR, however, the M-ECPR takes full account of competitive entry by capping the price for each unbundled network element at the price of its market alternative. In that respect, the M-ECPR benefits consumers and avoids all of the shortcomings that the FCC attributed to the FCC-ECPR.

The M-ECPR is a market-based method for determining, as the FCC directed, the reasonable share of forward-looking common costs that should be allocated to the prices for unbundled network elements. To apply the M-ECPR to this arbitration, GTE staff assembled estimates of the TELRIC for each of GTE's unbundled network elements. Next, GTE's forward-looking common costs were estimated and found to be substantial not only in absolute magnitude, but also as a percentage of GTE's total costs. Finally, following the FCC's methodology in its *First Report and Order*, we calculated the allowed price for each of GTE's unbundled network elements as equal to the sum of (1) the element's TELRIC and (2) the reasonable allocation to that element of GTE's forward-looking common costs. Because the market will not permit GTE to charge a price for an unbundled element that exceeds that element's stand-alone cost, the M-ECPR coincides precisely with the FCC's recommendation that "[t]he sum of a reasonable allocation of forward-looking common costs and the total

2 . 47 U.S.C. § 252(d)(1)

3 . *First Report and Order* at ¶ 682.

element long-run incremental cost of an element shall not exceed stand-alone cost associated with the element."[4] In short, the M-ECPR produces exactly that result and thus complies with both federal regulatory pronouncements and the constraints of a competitive market.

The M-ECPR also provides the proper economic framework for calculating the price of GTE's wholesale services. Again, the M-ECPR is consistent with the resale provisions contained in the Act and the *First Report and Order*. In contrast, AT&T's "Avoided Cost Pricing Rule" is an overt attempt to secure an entry subsidy to be paid from GTE's shareholders. AT&T's economists, for example, argue that GTE should not be paid for the incremental cost that it must incur to supply wholesale services to its competitors. AT&T's economists, Professors Kaserman, et al., further assert that the wholesale price that AT&T should pay should be reduced to reflect monopoly profits that GTE supposedly earns and cost inefficiencies that it supposedly tolerates. AT&T's argument presumes that state regulation of GTE has been an utter failure up to this point. It is no surprise that AT&T has failed to produce any evidence that GTE has either monopoly profits or cost inefficiencies.

THIS ARBITRATION MUST ESTABLISH A COMPETITIVELY NEUTRAL, NONBYPASSABLE END-USER CHARGE TO ALLOW GTE TO RECOVER ITS STRANDED COSTS

If this Commission wants to preserve GTE's existing rate structure while giving GTE a reasonable opportunity to recover its total costs, then the Commission must establish an end-user charge. GTE cannot fully recover its forward-looking common costs by using the M-ECPR because the M-ECPR caps the price for each unbundled network element at the price of its market alternative. Because GTE operates under a rate structure that contains many cross subsidies mandated by regulation, its full costs cannot be recovered by pricing based solely on market alternatives. To compensate GTE for those additional costs, a competitively neutral, nonbypassable end-user charge is necessary.

Without an end-user charge, facilities-based entry and M-ECPR pricing of unbundled network elements would result in stranded costs, that is, the difference between the value of GTE's net revenues

4 47 C.F.R. § 51.505(a)(1), in *id.*, Appendix B, at B-30

under regulation and what GTE will earn under the M-ECPR.[5] Because the amount of the M-ECPR is capped by competitive prices, the magnitude of those stranded costs will grow as greater competition drives down the price that the M-ECPR permits GTE to charge.

Portions of six categories of costs cannot be recovered fully without end-user charges:

1. shared costs of network operation, incurred among two or more (but not all) of GTE's services, but not wholly attributable to any single service;

2. common costs of network operation, incurred among all of GTE's services;

3. losses incurred in GTE's provision of services to preferred classes of customers at regulated prices that are below GTE's incremental cost of providing such services;

4. costs incurred as a result of incumbent burdens that GTE continues to bear after the advent of competition, but which GTE's competitors are not required to bear, such as carrier-of-last-resort obligations;

5. costs incurred by GTE to accomplish government-mandated unbundling of network elements or resale of network services; and

6. losses incurred when GTE's avoided costs are incorrectly overstated and are used to establish the discount that competitors receive when purchasing wholesale services from GTE for resale.

The purpose of the end-user charge would be to afford GTE a reasonable opportunity to recover the foregoing costs, *not* to recover any purported monopoly profits or cost inefficiencies. Moreover, AT&T has not proven that GTE has any monopoly profits or cost inefficiencies. If this arbitration fails to establish an end-user charge, then GTE will be assured of incurring *losses* on its sale of unbundled network elements. In that case, this arbitration will have denied GTE

---

5. Stranded costs are defined as the present value of the firm's net revenues under regulation minus the present value of the firm's net revenues under competition

not only an opportunity to recover its costs, but also the ability to earn the "reasonable profit" that section 252(d)(3) permits.

THE FCC'S CONFISCATORY EDICTS IN THE *FIRST REPORT AND ORDER* ARE INCONSISTENT WITH THE INTENT OF THE TELECOMMUNICATIONS ACT AND WOULD RESULT IN A TAKING

If certain provisions of the FCC's *First Report and Order* were adopted in this arbitration, GTE would not receive its full costs and a taking of its shareholders' property would result.

The FCC effectively directed the states to confiscate the private property of the incumbent LEC for the benefit of competitive entrants by denying the incumbent LEC the right (1) to recover forward-looking common costs on network elements (particularly loops) that would permit higher levels of cost recovery without exceeding an entrant's stand-alone cost for that particular element; and (2) to pursue recovery of forward-looking common costs by charging prices for unbundled network elements equal to their stand-alone costs. If this arbitration were to adhere to those FCC edicts, this Commission would deny GTE any reasonable opportunity to achieve full recovery of forward-looking costs and, thus, effect a taking of property.

THE FCC'S COST-ALLOCATION METHODS WOULD SUBSIDIZE ENTRANTS AT THE EXPENSE OF THE ILEC

The FCC offered two cost-allocation methods by which an incumbent LEC would be allowed to seek recovery of forward-looking common costs. The first method was a fixed markup.[6] The practical effect of a fixed percentage markup, however, is to subsidize entrants at the expense of the incumbent LEC. The FCC's second method for allocating common costs among unbundled network elements "would allocate only a relatively small share of common costs to certain critical network elements, such as the local loop and collocation, that are most difficult for entrants to replicate promptly (i.e., bottleneck facilities)."[7] Similarly, this second method also subsidizes entrants: It is a sham for the FCC to recommend to incumbent LECs that they recover their forward-looking common costs only by raising the prices of the most price-sensitive network elements above TELRIC. Such

---

6 *First Report and Order* at ¶ 696

7 *Id*

pricing would deny the incumbent LEC any reasonable opportunity to recover *any* appreciable amount of its forward-looking common costs.

THE FCC'S PROHIBITION ON PRICING ANY ELEMENT AT STAND-ALONE COST PREVENTS THE ILEC FROM RECOVERING THE TOTAL FORWARD-LOOKING COSTS OF ITS NETWORK

The FCC specified that "[i]n no instance should prices exceed the stand-alone cost for a specific element, *and in most cases they should be below stand-alone costs*."[8] The first half of that sentence is superfluous because competition already prevents a firm from charging a price exceeding stand-alone cost. The second half of the sentence, however, assures that the incumbent LEC would never be able to cover its total forward-looking costs. After telling the incumbent LEC not to use its pricing of unbundled loops to recover forward-looking common costs, the FCC would take away as well the LEC's ability to raise the price of its remaining unbundled elements to *their* stand-alone costs. Given the ability of the entrant to combine at will its own network elements with its purchase of unbundled LEC elements, the FCC's approach to pricing would ensure that the incumbent LEC would be prevented from earning the requisite contributions from its sale of unbundled elements to recover the total forward-looking costs of its network.

AT&T'S PROPOSAL SHOULD BE REJECTED BECAUSE IT WOULD ALLOW AT&T TO BE SUBSIDIZED BY GTE, DENY GTE ITS TOTAL COSTS, AND ADD REGULATION TO THE INDUSTRY

AT&T's economists have attempted to advance a misconception that AT&T's proposed pricing models would benefit competition. To the contrary, AT&T's proposed pricing would prop up entrants at the expense of consumers and the current shareholders of the incumbent LECs. Society does not benefit when scarce resources are used to supply redundant services, or when regulators fail to give an incumbent firm the proper economic incentives to maintain, upgrade, and replace its capital stock over time. The FCC stated clearly in its *First Report and Order* that properly applied rules for the pricing of mandatory network access should promote competition, not competitors. A firm

8 *Id.* at ¶ 698 (emphasis added).

with the resources of AT&T needs no subsidy. Despite the rhetoric of AT&T's economists, the net result of their pricing proposals would be to direct GTE to award an entry subsidy to America's largest telecommunications company.

Additionally, AT&T's proposal would protect select competitors and promote new forms of regulation that would attempt to "manage" competition. In contrast, GTE's proposal is consistent with competition and efficient entry, and it allows regulation to recede as competition develops.

In sum, AT&T's pricing formulas would deny GTE recovery of its total costs, require GTE's shareholders to subsidize AT&T's entry to local exchange telephony, and cause a taking of property. In contrast, GTE's formulas meet the deregulatory objectives set forth in the Telecommunications Act and promote competition and economically efficient entry into the marketplace.

I

Introduction

This report presents an economic framework for implementing Sections 251 and 252 of the Telecommunications Act of 1996 (hereinafter referred to as the "*Act*"). In so doing, we respond to the report of Professor Kaserman, et al. on behalf of AT&T entitled *Local Competition Issues and the Telecommunications Act of 1996* (hereinafter referred to as the "Kaserman Report").[1] We begin by examining the *points of agreement* between the parties involved. By identifying common ground, it is then possible to move forward in a constructive manner to resolve those points of disagreement that remain outstanding.

What are the points of agreement? There is broad agreement between GTE and AT&T on many major points:

(1) The deregulatory objectives set forth in the *Act* are worthwhile and positive developments, and competitive rules and pricing should conform to the *Act*;

(2) Competition in local exchange markets and economically efficient entry are highly desirable;

(3) Pricing of resale and unbundled network services should be based on economic cost;

---

1. David L. Kaserman, John W. Mayo, Michael A. Crew, Nicolas Economides, Glenn R. Hubbard, Paul R. Kleindorfer, and Carlos Martins-Filho, *Local Competition Issues and the Telecommunications Act of 1996* (July 15, 1996).

(4) Pricing of unbundled network services should equal Total Element Long Run Incremental Cost ("TELRIC") plus X (although the size of the markup, X, remains a matter of disagreement);

(5) Pricing of resale services should equal the retail rate minus avoided retail costs in accordance with the *Act*; and

(6) Competitive rules and unbundling requirements should be fair and nondiscriminatory.

Given such broad areas of agreement, what remain as matters of disagreement? Some of the remaining issues are matters of interpretation and emphasis, while others are questions of economic analysis. Ultimately, the issues affect the "bottom line" for both incumbents and entrants. As a guide to arbitration, it is useful to understand the key points of possible disagreement:

(1) While both parties favor competition and entry, GTE views the proposals of AT&T as creating further regulation, while AT&T views the proposals of GTE as perpetuating current regulation. This report will demonstrate that AT&T's proposal serves to protect competitors and promote new forms of regulation that will manage competition, while GTE's proposal is consistent with competition and efficient entry, and allows regulation to recede as competition develops.

(2) While both parties agree that pricing of unbundled network elements should be based on economic costs, there is disagreement on the definition of economic costs. AT&T argues that economic costs equal a lower number, i.e., GTE's Total Element Long Run Incremental Costs (TELRIC).[2] GTE maintains that economic costs should equal a higher number, i.e., TELRIC plus opportunity costs as constrained

---

2. In this report, we adopt the terminology contained in the FCC's *First Report and Order* and refer to the long run incremental cost of a network element as its TELRIC, or Total Element Long Run Incremental Cost. We use the term TSLRIC to refer to the long run incremental cost of a particular retail service, e.g., single-line business service. We note that the Kaserman Report applies the TSLRIC terminology when referencing the costs of unbundled network elements.

by the market. This report will demonstrate that economic costs include market-determined opportunity costs.

(3) Accordingly, both parties agree that the price of unbundled network services should equal TELRIC plus some amount, X, but they do not agree on what X should be. The size of X varies in the various proposals from zero (from the point of view of AT&T) to market-determined opportunity cost (from the point of view of GTE). This report will establish the economic foundation for pricing at TELRIC plus opportunity cost.

(4) While both parties agree that pricing of resale services should equal the retail rate minus avoided retail costs as directed by the *Act*, AT&T further proposes to subtract alleged "product inefficiencies" and "excess profit" and to exclude wholesaling costs. Moreover, AT&T asserts that per-unit avoided costs should be calculated based on the unrealistic assumption that GTE ceases to provide retail services. GTE maintains that net avoided retail costs (that is, avoided retail costs net of any additional wholesale costs) should be the discount and the size of the discount should be determined on the basis of a reasonable projection of the amount of retail services that GTE will no longer provide as a result of reseller entry. This report will show that a discount equal to net avoided retail costs is the economically correct discount.

Our report demonstrates that prices for resale and unbundled network services should be set according to the Market-Determined Efficient Component Pricing Rule ("M-ECPR"). The rule satisfies the FCC's recommendation that prices for resale and unbundled network elements be a based on forward-looking costs. Moreover, when combined with a system of competitively neutral end-user charges, it satisfies the requirements of Congress that prices be based on costs and allow for a reasonable profit. We emphasize at the outset that the M-ECPR differs from the FCC's description of the efficient component-pricing rule in the *First Report and Order*, which, to avoid confusion, we label the FCC-ECPR. Unlike the simplistic FCC-ECPR, however, the M-ECPR takes full account of competitive entry when setting prices for unbundled network

elements. In that respect, the M-ECPR benefits consumers and avoids all of the shortcomings that the FCC attributed to the FCC-ECPR.

We explain that setting prices equal to TELRIC (hereinafter referred to as "TELRIC pricing") is inappropriate for pricing resale and unbundled network services because it removes the local exchange carrier's opportunity to earn revenues that cover its costs, since TELRIC does not include the firm's shared costs and common costs. TELRIC pricing is likely to create cross subsidies as groups of services will fail the "incremental cost" test. Moreover, rigidly imposed TELRIC pricing does not allow the prices of the incumbent LEC to adjust to market conditions. We demonstrate that adopting arbitrary uniform markups above TELRIC would also be an inappropriate pricing policy. By basing the prices of resale and unbundled network services on economic costs, and correspondingly, by taking into account the economic costs of unbundling and interconnection in their rulemaking, regulatory commissions will allow competitive markets to function efficiently.

Our report proceeds as follows. In Chapter II, we respond to the Kaserman Report's claim that competition in local exchange markets needs to be "enabled" and "promoted." We demonstrate that market incentives are sufficient to allow competition to flourish. In contrast, if regulatory commissions act in a partial manner either by picking winners or protecting less successful firms from their own inefficiency, the benefits of competition will be seriously diminished. We also show that economic efficiency requires that regulatory commissions not pursue excessive or unlimited unbundling requirements. That is, unbundling should not be used as a means of creating competitive disadvantages for incumbent providers of network elements, nor should competitive entrants offer services based on free riding on LEC facilities.

Chapter III presents a general framework for pricing inputs sold to competitors in an efficient and compensatory fashion. In particular, we illustrate that the Market-Determined Efficient Component Pricing Rule provides a unified framework for pricing wholesale and unbundled network services.

Chapter IV applies the M-ECPR to calculate wholesale prices for residential and business services. Chapter V applies M-ECPR to calculate prices for unbundled loops and ports.

Chapter VI discusses that economic problems that are avoided when M-ECPR pricing is applied. The chapter responds to the criticisms of the efficient component pricing raised by the Kaserman Report. We illustrate that the Kaserman Report does not

address M-ECPR pricing, and, as a result misinterprets the efficiency and compensatory aspects of the rule.

Chapter VII responds to the claim that the principal authors of the rule, Professors Baumol and Willig, repudiated the M-ECPR in favor of TELRIC pricing.

Chapter VIII outlines why M-ECPR is the appropriate rule for the establishment of prices for resale and unbundled network services.

Chapter IX demonstrates that the M-ECPR is not merely the economic prescription for the pricing of wholesale and unbundled services, but is also the rule that produces, under specific conditions, the level of compensation that is sufficient to avoid a government taking of the incumbent LEC's property.

Chapter X demonstrates that the Kaserman Report's adjusted form of M-ECPR pricing for wholesale services, the Avoided Cost Pricing Rule (ACPR), is unworkable and will lead to economic inefficiencies. Implementing ACPR would require a rebirth of cost-of-service regulation, which would retard greatly the growth of competition in the telecommunications industry.

Chapter XI demonstrates that the Kaserman Report's TSLRIC pricing proposal for unbundled network elements is overly simplistic, misrepresents the firm's economic costs, creates economic inefficiency, and should not be confused with competitive pricing.

Chapter XII demonstrates that the FCC's August 1996 *First Report and Order* effects a taking because it denies any recovery of the incumbent LEC's historical costs and ensures that full recovery of its forward-looking costs will be impossible to achieve.

Chapter XIII presents an alternative to M-ECPR pricing for unbundled network elements using guidelines recommended in the FCC's *First Report and Order*. The methodology establishes unbundled network prices equal to TELRIC plus a "reasonable" share of forward-looking common costs using a fully distributed cost allocation methodology referred to as the "fixed factor" or percentage markup method. We explicitly do not endorse the FCC's fully distributed cost method for allocating forward-looking common costs. However, even though highly flawed and inferior to M-ECPR as a pricing methodology, that method at least assigns some forward-looking common costs, unlike the Kaserman Report which merely assumes away all such common costs.

II

Regulation Should Recede as Competition Progresses

In their report, Professor Kaserman, et al. allege that there is "significant monopoly power" in the local exchange market, and that the current system of regulation is "cumbersome and expensive." "As a result," they assert, "the benefits to consumers of policies that will successfully promote competition in [the local exchange market] are likely to be substantial." To "promote competition" they make recommendations regarding (1) pricing, (2) the non-price conditions of sale, and (3) the need to "safeguard the competitive process."

Is their assertion correct? Is their analysis of local exchange markets accurate in light of market conditions, telecommunications technology, and economic analysis? Are the policy recommendations they make justified based on economic analysis and regulatory objectives? We investigate the answers to these questions in this chapter.

A. The Regulatory Commission Does Not Need to Protect Competitors or Manage Competition in Local Exchange Telecommunications Markets

There is no need for a regulatory commission to "promote" competition because the returns expected to be earned by firms from serving customers provide sufficient incentives for them to compete in the provision of telecommunications services. Indeed, attempts to manage or direct competition not only entail administrative costs but

can prevent the market from achieving the benefits of competition that the Commission wishes to attain.

There is no need for a commission to "protect" or "safeguard" competition. Market incentives are sufficient to allow competition to flourish. If the Commission acts in a partial manner either by picking winners or protecting less successful firms from their own inefficiency, the benefits of competition will be seriously diminished. Moreover, antitrust law serves to protect competition from monopolization and other anticompetitive practices. Regulatory attempts to supplant this role of antitrust would if anything preempt its proper functioning.

Federal and state efforts to open local exchange telecommunications markets to competition is clearly a good policy. Indeed, competition is desirable in local exchange telecommunications for the same reasons that it is desirable in any market. Competitive markets are the preferable economic mechanism for achieving allocative, productive, and dynamic efficiency. Allocative efficiency is achieved when goods and services are allocated to the uses in which they have the highest value. Productive efficiency is achieved when goods and services are used by producers in such a manner as to minimize costs subject to technological constraints. Dynamic efficiency refers to decisions made over time, including efficiencies in investment and technological innovation.

However, the Kaserman Report puts forward a prescription for effectuating these policies that is misguided. What the authors are recommending is designed to promote competitors -- not competition. Markets tend to achieve efficient allocations of resources as a result of competition among firms. Firms compete by offering lower prices, improvements on products and services, customer convenience, product variety, and marketing and sales services. When companies offer similar products to their customers, competition tends to lower prices towards production costs as firms bid against each other to make sales to customers. Firms face competition from other firms operating in the same market, from firms that offer substitutes for their products, and from potential entrants who will respond to the perceived needs of consumers. All of this happens because consumers seek to maximize their well-being subject to their budgets and because firms seek to maximize their profit. This is the sense in which Adam Smith in *The Wealth of Nations* (1776) spoke of an "invisible hand" that guides every individual so that "[b]y pursuing his own interest he frequently

promotes that of the society more effectually than when he really intends to promote it."[1]

Competitive markets are preferable to government allocation of goods and services because they produce economic transactions at the lowest possible cost, allowing individual customers and competitors the freedom to make economic choices. Economic analysis and historical experience conclusively demonstrate that even with their imperfections, competitive markets outperform governments as an economic allocation mechanism. Competition is the best mechanism for stimulating research and development and for resolving uncertainty about evolving technology. Technological change and uncertainty are present in telecommunications. Markets process large quantities of information, which necessarily would overwhelm any central economic planner. Experience in regulated markets (from airlines, to railroads, to natural gas) confirms that pricing regulation and other command-and-control restrictions by regulatory authorities is associated with prohibitively high administrative costs and economically inefficient allocation of resources.

In the name of promoting competition, the Kaserman Report recommends just the opposite, that is, increased regulatory intervention in local exchange telecommunications markets. While singing the praises of competition and the market, new forms of regulation are recommended on a scale unprecedented in the utility industry, or in fact in any U.S. industry. The authors' proposals would involve an indefinite extension of regulation to markets for resale and unbundled network services, supplanting the determination of pricing and service offerings by firms competing in the market. That is, they advocate the extension of regulation beyond the current system involving final telecommunications services to include a new system that controls the underlying factors of production. In their view, state regulators should determine how productive inputs should be priced, how these inputs should be provided, and how they should be employed in the production of telecommunications services. Thus, telecommunications regulation is to be expanded to include control of technology, capital equipment, and other productive inputs. This represents a significant and qualitative extension of regulation from outputs to productive inputs.

---

1. ADAM SMITH, THE WEALTH OF NATIONS (The Modern Library 1937) at 423

In a previous proceeding in California, an author of the Kaserman Report, Professor Mayo, advanced the proposition that regulatory authorities should seek to implement regulations that achieve competitive outcomes. For example, he opined that

> A primary goal of public utility pricing is to achieve an allocation of resources similar to that which would result in competitive markets. Because effectively competitive markets automatically generate efficient prices (the fundamental virtue of the invisible hand), it is essential that regulators understand the basic characteristics of such prices if they are to replicate competitive outcomes in regulated markets.[2]

Thus, in Professor Mayo's view, regulation of telecommunications markets should seek to achieve an outcome similar to that which would be observed in a competitive market. The competitive outcome is to be achieved not by letting the forces of competition operate freely, but rather by some as yet unspecified system of government "replication." This assertion raises two fundamental questions.

First, is a competitive allocation of resources the primary goal of regulators? There are many reasons to doubt the validity of this proposition. Economic analysis establishes that cross subsidies in the prices offered by a company cannot survive in a competitive market. No firm would voluntarily cross-subsidize its own product offerings since it would have an incentive to exit from offering services whose incremental revenues did not cover their incremental costs. Moreover, the firm would lose customers of those services providing cross subsidies to competitive entrants. However, regulated markets are quite different from competitive markets in that they commonly involve cross subsidies, as regulators seek to achieve perceived fairness and other social objectives, such as universal service. For example, regulated prices for telecommunications services in most states are characterized by cross subsidies due to geographic rate averaging, subsidies from business

---

2. Opening Testimony of Dr. John Mayo on behalf of AT&T Communications of California, Inc., California Public Utilities Commission, Docket Nos. R.93-04-003 and I.93-04-002, June 14, 1996, at 24

to residential customers, and subsidies from vertical services to basic services.

Second, could regulators "replicate" competitive outcomes in regulated markets even if they were inclined to do so? Competitive markets require continual adjustment of prices and product offerings to changes in customer tastes, incomes, and technological innovation. The informational requirements of such adjustments are not compatible with the costly and difficult administrative procedures that regulatory rulemaking requires. Regulators cannot be expected to react to, let alone anticipate, changes in customer preferences and supplier technology. Transaction costs and information processing costs make it unworkable for regulators to attempt to supplant or recreate competitive outcomes. To suggest that regulators can replicate the "invisible hand" of the market, as does Professor Mayo, fundamentally contradicts Adam Smith's original point (on the same page of *The Wealth of Nations*) that policy makers should not interfere in the functioning of competition:

> The statesman, who should attempt to direct private people in what manner they ought to employ their capitals, would not only load himself with a most unnecessary attention, but assume an authority which could safely be trusted, not only to no single person, but to no council or senate whatever, and which would nowhere be so dangerous as in the hands of a man who had folly and presumption enough to fancy himself fit to exercise it.[3]

Rather than attempting to replicate the market, regulators surely recognize that achieving market outcomes requires taking steps to remove regulatory restrictions, as telecommunications markets continue to become increasingly competitive. The achievement of market outcomes does not come from expanding the scope of regulation, as the Kaserman Report recommends. Excessive regulation can discourage innovation and capital investment, thus locking in obsolete technologies.

If the regulatory commission opens local exchange markets to competition, and establishes unbiased rules that allow entrants and incumbents an equal opportunity to compete, it then can rely on market incentives to do the job. Firms compete where they discern

---

1 *Supra* note 1

opportunities for profit. They compete by investment in facilities to produce goods and services. They compete by process innovations so that prices can be lower than competitors. They compete by research and development to provide improvements and innovations in existing products and services. They compete by differentiating their product offerings from their rivals. Competition takes place in markets without the need for government promotion. Rather, it is the natural outcome of private companies seeking to obtain a competitive return on the investment of their owners or shareholders. There is no more a need for the government actively to promote competition than there is a need for it to exhort Olympic athletes to remember to compete with each other. Competition occurs because of the economic rewards that firms obtain by satisfying the demands of their customers.

The Kaserman Report argues that telecommunications is different from other industries because incumbent LECs have been subject to a regulated monopoly and because competition in local exchange markets is "nascent." These assertions are incorrect. Whether the LECs have held a regulated monopoly in the past is not an indicator that competition must be "enabled" or that actions to "promote" competition are needed. Indeed, assuming for the purposes of argument, that the LECs were to act like classical monopolists, and to hold back their services, increase prices substantially, and reduce the quality of customer service, these activities provide increased incentives for the entry of new competitors. Past monopoly, far from being a hindrance to competition, is an important stimulus to competition, as entrants seek to bid away customers by outperforming the pricing, product availability, and quality of service of the monopolist. Past monopoly requires no corrective action by regulators to subsidize, support, or otherwise promote competitors.

Students of economic history will undoubtedly recognize the notion of "nascent competition" as the "infant industry" argument, employed to prevent competition in international trade. The infant industry argument is advanced by those who believe that domestic industry should be subsidized and otherwise protected from international competitors until it grows sufficiently. This argument has little merit, and it certainly does not apply in telecommunications. AT&T, MCI, Sprint, Time Warner and other entrants are no infants! These are large, well-established, well-funded, and innovative companies. These companies are experienced in telecommunications, and their competitive efforts are far from

nascent. They do not need subsidies, assistance, or special privileges. Even relative newcomers to telecommunications are perfectly capable of purchasing the requisite equipment and obtaining the required technological and marketing expertise to carry out their objectives.

Moreover, even if an infant industry argument were applicable for telecommunications (which it decidedly is not), when do such advantages for the competitors of the LEC cease? How would their duration be specified in advance? The recommendations for regulatory promotion of competition appear to create open-ended commitments for the Commission. Such open-ended commitments are not designed to let regulation recede as competition increases.

Forcing incumbent LEC prices below their economic costs of selling to competitors (incremental plus opportunity costs), results in a transfer of income from the LEC to its competitors. Such pricing is neither efficient nor compensatory. Efficiency requires that the LEC price inputs sold to competitors at its economic costs. Compensatory pricing requires that the revenues from these inputs make some contribution to shared costs and common costs. When there is no competitive alternative, the contribution can be capped based on regulated revenues. When there are competitive alternatives, they can determine the market-allowed contribution.

Policies to "promote" competition and establish prices for resale and unbundled network services do not in themselves serve to increase competition, and instead may hinder competition. The point of competition is that the market discovers prices. Regulating prices constrains competition by interfering with the competitive process of firms as they bid against each other to serve their customers. For regulators accurately to determine the prices that competition produces presumes that the underlying determinants of pricing - including demand, costs, technology, product features, and competitive strategy - are foreseeable. The objective of regulatory commissions should be to follow an initial pricing method that can respond dynamically to competition, with the initial prices serving as price caps.

B. REGULATORY COMMISSIONS DO NOT NEED TO EXPLICITLY SAFEGUARD COMPETITION IN LOCAL EXCHANGE TELECOMMUNICATIONS MARKETS

The best protection for competition is for regulatory commissions to allow all parties an equal opportunity to compete. Thus, the best

protection for competition is reduction of regulatory oversight, allowing businesses to be guided by market incentives.

Technological changes and industry developments show that local exchanges are lacking in monopoly power.[4] The local loop is not an essential facility since many alternatives are available to the existing local exchange network. Alternative technologies available include coaxial cable, fiber optics, and wireless technologies such as cellular and microwave. It is clearly feasible to construct alternative transmission facilities to compete with local exchange networks. Successful entry into the local loop has already occurred, showing that it is both technically and economically feasible to compete with the local exchange network. In addition, equal-access provisions and regulation undercut arguments that an incumbent could use an essential facility to leverage monopoly power into competitive services.

Even if it could be established that local competition was insufficient, the mere possibility of some amount of "market power" in the local exchange cannot justify placing onerous pricing and unbundling regulations on incumbent LECs. Market power gives a firm some ability to increase or lower its sales by varying its price, rather than taking as given an external market price. In markets where there are not a very large number of firms, or where products are differentiated, each firm has some market power, limited only by the types of actual and potential competition that it faces. Most companies have market power in the sense that they can vary some of their prices and face price-responsive customer demand (that is, downward-sloping demand functions). No one would seriously suggest that pricing and unbundling regulations should be applied to all such companies. Given the alternatives available and the unbundling and resale obligations, market power in the local exchange (if any) will not be significant enough to justify creating new forms of regulation that asymmetrically affect incumbents and entrants.

The Kaserman Report's concern with monopoly leveraging has no basis. If there is no monopoly position to begin with, then there can be no monopoly leveraging. The leverage scenario is inconsistent with incentives that have been created by competition in the local exchange.

Even assuming that a monopoly position exists, there remains

---

4. Daniel F. Spulber, *Deregulating Telecommunications*, 12 YALE J. ON REG. 25 (1995).

the question of whether firms have an economic incentive to engage in monopoly leveraging. Under general conditions, firms do not have an incentive to engage in "leveraging" market power, whether through vertical foreclosures or tying products. As Judge Richard A. Posner has observed, "[o]ne striking deficiency of the traditional, 'leverage' theory of tie-ins, as the courts have applied it, is the failure to require any proof that a monopoly of the tied product is even a remotely plausible consequence of the tie-in."[5]

The long established view in economics on tie-in sales as a form of monopoly leveraging is quite to the contrary. Economic analysis has established that for a firm selling complementary goods in fixed proportion, with a monopoly in the tying good and a competitive market in the tied good, monopoly profits cannot be increased beyond those already available in selling the tying good. Creating a second monopoly in the tied good will not increase profits, since earnings are constrained by competitive alternatives in the market for the tied good.[6]

---

5. RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE (Chicago University Press 1976) at 172.

6. This classic result is confirmed and extended in an article by Michael Whinston on the theoretical basis for monopoly leveraging, see Michael Whinston, *Tying, Foreclosure, and Exclusion*, 80 AMER. ECON. REV. (March 1990) at 837-859. Whinston shows that the monopolist does not have an incentive to leverage even with differentiated products in the tied-goods market, with economies of scale in production, and with oligopolistic, rather than a competitive, market structure in the tied-goods market. As Whinston observes:

> The key point is that with complementary products used in fixed proportions, the monopolist can actually derive *greater* profits when its rival is in the market than when it is not because it can benefit through sales of its monopolized product from the additional surplus that its rival's presence generates (due to product differentiation).

Thus, when Whinston assumes that the tying good is an essential facility, and there are two firms in the tied good market, he finds that it is not profitable for firm 1 to drive firm 2 out of business in the tied good market, consistent with the conventional result that monopoly leveraging is not possible. To place this result in the context of telecommunications, whether monopolist or not, the LEC's sales of local exchange services could benefit from increased demand for the services that are complementary to those offered by its competitors.

There are special situations where tying can be profitable. For example, bundling may be desirable if the tie-in sale allows usage-based pricing by using the tied good to monitor customer demand for the tying good. In the case of telecommunications, local exchange carriers clearly have the capability to monitor demand for local service without resorting to tie-in sales, so that such a motive for tying is absent.

Thus, monopoly leveraging generally is not possible through tie-in or bundled sales in telecommunications. In addition, tie-in sales or bundling is not *per se* anticompetitive. Bundling may be the lowest cost, most efficient method of providing and distributing various services. For example, it is more efficient to sell a fully assembled automobile than to require that consumers purchase unbundled components like wheels, brakes, engines, etc. for self-assembly. Forcing firms to unbundle all services and preventing them from offering bundled services may well increase costs to consumers. If unbundling is forced on service providers, then customers should have the option of choosing between purchasing services on an unbundled or bundled basis. Whichever basis offers them the best value should be the customer's choice. The LEC must be given the pricing flexibility to compete in good faith and to bargain with customers and competitors purchasing its services so that prices and services may be customized.

C. EXCESSIVE UNBUNDLING SHOULD BE AVOIDED BECAUSE IT IS COSTLY TO SOCIETY

Regulatory commissions should not impose excessive unbundling and resale requirements on the LECs. The reason for this is that unbundling and resale entail economic costs, both direct production costs and transaction costs. Therefore, taking into account that implementing unbundling and wholesale transactions entails costs means that unlimited unbundling cannot possibly be desirable. The

---

Price regulation may affect incentives for tie-in sales, however, if there is competition in the tied good market, then raising the price of the tied good above the competitive level will reduce the demand for the tying good, thereby reducing profits.

The basic argument that a monopoly cannot increase its profits by creating a second monopoly in a complementary good when the goods are sold in fixed proportion continues to hold. What critics of the argument have done is create highly stylized conditions to show that starting from a non-monopoly position, in the tying and tied-goods markets, profits can be increased by forcing rivals out until a monopoly position is obtained. For example, when Whinston assumes that there is monopoly in the tying good and there is a single rival in the tied-goods market, and that rival produces an inferior good, he finds that the firm offering bundled service could drive the producer of the inferior product out of business. This result is not applicable to telecommunications. It only would apply if one believed that (1) the LEC faced no facilities-based competitors for unbundled network services, (2) the LEC faced only one competitor in the market for resale services, local toll, or long distance, and (3) the sole competitor produced an inferior product. These conditions do not hold for the local telecommunications markets.

higher are such costs, the less unbundling is socially desirable. Even if unbundling were to create the competitive benefits that its advocates believe, there is a tradeoff between the benefits and costs of unbundling. Unbundling is not a free lunch, and shifting the costs onto the LECs does not make it so.

The costs of unbundling, if not recovered, would place the incumbent LECs at a competitive disadvantage, thereby reducing the desired benefits of competition. Such extreme unbundling, moreover, is not necessary to achieve the regulatory objectives since they are best attained by standardized unbundling requirements for resale and network elements. In combination with TELRIC prices, which would cause competitors not to bear these costs of unbundling, unbundling to the maximum extent feasible would encourage free riding by competitors on the LEC's networks. This would not encourage efficient entry and investment.

Regulatory commissions should set out the minimum extent of unbundling to achieve its objectives of competition in resale and unbundled network elements. In the interest of competition, commissions should rely on the market to determine the efficient level of product and service combinations and unbundling. Entrants should not just request unbundling as a substitute for or subsidy to their investment projects, but rather should bear the costs of the unbundling so that their unbundling requests will be economically efficient.

III

Definition and Application of the Market-Determined Efficient Component-Pricing Rule

This chapter presents a pricing rule that satisfies the FCC's recommendation that prices for wholesale services and unbundled network elements be based on forward-looking costs. When combined with a system of competitively neutral end-user charges, the rule also satisfies the requirement of Congress that prices be based on costs and allow for a reasonable profit. The rules for the establishment of wholesale prices are set forth in the *Telecommunications Act of 1996* ("*Act*").[1] Section 252(d)(3) of the *Act* concludes that wholesale rates shall be established "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."

With respect to establishing prices for unbundled network elements, Section 252(d)(1) of the *Act* states that unbundled network element charges "(A) shall be (i) based on the cost (determined without reference to a rate-based proceeding) of providing the interconnection or network element (whichever is applicable), and (ii) nondiscriminatory, and (B) may include a reasonable profit."[2] The *First Report and Order* sets forth the FCC's implementation of the *Act* generally and Section 252(d)(1) specifically. In particular, the *First Report and Order* concludes "that, under a [Total Element Long Run Incremental Cost] methodology, incumbent LECs' prices for interconnection and unbundled network elements shall recover the

1 *Telecommunications Act of 1996*, Pub. L. No. 104-104, 110 Stat. 56.
2 47 U.S.C. § 252(d)(1).

forward-looking costs directly attributable to the specified element, as well as a reasonable allocation of forward-looking common costs."[3]

In this chapter we discuss the pricing requirements in the *Act* and the *First Report and Order*, and how those requirements are met by our pricing rule. The chapter is organized as follows. Section A presents a brief discussion of the cost and profit concepts used in the *Act* and the *First Report and Order*. In order to appreciate the specific aspects of the FCC's pricing methodology, it is necessary to have an understanding of the economic definitions of these terms. Section B discusses the FCC's pricing methodologies for the establishment of wholesale and unbundled network element prices. Section C reports the calculation of GTE's total element long run incremental costs. Section D presents a method for calculating GTE's forward-looking common costs. Section E presents our pricing methodology and explains why it satisfies all the requirements of Congress, when combined with a system of competitively neutral end-user charges. Section F discusses the economic rationale of the rule, and section G contains our conclusions.

A. Cost and Profit Concepts Referenced by Congress and the FCC

The *First Report and Order* makes reference to the following types of costs: total service long run incremental costs, total element long run incremental costs, joint costs, and common costs. The *total service long run incremental cost* (TSLRIC) of a service sold to end users equals the difference in the firm's total costs with and without the provision of that service. In the *First Report and Order* the FCC coined a new term, *total element long run incremental cost* (TELRIC), to refer to those costs that are incremental (or attributable) to individual network elements.[4] A firm's *joint* costs are those costs incurred when two or more services are produced in fixed proportion.[5] A firm's *common* costs are those costs incurred in the provision of some or all the firm's services that are not incremental to any individual service.[6] Hence, common costs only can be avoided only by

---

3 *First Report and Order*, at ¶ 682.

4 In this report, we use TELRIC to refer to the long run incremental cost of an unbundled network element, and TSLRIC to refer to the long run incremental cost of a retail service.

5 As the Commission notes, joint costs have the property that "when one product is produced, a second product is generated by the same production process at no additional cost." *First Report and Order*, at ¶ 676.

6 The Commission's definition of common costs includes what are sometimes called *shared* costs. These are costs incurred in the provision of two or more

shutting done the entire firm or by not producing a particular group of services under study. Following the Commission's approach, we use the term *common* costs to refer collectively to all non-incremental costs.[7] In addition, a regulated firm may have *residual* costs caused, for example, by assets that remain on its books even though they have no economic value. The recovery of residual costs can be achieved through a competitively neutral end-user charge.

To illustrate the concepts of incremental and common costs, we provide a simple example. Suppose a street vendor operates a stand and sells both hot dogs and hamburgers. The incremental cost of a hot dog would include the cost to the vendor of the hot dog, hot dog bun, condiments, and propane. Similarly, the incremental cost of the hamburger would include the ground beef, hamburger bun, condiments, and propane. The common costs would include the cost of the grill used to cook the hot dogs and hamburgers, as well as the stand. In the provision of local phone service, common costs include general and administrative costs (e.g., accounting and finance, external relations, and human resources) and support costs, such as general purpose computers. Incremental or attributable costs would include the costs of central office switching, and cable and wire facilities.

Both incremental and common costs necessarily include a cost for the *return on invested capital*. For example, the TSLRIC of a service must include a return on capital sufficient to keep those resources in their current employment. If the return on capital invested to provide a service is below the *competitive or fair rate of return*, the capital market will operate to move those investments to other projects that yield (at least) a competitive return. A competitive or fair rate of return is that return that could be earned on an investment of comparable risk.

Both the *Act* and the *First Report and Order* refer to "profits."[8] A firm earns a "reasonable profit" when its *economic profits* equal zero. Economic profits are zero when total revenues equal total costs, inclusive of a competitive return on capital. The incumbent LEC's return on capital equals the sum of the return on capital for its incremental, joint, and common costs. The statutory "reasonable profit" provision of the Act is implemented, by definition, when the firm's rates are established so that, on average, it earns zero economic profits.[9] That is, the firm's rates should be established so that, on average, it earns zero economic profits. Of course, random

---

services (but not the collection of all the firm's services) that are not incremental to any individual service.

7 *First Report and Order*, at ¶ 676.

8 *See* 47 U.S.C. § 252(d)(1) and *First Report and Order*, at ¶ 699.

9 *See* 47 U.S.C. § 252(d)(1).

market factors may cause its profits to exceed or fall below this value in any particular period.

B. THE FCC'S PRICING RULES FOR RESALE SERVICES AND UNBUNDLED NETWORK ELEMENTS

In this section, we summarize the FCC's rules for the establishment of wholesale prices for resale services and prices for unbundled network elements. With respect to wholesale rates, the FCC adopted the avoided cost approach contained in the *Act*, and discussed how an incumbent carrier's avoided retail costs should be calculated.[10] In Chapter IV, we discuss how our pricing is applied for setting wholesale rates.

With respect to the FCC's recommended pricing rule for unbundled network elements, recall the rule was that "incumbent LECs' prices for interconnection and unbundled network elements shall recover the forward-looking costs directly attributable to the specified element, as well as a reasonable allocation of forward-looking common costs "[11] Thus, the FCC's rule is represented by the following formula

$$\textit{Price of Unbundled Element} = TELRIC + (x)(FLCC)$$

where

TELRIC	= Total Element Long Run Incremental Cost,
FLCC	= Forward Looking Common Costs, and
x	= Reasonable share of FLCC allocated to the unbundled network element

Below, we discuss each component of the above formula, and illustrate how to determine the reasonable share of forward-looking common costs that can be assigned to each unbundled network element. We call our pricing method the "market-determined efficient component-pricing rule" (M-ECPR). It bears emphasis at the outset that the M-ECPR rule differs from the FCC's defined rule (which we term FCC-ECPR), which the agency rejected. For example, as explained in Chapter V, the M-ECPR and FCC-ECPR methodologies yield the following prices for an unbundled loop

---

10 *First Report and Order*, at ¶¶ 907-934

11 *First Report and Order*, at ¶ 682

- M-ECPR – the price of an unbundled loop equals approximately $33 per line per month, and
- FCC-ECPR – the price of an unbundled loop equals approximately $65 per line per month [12]

Thus, the two methods yield substantially different prices The reason for the difference is that the M-ECPR takes into account market alternatives, both actual and potential, while the FCC-ECPR does not (see discussion below) Unlike the simplistic FCC-ECPR rule the FCC faulted for being based on retail rates that are not "cost based," the M-ECPR takes market alternatives into account and allows prices to move to competitive levels In that respect, the M-ECPR benefits consumers by promoting economic efficiency, and avoids the shortcomings that the FCC attributed to the FCC-ECPR rule

C. CALCULATING TOTAL ELEMENT LONG RUN INCREMENTAL COSTS

In its *First Report and Order* the FCC coined the phase "Total Element Long Run Incremental Cost" to describe the forward-looking total costs attributable to an unbundled network element More specifically, the *First Report and Order* defines TELRIC as "the forward-looking cost over the long run of the total quantity of the facilities and functions that are directly attributable to, or reasonably identifiable as incremental to, such element, calculated taking as given the incumbent LEC's provision of other elements."[13] The network elements listed in the *First Report and Order* are as follows

(1) local loops;
(2) local switching;
(3) dedicated transmission links;
(4) shared transmission facilities between tandem switches and end offices,
(5) tandem switching;
(6) signaling and call-related database services, and
(7) collocation

GTE estimated its TELRICs following the methodology in the *First Report and Order* In particular, the TELRICs were calculated assuming the use of the most efficient technology deployed in its existing wire centers This calculation follows the methodology

12 For an average business customer

13 47 C F R § 51 505(b), in *First Report and Order*, Appendix B at B-29 to B-30

established in the *First Report and Order*.[14] In addition, GTE's calculations (1) assumed that in the long run, all costs were avoidable, (2) excluded common costs; and (3) utilized the cost causation principle, which states that costs caused by the provision of a given network element should be attributable to that element.

D. CALCULATING FORWARD-LOOKING COMMON COSTS

A key aspect of the methodology in the *First Report and Order* is the estimation of an incumbent local exchange carrier's forward-looking common costs. The *First Report and Order* defines forward-looking common costs as "economic costs efficiently incurred in providing a group of elements or services (which may include all elements or services provided by the incumbent LEC) that cannot be attributed directly to individual elements or services."[15]

A firm's forward-looking common costs are defined as (1) its forward-looking total costs minus (2) its forward-looking attributable costs (equivalently, the sum of the network element TELRICs). GTE's forward-looking total costs can be estimated based on the firm's current revenues. Such an approach is based on economic principles of regulated firms. Regulation allows firms the opportunity to earn a fair return on their invested capital.[16] This principle has two important implications:

- In long-run market equilibrium, regulated firms do not earn positive economic profits; and
- In long-run market equilibrium, regulated firms are not forced to earn negative economic profits.

Thus, regulation provides a firm with sufficient cash flows to replace depreciated capital and cover its current operating costs, but the cash flows are constrained so as to prevent the firm from earning positive economic profits. The cash flows of a regulated firm must

---

14 *First Report and Order*, at ¶ 685 ("We conclude that the forward-looking pricing methodology for interconnection and unbundled network elements should be based on costs that assume that wire centers will be placed at the incumbent LEC's current wire center locations, but that the reconstructed local network will employ the most efficient technology for reasonably foreseeable capacity requirements.")

15 47 C.F.R. § 51.505(b), in *First Report and Order*, Appendix B, at B-29 to B-30.

16 *See, e.g.*, Leland, H. (1974), *Regulation of Natural Monopolies and the Fair Rate of Return*, 5 Bell Journal of Economics 3, and Greenwald, B. (1984), *Rate Base Selection and the Structure of Regulation*, 15 RAND JOURNAL OF ECONOMICS 85.

allow it to recover its capital costs on a going-forward basis, that is, not just on an historic basis. In other words, the regulated firm's cash flows must be large enough to replace its capital over time. Thus, a regulated firm's rates of return and depreciation are adjusted so that its cash flows approximately equal those that would result from the use of replacement costs rather than book costs for its invested capital. Of course, replacement costs may vary from book costs because of (1) inflation, (2) changes in relative input prices (e.g., rising labor rates or falling capital costs), and (3) changes in technology. A regulated firm's cash flows should approximate the same cash flows that would result from an explicit, forward-looking calculation of capital costs and operating costs.

For these reasons, a regulated carrier's forward-looking total costs should approximately equal its current annual revenues (as shown in Table III-1). In the current context, GTE's annual revenues equal $1,269.1 million. From GTE's annual revenues, we subtract the sum of its TSLRICs in order to obtain the estimate of forward-looking common costs. Thus, the forward-looking common costs are estimated to equal $455.0 million, i.e., the current annual revenues of $1,269.1 million minus the sum of the TSLRICs of $814.1 million. This illustrates that GTE's forward-looking common costs are substantial. In particular, the estimate of forward-looking total costs exceeds attributable costs by a substantial percentage so that, as shown below, this results in prices for unbundled network elements in excess of TELRIC.

TABLE III-1
ESTIMATE OF FORWARD-LOOKING COMMON COSTS
USING CURRENT TOTAL REVENUE AND ATTRIBUTABLE COSTS
(MILLIONS OF DOLLARS)

	Revenue	TSLRIC[1]	Contribution
Local			
Residence	$274.5	$420.2	($145.7)
Business	250.2	142.1	108.1
Other	50.9	4.6	46.3
Total Local[2]	$575.6	$566.9	$8.7
IntraLATA Toll	53.8	5.7	48.1
Switched Access	320.9	32.5	288.4
Special Access[3]	13.8	12.8	1.0
Other	305.0	196.2	108.8
Total	$1,269.1	$814.1	$455.0

Notes:
[1] Total Service Long-Run Incremental Cost
[2] Excludes other miscellaneous local services
[3] Excludes transport and supplemental features

E. Determining the Reasonable Share of Forward-Looking Common Costs to Allocate to Individual Unbundled Network Elements

Given the existence of GTE's forward-looking common costs, we now explain how the M-ECPR methodology fairly allocates those costs in accordance with the recommendations of the *First Report and Order*. Recall that the *Order* states "that, under a [Total Element Long Run Incremental Cost] methodology, incumbent LECs' prices for interconnection and unbundled network elements shall recover the forward-looking costs directly attributable to the specified element, as well as a reasonable allocation of forward-looking common costs."[17] The *First Report and Order* defines a "reasonable allocation" as follows:

> The sum of a reasonable allocation of forward-looking common costs and the total element long-run incremental cost of an element shall not exceed the stand-alone cost associated with the element. In this context, stand-alone costs are the total forward-looking costs, including corporate costs, that would be incurred to produce a given element if that element were provided by an efficient firm that produced nothing but the given element.[18]

As discussed in detail below, the M-ECPR method establishes prices for unbundled network elements as equal to the sum of the carrier's (1) direct economic costs and (2) opportunity costs. The opportunity costs of providing an unbundled network element equal (1) the revenues that can be generated by the use of that element given the presence of all market alternatives minus (2) the direct economic costs. Thus, the opportunity cost of a product or input equals its value in its *best alternative use*. (Therefore, opportunity costs by definition are forward looking.)

In economics, there is no dispute as to the definition of opportunity costs. The consensus position has been stated by, for example, Professors Kaserman and Mayo as follows:

> The economic concept of costs includes the value of all inputs required for production, including the implicit value of those inputs owned by the producer.
>
> Thus, economic costs include both implicit and

---

17 *First Report and Order*, at ¶ 682.

18 47 C.F.R. § 51.505(c)(1), in *First Report and Order*, Appendix B, at B-30.

> explicit costs. Implicit costs are defined as the opportunity cost of owned resources, where the term *opportunity cost*, in turn, is defined as the value of a resource in its best alternative use. Explicit costs are the out-of-pocket expenditures on inputs purchased by the firm (which, in the short run, include both fixed and variable inputs).[19]

We stress that this definition of opportunity costs, which is the standard economic definition, is *not* the definition used by the Commission in its *First Report and Order*. The FCC-opportunity costs were defined as "the revenues that the incumbent LEC would have received for the sale of telecommunications services, in the absence of competition from telecommunications carrier (sic) that purchase elements."[20] The Commission's definition, thus, explicitly assumed away competition, whereas the standard economic definition takes as given all competitive options.

Of course, in calculating the opportunity costs, the revenues that can be generated by the use of an unbundled network element depend on whether there are market alternatives for the incumbent LEC's retail services and unbundled network elements. The magnitude of the incumbent's opportunity costs depends on whether such market alternatives are present or absent. There are, therefore, two cases to consider in the calculation of opportunity costs for an unbundled network element:

> *Market alternatives are absent* – Opportunity costs equal (1) the revenues currently generated in retail rates for services provided through the use of that element minus (2) the direct economic costs of the unbundled network element. In this case, the incumbent recovers the same flow of contributions embodied in the existing rate structure.

> *Market alternatives are present* – Opportunity costs equal (1) the revenues that can be obtained in the market through the use of that element minus (2) the direct economic costs of the unbundled network element. In this case the presence of facilities-based entry and the possibility that entrants may purchase services under existing retail rates that are substitutes for the incumbent carriers' unbundled network elements reduces the likelihood that the incumbent will recover

---

19 Kaserman, D. and Mayo, J. (1995), GOVERNMENT AND BUSINESS: THE ECONOMICS OF ANTITRUST AND REGULATION, New York, NY: Dryden Press, at 32.

20 47 C.F.R. § 51.505(c)(1), in *First Report and Order*, Appendix B, at B-30.

its total costs. Also, by cutting its price, a resale-based competitor can reduce the M-ECPR. These forces will necessarily reduce the flow of contributions embodied in GTE's existing rate structure.

The *First Report and Order* only discussed efficient component pricing in the circumstance in which no price competition exists. Thus, the FCC stated: "The opportunity cost, which is computed as revenues less all incremental costs, represents both profit and contribution to common costs of the incumbent, *given the existing retail prices of the services being sold*."[21] On the basis of that incorrect definition of opportunity costs, the FCC found: "We conclude that [FCC-ECPR] is an improper method for setting prices of interconnection and unbundled network elements because the existing retail prices that would be used to compute incremental opportunity costs under [FCC-ECPR] are not cost-based. Moreover, the [FCC-ECPR] does not provide any mechanism for moving prices towards competitive levels; it simply takes prices as given."[22]

The FCC's conclusions follow directly from its incorrect definition of opportunity costs. By ignoring the presence of market substitutes, the FCC found that the efficient component pricing rule provides no "mechanism for moving prices towards competitive levels." But by no means is this the case. The FCC managed to obtain the exact opposite of the correct answer by ignoring fundamental market forces. In contrast, by carefully considering all available market alternatives, the M-ECPR forces rates down where opportunity costs fall as a result of the presence of substitute services. Far from taking "prices as given," the M-ECPR recognizes that an incumbent carrier's ability to sell retail services at existing retail prices depends entirely on whether entrants offer lower prices. If such lower prices are forthcoming in the marketplace, the incumbent carrier's opportunity costs fall, causing the corresponding efficient component rates to fall as well. In sum, the FCC set up a "strawman" version of ECPR in its *First Report and Order* and proceeded to knock it down.

The M-ECPR method is consistent with the FCC's discussion of how forward-looking joint and common costs should be recovered. After discussing various "reasonable allocation" methods, the *First Report and Order* concluded: "In no instance should prices exceed the stand-alone cost for a specific element, and in most cases they should be below stand-alone costs."[23] Of course, that outcome is precisely what the M-ECPR method accomplishes when it examines market

---

21 *First Report and Order* ¶ (emphasis added).
22 *Id.*
23 *Id.*

alternatives. If, for example, an entrant's stand-alone cost of supplying network elements were less than the incumbent's existing wholesale rate, that condition would limit the incumbent's existing opportunity costs of the unbundled network element to the stand-alone cost of the entrant.

F. What Is the Economic Rationale for the Market-Determined Efficient Component-Pricing Rule?

The M-ECPR sets prices for resale services and unbundled network elements in the manner specified by the *Act* and the *First Report and Order*, which is the same way that firms and markets determine such prices. How do companies determine the economic costs of their inputs in practice? Some inputs are purchased on the market. For these inputs the determination of opportunity costs is straightforward since it equals the purchase cost of that input. The market price of the product or service provides the best guide to the economic value of that service because it results from fundamental supply and demand forces. Consumers' willingness to pay and suppliers' costs are reflected in the price that clears the market.[24]

But not all inputs used by a company are easily purchased in the market place. For those inputs that are not purchased it is necessary to "impute" their cost, that is, to attribute to that input the value in its best alternative use. When an input is unique to the company or produced by the company itself, the economically correct price is the best alternative use of that input. Thus, if an owner-manager of a small business puts in time operating the business, the opportunity cost of her time to the business is the best return that she could obtain elsewhere.

The M-ECPR calculates the prices that reflect market opportunities. The M-ECPR is a public-interest approach to the problem of how a regulated firm should price unbundled network elements it sells to a competitor. If a company produces an input and sells that input to another company, what would be the economic cost of that input? In this case, the economic cost would equal the direct cost of making that input plus the earnings forgone elsewhere by

---

24 In a competitive market, the prices for products and services generally reflect their economic cost. If prices do not generate sufficient revenues to cover costs, firms do not have an incentive to provide those products and services. If prices generate revenues that are above costs, price competition between providers and entry of new providers will drive down prices. In a competitive market, price always includes compensation for such economic costs – for example, for the interest forgone by the firm when it supplies funds from retained earnings rather than borrowing them from a bank.

making the sale. In other words, the economic cost of the input to be sold to another company is the direct cost of making the input *plus* the opportunity forgone by making the sale. This economic reasoning underlies the M-ECPR formula:

"access" price = incumbent's incremental cost of "access" per unit
plus the incumbent's opportunity cost of providing the unbundled input.

In the context of unbundled network elements, the incremental cost of "access" is simply the TELRIC referenced in the FCC's *First Report and Order*, appropriately calculated. Recall, TELRIC represents the forward-looking cost (capital and operating) attributable to a particular network element, for example, a loop.

In the absence of market alternatives which offer end users prices below the incumbent carrier's retail rates, the opportunity cost of providing the unbundled input equals forgone revenues (based on the incumbent LEC's tariffed retail rate) less incremental costs. When market alternatives are present, the prices of those alternatives determine the opportunity costs of unbundled network services.[25] The economically correct measure of the incumbent LEC's opportunity costs of selling the unbundled network service (such as a port or a loop) is the difference between the market price of the service (inclusive of purchase, installation, and operating costs) and the LEC's incremental costs. With facilities-based competition for loops and ports, the M-ECPR then says that the price of the service should be the sum of the LEC's incremental costs and the opportunity cost, which exactly equals the market price.

Thus, properly calculated, the M-ECPR pricing takes into account market limits on the contribution of revenues to forward-looking joint and common costs. In other words, M-ECPR uses market benchmarks to determine the amount of forward-looking common costs that can be "reasonably" allocated to an individual network element.

In order to appreciate why the M-ECPR satisfies all the requirements that Congress and the FCC have established for setting prices for resale services and unbundled network elements, we present several examples. Consider an incumbent LEC that employs an input (generically called "access") to provide a retail service. The retail service has a regulated price of $10.00 per unit. The incumbent LEC incurs two costs in providing this service: "access," which has an incremental cost of $3.00 per unit and "transport," which has an

[25] In this report, references to "market alternatives" include both actual and potential alternatives.

incremental cost of $2.00 per unit. Thus, the regulated price provides contribution to joint and common costs equal to $5.00 per unit (i.e., $10.00 - $3.00 - $2.00).

In the absence of market alternatives, the M-ECPR loop price (incremental plus opportunity costs) is simply:

M-ECPR = $8.00 (i.e., $3.00 + $5.00).

Now suppose, an entrant can self-supply loop service for $7.00. In this case, the incumbent LEC's opportunity costs of selling the services of a loop to a competitor is $7.00 minus $3.00, which equals $4.00. In this example, the M-ECPR loop price (incremental plus opportunity costs) is simply:

M-ECPR = $3.00 + ($7.00 - $3.00) = $7.00

In other words, whenever there are market alternatives, the M-ECPR price will be determined by the lowest-priced alternative. Alternatively, suppose the entrant buys a loop for $8.00 but then reduces the retail price to $9.00. This reduces the opportunity cost of the loop to $4.00 and the M-ECPR price falls to $7.00.

A desirable feature of the pricing rule is that it satisfies the requirement that the incumbent is displaced if and only if the entrant is more efficient (has a lower cost) than the incumbent. The efficiency property of M-ECPR can be easily demonstrated. Assume, in the above example, that a unit of access not sold to the competitor could generate contribution of $5.00. Thus, the relevant opportunity cost is $5.00 and the M-ECPR price is $8.00. If the incumbent LEC charges $8.00 per unit of access, two things will be true: (1) the incumbent LEC will cover its direct cost of providing access and (2) entry will occur only if the rival has a lower "transport" cost. To see how M-ECPR promotes efficient entry, assume first that the entrant has the same transport cost as the incumbent LEC, i.e., $2.00 per unit. Combining this cost with the M-ECPR access price of $8.00, the entrant can maintain a retail price of $10.00, which is just the initial regulated rate. Therefore if the entrant has the *same* transport cost as the incumbent LEC, the M-ECPR price allows it to earn zero economic profit.

Suppose now that the entrant has a *lower* transport cost than the incumbent LEC – say, $1.00 per unit, as compared with $2.00 for the incumbent LEC. In this case the entrant can purchase access at the M-ECPR price and set a retail price of only $9.00 per unit. Thus, the more efficient firm can profitably enter and take customers away from the incumbent LEC. Finally, if the entrant's transport cost were

greater than that of the incumbent LEC – say $3.00 per unit – then it could not profitably enter, which would be the efficient outcome from society's standpoint.

G. CONCLUSIONS

In this chapter, we have presented the market-determined efficient component pricing rule and shown that it satisfies the FCC's recommendation that prices for wholesale services and unbundled network elements be based on forward-looking costs. When combined with a system of competitively neutral end-user charges, the rule also satisfies the requirement of Congress that prices be based on costs and allow for a reasonable profit. We stressed that the M-ECPR is *not* the same as the FCC's version of that rule, which we termed FCC-ECPR. The two pricing rules result in substantially different prices. We present an estimate of GTE's forward-looking common costs and find these costs are substantial. Thus the FCC's pricing rule (i.e., TELRIC plus a reasonable allocation of forward-looking common costs) results in prices for unbundled network elements in excess of TELRIC.

IV

Application of the Market-Determined Efficient Component-Pricing Rule for the Establishment of Wholesale Prices

In this chapter we show how to apply the M-ECPR to determine wholesale prices for the resale services offered by incumbent LECs. In the application of the M-ECPR to the establishment of wholesale prices, the M-ECPR price equals

Wholesale Price = Retail Price - Avoided Cost of Resale

This method follows precisely section 252(d)(3) of the *Act*, which states that "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."[1] Since the method begins with the retail price and subtracts the avoided costs, it is referred to as the "top down" method.

A. The Top Down Approach to Calculating M-ECPR Wholesale Prices

As specified by the *Act*, the wholesale price is simply the retail price minus avoided cost. An example of the application of this method is as follows.[2] Suppose that an alternative local exchange carrier wanted to

---

1 47 U.S.C. § 252(d)(3).

2 The chapter presents illustrative wholesale rates for two GTE rate groups. For presentation purposes, a high and low rate group were chosen, with the high rate group shown in the text and the low rate group shown in the Appendix to this chapter.

purchase GTE's single line measured business service and not provide vertical and toll services. Suppose further that the retail rate for basic service equaled $29.90 per line. GTE has calculated that the avoided cost of providing the service at resale equals $3.72 per line. In this case, the wholesale rate equals $26.18 per line, i.e., $29.90 per line less $3.72 per line.

Suppose, however, that the alternative local exchange carrier proposed to provide local toll service and wants to purchase basic service at wholesale from GTE. In this case, the alternative local exchange carrier can self-provide local toll service packaged with GTE's resold local services. When this occurs, GTE loses an important source of contribution for recovery of the forward-looking common costs of its network. Moreover, the likelihood of this loss of contribution occurring is a near certainty, given that the vast majority of GTE's local residential and business customers also purchase local toll service from GTE. That is, as a practical matter, local and local toll services are purchased as a bundle by nearly all of GTE's residential and business customers. Thus, when alternative LECs purchase GTE's basic local service, they likely will bundle that service with their own self-provided local toll service, thereby capturing a key source of contribution that works to keep basic exchange prices low.[3] For all practical purposes, when GTE loses a basic business customer to a alternative LECs, it also loses the toll contribution made by that customer. Therefore, the relevant retail price to use in calculating the wholesale price is the bundled rate for toll and local service.

Using actual retail rate, cost, and revenue data for GTE, a numerical example of how to calculate the M-ECPR wholesale price for a local service that will be bundled with toll service provided by an alternative LEC is presented in Table IV-1. The table presents a numerical example of this approach based on GTE's basic business service, which has a monthly retail rate of $29.90 per line. GTE has determined that the TSLRIC of this service is $20.71 per line. To calculate the M-ECPR wholesale price, it is first necessary to subtract GTE's avoided cost of retailing from the per line retail rate. In Table IV-1, the avoided cost of retailing is given as $3.72 per line. Second, GTE's foregone toll contribution is added to account for the opportunity cost from the entrant's bundling GTE's basic business service with self-provided local toll service. From Table IV-1, this foregone contribution equals $2.87 for the average basic business customer. Because GTE receives revenues for the provision of originating and terminating switched access services when alternative local exchange carriers provide intraLATA toll services, the

3. Alternative LECs have the incentive to self-supply local toll given the relatively high contribution embodied in GTE's rate for such service.

contribution from these access revenues of $2.11 is subtracted. The resulting basic business wholesale rate is $26.94 per line.

The above numerical example assumes that alternative local exchange carriers do in fact self-provide toll services to customers who select their basic business resale service. There are two exceptions to the proposed pricing rule when this does not occur. First, if the alternative LEC provided local toll service to a customer prior to the time when unbundling was initiated, then GTE has no opportunity cost when that carrier continues to provide local toll service to those customers. Therefore, upon such a showing, GTE will remove the opportunity cost shown in Table IV-1 (i.e., $2.87 - $2.11 = $0.76). Second, if the alternative LEC can make a showing that it has not self-supplied local toll service to GTE's customers, GTE again would remove the opportunity cost of toll from the wholesale basic business rate.

The above calculation of the basic business wholesale price does not include the contribution GTE earns from the provision of vertical services. That is, the analysis assumes that when an alternative LEC purchases basic business service at resale, it must rely on GTE to supply vertical features. Since the alternative LEC cannot self-supply vertical features in this case, GTE does not lose contribution from those services. Therefore, the opportunity cost of vertical features is not part of the basic business wholesale rate.

With respect to residential service, the retail rate, cost, and revenue data for GTE used calculate the M-ECPR wholesale price for a local service that will be bundled with toll service provided by an alternative LEC is presented in Table IV-2. GTE's basic residential service has a monthly retail rate of $11.81 per line. GTE has determined that the TSLRIC of this service is $23.45 per line. Therefore, basic residential subscribers receive a subsidy of $11.64 per line. From this retail rate, we subtract GTE's avoided cost of retailing, which equals $1.22 per line, and add GTE's foregone toll contribution, which equals $1.83 for the average subscriber receiving basic residential service. After netting out GTE's intraLATA access contribution of $1.34, the resulting wholesale rate for basic residential service equals $11.08 per line.

TABLE IV-1
NUMERICAL EXAMPLE: "TOP DOWN" APPROACH
CALCULATION OF THE WHOLESALE RATE FOR
BASIC BUSINESS SERVICE
HIGH RATE GROUP
(DOLLARS PER LINE PER MONTH)

Retail Rate	$29.90
less	
Avoided Cost[1]	3.72
plus	
Foregone Toll Contribution[2]	2.87
less	
IntraLATA Access Contribution[3]	2.11
equals	
Wholesale Rate	$26.94

Notes:
1/ Avoided cost equals avoided retailing cost less incremental wholesaling cost.
2/ Foregone toll contribution equals average toll revenue less incremental cost of toll.
3/ IntraLATA access contribution equals intraLATA access revenue less incremental cost of access.

BASIC BUSINESS SERVICE DATA

Average Toll Revenue	$3.32
Incremental Cost of Toll	$0.45
IntraLATA Access Revenue	$2.20
Incremental Cost of Access	$0.09

TABLE IV-2
NUMERICAL EXAMPLE: "TOP DOWN" APPROACH
CALCULATION OF THE WHOLESALE RATE FOR
BASIC RESIDENTIAL SERVICE
HIGH RATE GROUP
(DOLLARS PER LINE PER MONTH)

Retail Rate	$11 81
less	
Avoided Cost [1]	1 22
plus	
Foregone Toll Contribution [2]	1 83
less	
IntraLATA Access Contribution [3]	1 34
equals	
Wholesale Rate	$11 08

Notes:
[1] Avoided cost equals avoided retailing cost less incremental wholesaling cost.
[2] Foregone toll contribution equals average toll revenue less incremental cost of toll.
[3] IntraLATA access contribution equals intraLATA access revenue less incremental cost of access.

BASIC RESIDENTIAL SERVICE DATA

Average Toll Revenue	$2 01
Incremental Cost of Toll	$0 18
IntraLATA Access Revenue	$1 43
Incremental Cost of Access	$0 09

Notice that the retail rate for basic residential service is $11.81, while the wholesale rate is $11.08. However, recognizing the bundled nature of those two services in the marketplace, the appropriate rate to use in a comparison with the wholesale rate for basic residential service is not GTE's basic residential retail rate, but rather the combined rate for basic residential service and local toll. GTE's residential customers pay, on average, $2.01 per month for local toll service. When this amount is added to GTE's rate for basic residential service, the resulting combined price of local exchange and local toll service is $13.82, which exceeds the calculated wholesale price for basic residential service by $2.74. This means that an alternative LEC can profitably enter and supply both local exchange and local toll services if that carrier's retail marketing and incremental toll costs are less than GTE's avoided retailing costs and incremental toll costs. That is, as noted above, the M-ECPR wholesale price satisfies the requirement that the incumbent LEC is displaced if and only if the entrant has a lower incremental retailing and toll cost than does the incumbent.

Finally, both the existing retail rate and the M-ECPR wholesale rate are less than the TSLRIC of the service. GTE currently can provide such subsidized service because the losses are made up by contributions collected from such services as vertical features and exchange access service. If no facilities-based bypass were to occur, this system of cross subsidies could be maintained if M-ECPR wholesale rates were established. However, if facilities-based bypass were to occur (in fact, such bypass already has occurred), the current below-cost rates could not be maintained. Facilities-based entrants, not surprisingly, target high-margin customers, such as high-volume business customers. By capturing some of the sources of subsidy funds, facilities-based entrants undermine the current rate structure. Thus, the current rate structure is not sustainable and should be rebalanced to remove these cross subsidies. A final problem caused by below-cost service is that it provides a disincentive to facilities-based entrants to offer service to relatively high-cost customers, such as residential and rural subscribers.

B. The Bottom Up Approach to Calculating M-ECPR Wholesale Prices

The M-ECPR methodology also can be used to calculate wholesale rates based on the service's TSLRIC. This is referred to as the "bottom up" approach, and it yields precisely the same wholesale rates as calculated by the "top down" approach. The bottom up approach is applied here to the calculation of wholesale rates for basic business service because it motivates the discussion in Chapter V where that

approach is applied to calculate prices for unbundled network elements. (The top down approach is inapplicable to the determination of prices for unbundled network elements.)

The "bottom up" calculation begins with the incremental cost of providing the service at resale, and adds to that amount all pertinent opportunity costs. As shown in Table IV-3, the incremental cost of the resale basic business service equals the total service incremental costs for basic business less GTE's avoided retailing cost, or $16.99 per line. GTE's opportunity cost equals the contribution embodied in its basic business service, $9.19, plus the foregone contribution from local toll, $0.76, or $9.95 per line. Thus, the bottom up wholesale price equals $26.94 per line (i.e., $16.99 + $9.95), which as discussed is identical to the top down wholesale price for basic business service shown in Table IV-1.

Table IV-4 applies the "bottom up" approach to the calculation of the basic residential rate. As shown in Table IV-4, the incremental cost of that service equals the total service incremental costs less GTE's avoided retailing cost, or $22.23 per line. GTE's opportunity cost equals the contribution embodied in its basic residential service, negative $11.64, plus the foregone contribution from local toll, $0.49, or negative $11.15 per line. Thus, the bottom up wholesale price equals $11.08 per line (i.e., $22.23 + negative $11.15), which is identical to the top down wholesale price for basic residential service shown in Table IV-2.

C. CONCLUSIONS

The M-ECPR pricing rule yields wholesale prices for services sold at resale by the incumbent LEC that meet the pricing requirements stated in the *Act*. The M-ECPR method can be applied either as a "top down" approach, starting with the applicable retail rates, or as a "bottom up" approach, starting with the applicable TSLRIC's. Both procedures yield the same wholesale prices. An important aspect of the application of the methodology is the recognition that customers essentially always purchase local and local toll services together from the same carrier, so the applicable retail rate from which to net out avoided retail costs is the bundled price for local and local toll service.

TABLE IV-3
NUMERICAL EXAMPLE "BOTTOM UP" APPROACH
CALCULATION OF THE WHOLESALE RATE FOR
SINGLE-LINE MEASURED BUSINESS SERVICE
HIGH RATE GROUP
(DOLLARS PER LINE PER MONTH)

Network TSLRIC[1]	$16.99
plus	
Opportunity Cost[2]	9.95
equals	
Total	$26.94

Notes:
[1] TSLRIC is Total Service Long Run Incremental Cost
Network TSLRIC equals TSLRIC less avoided cost
[2] Opportunity cost equals contribution per line plus net contribution from intraLATA toll service

BASIC BUSINESS SERVICE DATA

TSLRIC	$20.71
Avoided Cost	$3.72
Contribution Per Line	$9.19
Net Contribution from IntraLATA Toll Service	$0.76

TABLE IV-4
NUMERICAL EXAMPLE "BOTTOM UP" APPROACH
CALCULATION OF THE WHOLESALE RATE FOR
BASIC RESIDENTIAL SERVICE
HIGH RATE GROUP
(DOLLARS PER LINE PER MONTH)

Network TSLRIC[1]	$22.23
plus	
Opportunity Cost[2]	(11.15)
equals	
Total	$11.08

Notes:
[1] TSLRIC is Total Service Long Run Incremental Cost. Network TSLRIC equals TSLRIC less avoided cost
[2] Opportunity cost equals contribution per line plus net contribution from intraLATA toll service.

BASIC RESIDENTIAL SERVICE DATA

TSLRIC	$23.45
Avoided Cost	$1.22
Contribution Per Line	($11.64)
Net Contribution from IntraLATA Toll Service	$0.49

APPENDIX TABLE IV-1
NUMERICAL EXAMPLE: "TOP DOWN" APPROACH
CALCULATION OF THE WHOLESALE RATE FOR
BASIC BUSINESS SERVICE
LOW RATE GROUP
(DOLLARS PER LINE PER MONTH)

Retail Rate	$23.95
less	
Avoided Cost [1]	3.72
plus	
Foregone Toll Contribution [2]	2.87
less	
IntraLATA Access Contribution [3]	2.11
equals	
Wholesale Rate	$20.99

Notes:
[1] Avoided cost equals avoided retailing cost less incremental wholesaling cost.
[2] Foregone toll contribution equals average toll revenue less incremental cost of toll.
[3] IntraLATA access contribution equals intraLATA access revenue less incremental cost of access.

BASIC BUSINESS SERVICE DATA

Average Toll Revenue	$3.32
Incremental Cost of Toll	$0.45
IntraLATA Access Revenue	$2.20
Incremental Cost of Access	$0.09

APPENDIX TABLE IV-2
NUMERICAL EXAMPLE: "TOP DOWN" APPROACH
CALCULATION OF THE WHOLESALE RATE FOR
BASIC RESIDENTIAL SERVICE
LOW RATE GROUP
(DOLLARS PER LINE PER MONTH)

Retail Rate	$9.51
less	
Avoided Cost [1]	1.22
plus	
Foregone Toll Contribution [2]	1.83
less	
IntraLATA Access Contribution [3]	1.34
equals	
Wholesale Rate	$8.78

Notes:
[1] Avoided cost equals avoided retailing cost less incremental wholesaling cost.
[2] Foregone toll contribution equals average toll revenue less incremental cost of toll.
[3] IntraLATA access contribution equals intraLATA access revenue less incremental cost of access.

BASIC RESIDENTIAL SERVICE DATA

Average Toll Revenue	$2.01
Incremental Cost of Toll	$0.18
IntraLATA Access Revenue	$1.43
Incremental Cost of Access	$0.09

APPENDIX TABLE IV-3
NUMERICAL EXAMPLE "BOTTOM UP" APPROACH
CALCULATION OF THE WHOLESALE RATE FOR
SINGLE-LINE MEASURED BUSINESS SERVICE
LOW RATE GROUP
(DOLLARS PER LINE PER MONTH)

Network TSLRIC [1]	$28.18
plus	
Opportunity Cost [2]	(7.19)
equals	
Total	$20.99

Notes:
[1] TSLRIC is Total Service Long Run Incremental Cost. Network TSLRIC equals TSLRIC less avoided cost.
[2] Opportunity cost equals contribution per line plus net contribution from intraLATA toll service.

BASIC BUSINESS SERVICE DATA

TSLRIC	$31.90
Avoided Cost	$3.72
Contribution Per Line	($7.95)
Net Contribution from IntraLATA Toll Service	$0.76

APPENDIX TABLE IV-4
NUMERICAL EXAMPLE "BOTTOM UP" APPROACH
CALCULATION OF THE WHOLESALE RATE FOR
BASIC RESIDENTIAL SERVICE
LOW RATE GROUP
(DOLLARS PER LINE PER MONTH)

Network TSLRIC [1]	$31 73
plus	
Opportunity Cost [2]	(22 95)
equals	
Total	$8 78

Notes
[1] TSLRIC is Total Service Long Run Incremental Cost Network TSLRIC equals TSLRIC less avoided cost
[2] Opportunity cost equals contribution per line plus net contribution from intraLATA toll service

BASIC RESIDENTIAL SERVICE DATA

TSLRIC	$32 95
Avoided Cost	$1 22
Contribution Per Line	($23 44)
Net Contribution from IntraLATA Toll Service	$0 49

V

Application of the Market-Determined Efficient Component-Pricing Rule for the Establishment of Unbundled Network Element Prices

In this chapter we show how to apply the M-ECPR methodology to determine prices for unbundled network elements in accordance with the *Act*. Recall that Section 252(d)(1) of the *Act* states that unbundled network element charges "(A) shall be (i) based on the cost (determined without reference to a rate-based proceeding) of providing the interconnection or network element (whichever is applicable), and (ii) nondiscriminatory, and (B) may include a reasonable profit."[1] Also recall that the *First Report and Order* concludes "that, under a [Total Element Long Run Incremental Cost] methodology, incumbent LECs' prices for interconnection and unbundled network elements shall recover the forward-looking costs directly attributable to the specified element, as well as a reasonable allocation of forward-looking common costs."[2]

As shown in Chapter III, the FCC's recommended pricing rule for unbundled network elements is represented by the following formula:

1 47 U.S.C. § 252(d)(1)

2 *First Report and Order*, at ¶ 682

Price of Unbundled Element = *TELRIC* + (*x*) (*FLCC*)

where:

TELRIC	= Total Element Long Run Incremental Cost;
FLCC	= Forward Looking Common Costs; and
x	= Reasonable share of FLCC allocated to the unbundled network element

In this chapter we discuss how the M-ECPR determines the reasonable allocation of forward-looking common costs (i.e., *x* in the above equation) in accordance with the *First Report and Order*. The chapter is organized as follows. Section A discusses the services that alternative local exchange carriers can provide by using unbundled network elements. Section B analyzes how an incumbent carrier's forward-looking common costs should be allocated according to the *First Report and Order*. Section C shows how to calculate M-ECPR rates and contrasts the resulting rates with those calculated according to the FCC-ECPR methodology. Section D discusses the fact that an incumbent carrier may be unable to recover its forward-looking common costs under the M-ECPR methodology. Section E analyzes how the requirement of the *First Report and Order* that specifies prices for unbundled network elements "shall recover the forward-looking costs directly attributable to the specified element, as well as a reasonable allocation of forward-looking common costs"[3] can be met with a system of competitively neutral end-user charges.

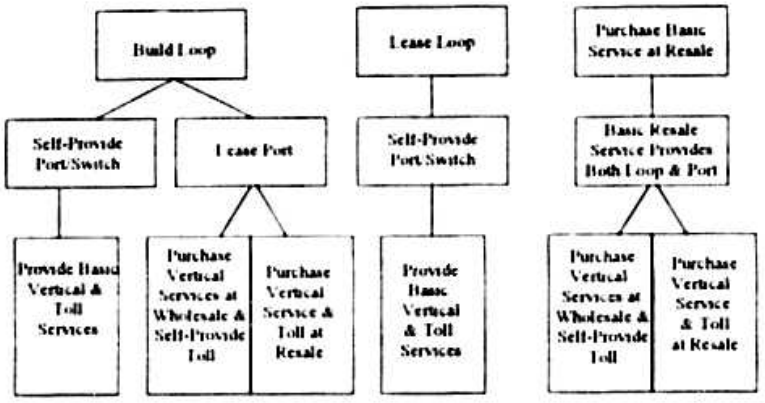
A SERVICES ALTERNATIVE LOCAL EXCHANGE CARRIERS CAN PROVIDE BY USING UNBUNDLED NETWORK ELEMENTS

Unbundling allows alternative LECs to enter the local exchange market and provide basic, vertical, and local toll services in a variety of ways. Consider a carrier's options with respect to loop and port/switch facilities. A carrier could construct its own loop facilities and lease port/switch services from GTE in order to provide switched services. Alternatively, a carrier could lease GTE's loop facilities and obtain its own port/switch facilities to provide these services. A carrier could also obtain loop and port/switch facilities from GTE by purchasing at wholesale GTE's basic retail services. Of course, an entrant also could construct its own network of loops and port/switch facilities completely bypassing the incumbent's facilities. These options are summarized in Figure V-1.

---

3. *First Report and Order*, at ¶ 682.

FIGURE V-1
OPTIONS AVAILABLE TO ALTERNATIVE
LOCAL EXCHANGE CARRIERS



When entrants lease unbundled loops and self-provide port/switch facilities, they can provide basic local service, vertical features, and local toll service, as well as switched access and interLATA toll service, without purchasing any of GTE's retail services at wholesale. This is distinguished from the resale example discussed in Chapter IV in which alternative LECs could not provide vertical features without purchasing them at wholesale from GTE. With unbundling, therefore, alternative LECs can capture the contributions that flow from GTE's provision of vertical services as well as local toll, and thus tends to increase the incumbent carrier's forgone revenues from unbundling its network elements.

B. THE DETERMINATION OF A REASONABLE ALLOCATION OF FORWARD-LOOKING COMMON COSTS ACCORDING TO THE *FIRST REPORT AND ORDER*

Following the recommendation in the *First Report and Order* that prices not exceed stand-alone costs, our understanding is that alternative local exchange carriers with demands for port/switching services generally, and local switches and tandem switches in particular, have available market alternatives at competitive prices. Assuming that port/switching services, signaling, and transport can be purchased at competitive prices from third-party vendors, it follows that alternative LECs would have a strong incentive to self-provide these network elements if GTE's prices for unbundled elements exceeded the purchase, installation, and operating cost of self-supplied facilities.

As a consequence of this competitive market constraint, the *First Report and Order's* reasonable allocation can apply relatively little, if any, of the incumbent carrier's forward-looking common costs to the prices of unbundled services other than the loop. In contrast, there are relatively fewer market constraints on the provision of loops, so that the *First Report and Order's* reasonable allocation can apply relatively more of the incumbent carrier's forward-looking common costs to the prices of unbundled loops.

C. APPLICATION OF THE BOTTOM UP M-ECPR METHOD TO CALCULATE PRICES FOR UNBUNDLED NETWORK ELEMENTS

The determination of unbundled network element prices can be accomplished by applying the "bottom up" M-ECPR method. With the "bottom up" method, the price of an unbundled network element equals the sum of the relevant TELRIC plus a reasonable allocation of the firm's forward-looking common costs, where that allocation depends on market alternatives.

As discussed in Chapter III, the M-ECPR rates depend on the presence or absence of these market alternatives. If all market alternatives are assumed away, then FCC-ECPR rates are obtained. But if market alternative are considered, then M-ECPR rates are obtained. In the next two subsections, we calculate the rates for unbundled loops provided to business or residential customers. First we assume away all market alternatives to the incumbent LEC's services, and then we explicitly consider these alternatives to calculate the M-ECPR rates.

1 CALCULATION OF PRICES FOR UNBUNDLED LOOPS ASSUMING THE ABSENCE OF MARKET ALTERNATIVES

Table V-1 provides a numerical example for calculating the loop price based on service provided to an average business customer, assuming the absence of market alternatives. The table identifies the sources of contribution from an average business customer. Total revenues from such a customer equal $69.21 per line, and the total TSLRIC for providing those services equals $27.91 per line. Thus, total contribution in this example equals $41.30 per line. The loop price assuming the absence of market alternatives equals (1) the TELRIC of the loop facility, $23.26, inclusive of the incremental marketing cost of providing unbundled loops, plus (2) the foregone contribution or opportunity cost of providing the unbundled loop, $41.30, resulting in an unbundled loop price of $64.56 per line.

With respect to residential customers, Table V-2 presents the calculations of the unbundled loop price for an average residential customer, assuming the absence of market alternatives for the incumbent LEC's services. An average residential customer provides a monthly contribution of $6.21 per line, which when added to the TELRIC of the loop, $23.26, yields an unbundled loop price of $29.47.

In these examples, we assume that alternative local exchange carriers bypass GTE's port/switching facilities so that it obtains no contribution from the provision of those unbundled network elements. If, to the contrary, unbundled prices for port/switching services included some contribution (in other words, if market alternatives were less binding), that contribution would be subtracted from total forward-looking common costs before determining the unbundled price of the loop. That subtraction would ensure the contribution provided by unbundled loops and port/switches did not exceed the contribution embodied in the prices of GTE's retail services.

TABLE V-1
NUMERICAL EXAMPLE: UNBUNDLED LOOP RATE
CALCULATION BASED ON AVERAGE BUSINESS CUSTOMER
(DOLLARS PER LINE PER MONTH)

	Revenue	TSLRIC [1]	Contribution
Basic Retail Service	$37.49	$24.60	$12.89
End-User Line Charge	5.84	0.00	5.84
Local Toll	3.32	0.45	2.87
Vertical Services	1.33	0.63	0.70
Switched Access			
Interstate			
CCLC [2]	6.69	0.00	6.69
Other	6.49	1.70	4.79
Intrastate	8.05	0.53	7.52
Total	$69.21	$27.91	$41.30

Notes:
[1] Total Service Long-Run Incremental Cost
[2] Common Carrier Line Charge

LOOP PRICE ASSUMING THE ABSENCE OF MARKET ALTERNATIVES

Unbundled Loop TELRIC	$23.26
(inclusive of incremental marketing costs)	
plus	
Opportunity Costs (foregone contribution)	41.30
Total	$64.56

TABLE V-2
NUMERICAL EXAMPLE: UNBUNDLED LOOP RATE
CALCULATION BASED ON AVERAGE RESIDENTIAL CUSTOMER
(DOLLARS PER LINE PER MONTH)

	Revenue	TSLRIC [1]	Contribution
Basic Retail Service	$12.42	$24.36	($11.94)
End-User Line Charge	3.50	0.00	3.50
Local Toll	2.01	0.18	1.83
Vertical Services	2.50	0.05	2.45
Switched Access			
Interstate			
CCLC [2]	3.13	0.00	3.13
Other	3.04	0.79	2.25
Intrastate	5.33	0.34	4.99
Total	$31.93	$25.72	$6.21

Notes:
[1] Total Service Long-Run Incremental Cost
[2] Common Carrier Line Charge

LOOP PRICE ASSUMING THE ABSENCE OF MARKET ALTERNATIVES

Unbundled Loop TELRIC	$23.26
(inclusive of incremental marketing costs)	
plus	
Opportunity Costs (foregone contribution)	6.21
Total	$29.47

Suppose the entrant's stand-alone cost of supplying its own loop facilities were less than the unbundled loop prices for average business or residential customers, which were calculated on the assumption that no market alternatives existed for the incumbent LEC's services. Should GTE have the flexibility to lower the price of its loop facilities? The answer is yes, because otherwise the unbundled loop price would violate the recommendation in the *First Report and Order* that prices of unbundled network elements should not exceed their stand-alone costs. Given the presence of market alternatives, GTE's M-ECPR price equals its TELRIC for loop service plus the opportunity cost *as constrained by market forces*.

This can be illustrated using a simple example. Assume a facilities-based competitor can self-supply loop facilities to business customers for $40.00 per line. GTE's forgone revenues would equal $40.00 minus its TELRIC of loop service (including marketing costs), which in our example equals $23.26. Thus, the resulting M-ECPR loop price equals $23.26 plus $16.74 (i.e., $40.00 - $23.26), or simply the entrant's stand-alone cost of $40.00.

In addition to building their own loops, alternative LECs have other available substitutes to GTE's unbundled loop facilities. An entrant carrier can acquire basic business service at wholesale, which includes the services of both a loop and port/switching services; alternatively, that carrier could purchase 2-wire private line service from GTE. If either of these two alternatives had a lower price than the loop price calculated on the assumption that no such market alternatives existed, then the entrant carrier would choose to purchase the lowest priced alternative.

If private line service is a good substitute for GTE's unbundled loops, the presence of the private line rate constrains GTE's ability to establish loop prices that maintain contribution. For example, if GTE's 2-wire private line rate were $33.08, GTE would not receive the unconstrained price for its loop facilities because of the presence of its substitute 2-wire private line service.

In sum, given the presence of a 2-wire private line service at $33.08, a comparison of the FCC-ECPR and M-ECPR rates for an unbundled loop provided to an average business customer shows the following:

- FCC-ECPR unbundled loop price equals $64.56, and
- M-ECPR unbundled loop price equals $33.08

This illustrates the potentially large differences between FCC-ECPR rates and M-ECPR rates. These differences in rates are caused by the fact the FCC-ECPR methodology explicitly assumes away all competitive market alternatives, whereas the M-ECPR explicitly takes those alternatives into account.

D. The Presence of Market Alternatives Can Prevent an Incumbent Carrier from Recovering its Forward-Looking Common Costs

When customers are able to self-supply loop facilities, or to purchase substitute services from GTE at a rate less than the loop price calculated on the assumption that no market alternatives exist, the market-determined M-ECPR prices for loop and port/switching facilities will not enable GTE to recover its forward-looking common costs. In addition, the presence of market alternatives can prevent an incumbent LEC from recovering its historical costs. These M-ECPR prices do enable a carrier to cover the direct economic cost of providing the unbundled services, that is the direct incremental cost of providing the service (TELRIC) plus opportunity costs. However, M-ECPR rates constrained by market alternatives do not enable GTE to recover its forward-looking common costs and, therefore, do not cover its total costs. Table V-3 illustrates the deficit for business customers resulting from establishing a loop price equal to $33.08 as mandated by the presence of market alternatives.[4] In the case of residential customers, the loop price assuming the absence of market alternatives is less than the M-ECPR rate. But entrants likely will target relatively high-margin business customers. As a result, GTE's realized deficit likely will be determined by the difference between (1) the weighted-average loop price assuming the absence of market alternatives (where the weights are the number of business and residential lines) and (2) the M-ECPR loop price, as shown in Table V-3.

---

4 If GTE's 2-wire private line rate were below its TELRIC, the deficit would be larger. Such below-cost rates would provide a subsidy to entrants. Of course, such subsides should be eliminated by raising the 2-wire private line rate to cover its long run incremental costs.

TABLE V-3
DEFICIT RESULTING FROM M-ECPR LOOP PRICE
CONSTRAINED BY 2-WIRE PRIVATE LINE ALTERNATIVE
(AVERAGE BUSINESS CUSTOMER)

Loop Price Assuming the Absence of Market Alternatives	$64.56
Loop Price based on M-ECPR using Market Alternatives	33.08
Deficit	$31.48

DEFICIT RESULTING FROM M-ECPR LOOP PRICE
CONSTRAINED BY 2-WIRE PRIVATE LINE ALTERNATIVE
(AVERAGE RESIDENTIAL CUSTOMER)

Loop Price Assuming the Absence of Market Alternatives	$29.47
Loop Price based on M-ECPR using Market Alternatives	33.08
Deficit	($3.61)

DEFICIT RESULTING FROM M-ECPR LOOP PRICE
CONSTRAINED BY 2-WIRE PRIVATE LINE ALTERNATIVE
(WEIGHTED-AVERAGE CUSTOMER)

Loop Price Assuming the Absence of Market Alternatives	$38.49
Loop Price based on M-ECPR using Market Alternatives	33.08
Deficit	$5.41

To summarize, the *First Report and Order* specifies that prices for unbundled network elements "shall recover the forward-looking costs directly attributable to the specified element, as well as a reasonable allocation of forward-looking common costs."[5] But market alternatives may prevent an incumbent carrier from recovering these costs. Thus the question arises as to how the FCC's mandate can be met so that an incumbent carrier can recover its forward-looking common costs.

E. The Role of Competitively Neutral End-User Charges in Recovering a Carrier's Forward-Looking Common Costs

How should prices for unbundled network elements be established to ensure that GTE's rates recover its forward-looking common costs? As a general statement, the M-ECPR does not alter in any material way the traditional problems faced by a regulated carrier operating with a rate structure that contains cross subsidies mandated by regulation. For the firm's rate structure to be preserved and to allow recovery of its total costs, accompanying end-user charges are required. As the example above clearly demonstrates, while the M-ECPR enables the incumbent LEC to recover its incremental costs and opportunity costs, it does not allow cost recovery as would the regulated rates absent entry. Thus, the incumbent LEC also may be prevented from recovering its historical costs. Generally, facilities-based entry and M-ECPR pricing of unbundled network elements result in stranded costs.[6] The reason is that the M-ECPR price is reduced by competition.

The fall in the M-ECPR price provides useful guidance on how to set end-user charges to achieve recovery of stranded costs. The end-user charge should equal the difference between net revenues obtained using the FCC-ECPR (i.e., the price based on the regulated rate structure) and the net revenues obtained from the lower, market constrained M-ECPR price that takes into account entrants' alternatives.

What costs do the end-user charge recover? The end-user charge recovers portions of six types of cost burdens that the incumbent LEC cannot recover through competitive, unbundled prices but nonetheless has incurred to discharge its obligation to serve:

---

5. *First Report and Order*, at ¶ 682.

6. Stranded costs are defined as (1) the present value of net revenues for the incumbent under regulation minus (2) the present value of net revenues under competition.

(1) shared costs of network operation, incurred among two or more (but not all) of the incumbent LEC's services, but not wholly attributable to any single service.

(2) common costs of network operation, incurred among all of the incumbent LEC's services.

(3) losses incurred in providing services to customers at regulated prices that are below the incremental cost of providing such service, and

(4) costs incurred as a result of incumbent burdens that the incumbent LEC continues to bear after the advent of competition, but which entrants are not required to bear, such as universal service obligations

(5) costs incurred by GTE to accomplish government-mandated unbundling of network elements or resale of network services, and

(6) losses incurred when GTE's avoided costs are incorrectly overstated and are used to establish the discount that competitors receive when purchasing wholesale services from GTE

If such a system of end-user charges were not put in place, the incumbent LEC would earn negative economic profits and therefore would be denied the opportunity to earn the "reasonable profit" envisioned by Section 252(d)(3) of the Telecommunications Act of 1996. In this circumstance, the implementation for prices of unbundled service elements would be in direct violation of the Act.

VI

Economic Problems That M-ECPR Pricing Avoids

In its April 19, 1996 Notice of Proposed Rulemaking on interconnection pricing, the FCC expressed several criticisms of its version of the efficient component pricing rule.[1] In particular, the *Interconnection NPRM* argued that the FCC-ECPR would protect monopoly profits if they are being earned by the incumbent LEC and that the rule would not ensure lower prices for consumers. These criticisms were also expressed in the *First Order and Report* which stated the rule "does not provide any mechanism for driving prices towards competitive levels; it simply takes prices as given."[2] The *First Report and Order* continued by stating that the FCC-ECPR would result in input prices that would be higher or lower than that would be generated in a competitive market.. This chapter illustrates that these economic problems and others are avoided when input prices are established using M-ECPR.

A. The M-ECPR Does Not Preserve Monopoly Rent

The FCC has argued that the FCC-ECPR will protect monopoly profits if they are being earned by the incumbent LEC and that the

1. Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Notice of Proposed Rulemaking, CC Dkt No 96-98, (Apr. 19, 1996) [hereinafter *Interconnection NPRM*]

2. *First Report and Order* at ¶ 709

rule does not ensure lower prices and higher outputs in a competitive market:

> Under the [FCC-ECPR], competitive entry will not place at greater risk the incumbent's recovery of its overhead costs or any profits that it otherwise would forego due to the entry of the competitor. In other words, the incumbent's profitability would not be diminished by providing interconnection or unbundled elements or both . . . . The [FCC-ECPR] presupposes that the incumbent is the sole provider of a bottleneck service, and seeks to define efficient incentives for incremental entry based on that assumption. Under the [FCC-ECPR], competitive entry does not drive prices toward competitive levels, because it permits the incumbent carrier to recover its full opportunity costs, including any monopoly profits.[3]

For four reasons, these claims are erroneous and misdirected when applied to M-ECPR.

The M-ECPR Supports both Efficient Entry and Falling Prices. The access price derived from the M-ECPR permits price to fall and output to expand for the final product relative to the price and output that had obtained under regulation.[4] Moreover, that result holds under a variety of market structures: In contestable markets, under Cournot-Nash competition, and in markets characterized by product differentiation, the M-ECPR rewards entry by more efficient rivals and produces lower prices for the final product. Finally, the equilibrium access price implied by the M-ECPR for each of those market structures is lower than the access price that would obtain in the stylized benchmark case in which the incumbent LEC is permitted (contrary to actual experience in regulated markets) to

---

3 *Interconnection NPRM*, at ¶ 147. Similarly, the Commission said in its NPRM on CMRS interconnection: "[B]ecause the [FCC-ECPR] would permit an incumbent carrier to recover its opportunity costs, including any monopoly profits in the sale of the final service, the use of this rule may prevent competitive entry from driving prices towards competitive levels." *CMRS NPRM*, at ¶ 53.

4 Daniel F. Spulber & J. Gregory Sidak, *Access Pricing and Deregulation*, Northwestern University, Kellogg Graduate School of Management, Working Paper (February, 1996).

receive the entire monopoly rent in the opportunity-cost component of the FCC-ECPR.

The Unrealistic Counterfactual of Unregulated Monopoly Free of Mandated Cross Subsidies. To assume that a regulated monopolist is routinely and consistently earning monopoly rents is counterfactual: The *raison d'etre* of public utility regulation is to prevent a firm thought to be a natural monopoly from setting the profit-maximizing price of an unconstrained monopolist. Contrary to the FCC's implicit assumption, state regulation in place before the enactment of the 1996 federal legislation should be presumed to have limited rather than facilitated the extraction of monopoly rents. Even if a state did permit an incumbent LEC to earn monopoly rents, the need to reform that state's regulation would not justify the FCC's rejection of the M-ECPR in favor of some other pricing method that will fail to yield efficient and compensatory pricing of mandatory network access.

Moreover, if monopoly rents do persist in the pricing of some final product sold by the regulated incumbent LEC, it is likely that regulators have authorized or mandated the extraction of those rents as part of an overall rate structure that is rife with cross subsidies from one customer group to another. It is certainly possible, in other words, that the prices for specific services sold by the regulated incumbent LEC contain rents that the firm is obliged to extract from one set of customers and then dissipate in the course of subsidizing other services that the regulator orders the LEC to sell below cost. In that case, the recovery of the contributions to margin on the services supposedly generating the monopoly rents represents nothing more than a preservation of state-mandated cross subsidies; those positive contributions to margin should not be interpreted by the FCC in isolation as a preservation of monopoly rents that, on balance, flow from the combined classes of all customers to the incumbent LEC's shareholders. In any event, it is surely preferable for the regulator to eliminate the system of cross subsidies altogether by rebalancing the rate structure, rather than to reject the M-ECPR and instead price network access selectively on the basis of incremental cost while continuing to require the incumbent LEC to price various other services below cost. Such a selective approach would violate sound economic analysis and deny the incumbent LEC the opportunity to recover its costs, which eventually would destroy the LEC's financial solvency.

The M-ECPR with Facilities-Based Competition for Access. If facilities-based competition is infeasible, then the basis for the opportunity-cost calculation in the M-ECPR is the incumbent LEC's regulated margins. But if access competition is feasible, then the ECPR methodology requires pricing at the incremental cost of the best alternative technology for providing network access, even if that lower price of access fails to preserve the incumbent LEC's regulated margin. Thus, M-ECPR does not protect the incumbent LEC's regulated margins from the downward pressure of access competition. Market forces simply will not permit the incumbent LEC to charge a higher price than the incremental cost of the best alternative technology for provision of network access, even if the incumbent LEC may lawfully attempt in vain to do so.

The existence of access competition also establishes that the facilities of the incumbent LEC are not "essential," as that term has come to be known in antitrust law.[5] Entry barriers to facilities-based competition are not insurmountable, as evidenced by the substantial investment in transmission and switching facilities that has already occurred in the local exchange.[6] In addition, technological change has lowered the entrant's need to make irreversible, transaction-specific investment: Wireless technologies lower the specificity of entry costs in comparison with traditional wired technologies. Consequently, there is less reason with each passing day to presume that the wireline facilities of the incumbent LEC, if unregulated by the states, still could generate the monopoly rents that evidently motivated the FCC's opposition to the states' use of the ECPR.

Misdirected Criticism of Policy Instruments. A claim that M-ECPR perpetuates monopoly rents is an attempt to redress a perceived failure of public utility regulation by manipulating the wrong policy instrument. Even if state regulators were to permit an incumbent LEC to earn monopoly rents (net of all government-mandated cross subsidies), that fact would not undermine the economic efficiency *of the M-ECPR.* The rule's purpose is to reward efficient entry into the market for the end product by ensuring that the incumbent LEC sells network access to itself and to its rivals on the same,

---

5 . United States v. Terminal R.R. Ass'n, 224 U.S. 383 (1912), MCI Comm. Corp. v. American Tel. & Tel. Co., 708 F.2d 1081 (7th Cir.), *cert. denied*, 464 U.S. 891 (1983).

6 . Daniel F. Spulber, *Deregulating Telecommunications*, 12 YALE J. ON REG. 25 (1995)

nondiscriminatory terms. The M-ECPR accomplishes that task regardless of the market structure and regardless of the presence or absence of economic rents.

The Judicial Committee of the Privy Council of the House of Lords recognized the efficacy of the rule, when, in *Telecom Corporation of New Zealand Ltd.* v. *Clear Communications Ltd.*, that court of last resort considered whether the efficient component pricing would violate section 36 of New Zealand's Commerce Act by allowing Telecom to recover monopoly rents in the opportunity-cost component of the access price that it proposed to charge to the entering local carrier, Clear, for interconnection to Telecom's access network.[7] Their Lordships emphasized that courts applying section 36 "are not acting as regulators" and that "section 36 is only one of the remedies provided by the Commerce Act for the purpose of combating overpricing due to monopolistic behavior."[8] Other sections of the Commerce Act, Lord Browne-Wilkinson observed, are available to perform that role:

> Part IV [of the Commerce Act] deals separately with control of prices. Under section 53 the Governor General, on the recommendation of the Minister, may declare that the prices for goods or services of any description supplied to or for the use of different persons are controlled. Under section 53(2)(a) a Minister cannot make such a recommendation unless he is satisfied the goods or services are supplied in a market "in which competition is limited or is likely to be lessened". Under section 70 the Commission may authorize a price to be charged for controlled services. Therefore section 36 is only part of an overall statutory machinery for dealing with trade practices which operate to the detriment of consumers. Another part of such machinery (Part IV) is specifically directed to the regulation of prices in markets which are not fully competitive.[9]

---

7. [1995] 1 N.Z.L.R. 385 (Judgment of the Lords of the Judicial Committee of the Privy Council, Oct. 19, 1994), *see also* William J. Baumol & J. Gregory Sidak, *The Pricing of Inputs Sold to Competitors: Rejoinder and Epilogue*, 12 YALE J. ON REG. 177 (1995) (discussing New Zealand interconnection litigation)

8. [1995] 1 N.Z.L.R. at 404.

9. *Id.*

The Privy Council ruled that "the risk of monopoly rents has no bearing upon the question whether the application of the [efficient component-pricing rule] prevents competition in the contested area."[10] "If *both* Telecom and Clear are charging their customers the same amount in the area in which they are not competitors," their Lordships reasoned, "this does not have any effect on their relative competitiveness in the area in which they compete."[11]

B. THE M-ECPR DOES NOT LIMIT COMPETITIVE ENTRY

M-ECPR does not limit competitive entry in the case of interconnection of local networks to effect terminating access. Likewise, when entry occurs instead by means of resale or unbundled access to network elements, access prices that recover the incumbent LEC's long run incremental costs and its opportunity costs are no barrier to the entry of competitors that are at least as efficient as the incumbent in the provision of retail services. In all three cases prices that are computed according to the M-ECPR are both efficient and compensatory. By setting access prices that allow the incumbent LEC to recover its costs, retail rates will fail to reflect (1) the efficiencies of resellers and of aggregators of unbundled elements, (2) the increased demand at the lower prices, and (3) the lowering of the cost recovery per unit.[12]

Now consider how competition in the provision of network access affects the M-ECPR and the incentives that it creates for efficient entry. With facilities-based competition, it is evident that the M-ECPR does not impede entry. Setting the M-ECPR at the incremental cost of the best alternative technology allows the entry of other companies that are at least as efficient as that entrant serving as the benchmark.

Some have argued that M-ECPR pricing excludes entrants that have the *potential* in the long run of becoming more efficient providers of some end service than the incumbent LEC. Proponents of that view are implicitly advocating an entry subsidy. The fallacy in that position, however, is that no one, including the regulator, can distinguish *ex ante* between those entrants that have such potential

---

10. *Id.* at 407.

11. *Id.* (emphasis in original)

12. For a technical economic analysis demonstrating these assertions, see Spulber & Sidak, *Access Pricing and Deregulation*, *supra* note 4.

and those that do not. Furthermore, the incumbent LEC's forced subsidization of entrants is an undertaking that fundamentally differs in character from mandating that the LEC interconnect the networks of competing carriers, that it offer its retail services to competitors at wholesale, and that it offer its network elements to competitors on an unbundled basis. By effecting that subsidy, the regulator would force the incumbent LEC to fund a kind of public good: the entry of a multitude of inefficient firms into the local exchange market in the hope that one would eventually discover a lower-cost production technology than the incumbent LEC's for delivering an end service to consumers.

The end may be laudable but the means are not, for two reasons. First, the M-ECPR already rewards such innovation and does so in a neutral manner that does not condition the benefits that the innovating firm may reap from its achievement of cost-reducing breakthroughs on whether the innovator is the incumbent LEC or a new entrant. Second, if the government considers the quest for lower-cost technologies to be an endeavor likely to benefit the citizenry as a whole, it should expressly pay for the production of that public good, just as it might choose to subsidize other R&D activities believed to have potential public benefit. For the regulator, however, to require the incumbent LEC to subsidize its rivals' quest for superior production technologies is not only to impose a perverse regulatory policy, but also to confiscate the property of the incumbent LEC's shareholders and transfer it to shareholders of this class of favored entrants.

C. THE M-ECPR DOES NOT IMPEDE DYNAMIC EFFICIENCY

In the *Interconnection NPRM*, the FCC asserted: "In general, the [FCC-ECPR] framework precludes the opportunity to obtain the advantages of a dynamically competitive marketplace."[13] That adverse result supposedly obtains because, according to the FCC, the incumbent LEC makes the same profits whether it provides the entire service or sells network access to entrants. In the FCC's view, that condition of indifference gives the incumbent LEC no incentive to reduce costs by introducing new technology or to provide better services. That reasoning, however, finds no support in either theory or experience.

---

13. *Interconnection NPRM*, at ¶ 147.

Like the argument that the M-ECPR preserves monopoly rent, the argument that the rule impedes dynamic efficiency depends on a counterfactual assumption: Regulators are either indifferent to the incumbent LEC's total factor productivity or ineffectual in creating incentives for productivity growth. Such an assumption ignores the prevalence of price caps, rate freezes, and other incentive regulation schemes that reward greater efficiency.[14] Nothing prevents regulators from building incentive mechanisms of that sort into their regulation of the pricing of mandatory network access under the M-ECPR.

Furthermore, the FCC's claim of lost dynamic efficiency under the ECPR is controverted by the actual experience in New Zealand, the first nation to embrace the rule in local telephony. By any measure, Telecom New Zealand's investment and productivity gains have been substantial, and the country's telecommunications network is one of the most advanced in the world. From the beginning of deregulation in 1987 through the end of 1994, Telecom New Zealand invested over NZ$4.1 billion in network modernization and service enhancement.[15] Now, more than 97 percent of access lines are connected to digital switches; by 1998, Telecom New Zealand's telephone network will be entirely digitally switched.[16] In addition to this investment in infrastructure, there has been an "introduction of a growing range of new services such as call diversion, audio conference and call waiting."[17] To be sure, it would be an overstatement to attribute all of New Zealand's gains in efficiency to its adoption of efficient component pricing. Nonetheless, that empirical evidence at a minimum shifts the burden of proof back onto the FCC to substantiate its sweeping assertion that the states' use of such a rule would entail a sacrifice in dynamic efficiency.

---

14 *See generally* DAVID E M SAPPINGTON & DENNIS L. WEISMAN, DESIGNING INCENTIVE REGULATION FOR THE TELECOMMUNICATIONS INDUSTRY (MIT Press & AEI Press 1996).

15 NEW ZEALAND MINISTRY OF COMMERCE, TELECOMMUNICATIONS REFORM IN NEW ZEALAND: 1987 1994, TELECOMMUNICATIONS LEAFLET NO 5, at 4 (Jan 19, 1995).

16 *Id*

17 *Id*

D. THE M-ECPR DOES NOT REQUIRE DIFFICULT MEASUREMENT OF FUTURE EARNINGS FOREGONE

Any method for computing prices for network access will entail some nontrivial amount of administrative costs. The relevant objective, is not to minimize the regulator's administrative costs, but rather to maximize the gains in economic welfare from the access pricing rule chosen, net of such administrative costs. If a particular access pricing rule stifles efficient entry or bankrupts efficient incumbents, it is hardly an endorsement for that rule that it requires few of the regulator's resources to administer.

Application of M-ECPR would not be any harder than the typical test-year calculations that are routinely conducted in rate proceedings, or the estimates of productivity growth that are made to compute the "*X* factor" in price-cap regulation.

E. THE ECPR DOES NOT CREATE COST-OF-SERVICE REGULATION

The M-ECPR is a method of pricing access that a regulator uses to unbundle an incumbent LEC's network. The rule is intended to produce efficient access and entry decisions and to compensate the incumbent LEC for the incremental cost and the opportunity cost of being compelled to allow a competitor to use the LEC's network. If, because of competition, even the M-ECPR cannot produce an access price for the incumbent LEC's network that is compensatory, then the regulator must take an additional step to ensure that the LEC can achieve full recovery of the cost of providing mandatory network access to its competitors. The regulator can do so by imposing an end-user charge equivalent to the amount of the shortfall remaining after computation of the access price implied by the M-ECPR.

From this brief recapitulation, it should be clear that the M-ECPR does not recreate cost-of-service regulation. To the extent that regulated retail rates remain in force, the M-ECPR provides a means to translate those rates into access charges for wholesale services and unbundled network elements. The continuation of regulated retail rates is a regulatory decision that is independent of the regulator's application of the M-ECPR to calculate wholesale rates.

To be sure, the calculation of wholesale rates does depend on the incremental cost and the opportunity cost borne by the regulated incumbent LEC. In the absence of regulation, the incumbent LEC would determine its own access charges in a similar manner. The

regulation of wholesale rates necessarily creates the need for the incumbent LEC to present cost information to the regulator as part of the process of administering the M-ECPR or, for that matter, any other rule for access pricing. The relaxation of cost-of-service regulation, on the other hand, would allow the incumbent LEC to set its access charges without presenting cost information to its regulator.

With facilities-based entry, the M-ECPR bases rates on the cost of the best alternative technology for the provision of network access. That computation requires an estimation of the *competitor's* cost. Such an exercise differs substantially from regulation based on the costs of the firm being regulated namely, the incumbent LEC. Consequently, when firms compete to provide network access, the regulator's application of the M-ECPR fundamentally departs from traditional cost-of-service regulation.

F. THE M-ECPR IS NOT FULLY DISTRIBUTED COST PRICING

The M-ECPR is not a form of fully distributed cost (FDC) pricing. To be sure, the M-ECPR is based on costs because it prices any network component at the sum of its incremental cost and plus opportunity cost. That exercise, however, need not entail the use of an arbitrary FDC allocation of joint and common costs. If the regulator preserves a structure of regulated rates, then any underlying cost allocation will be reflected in the calculation of wholesale rates by subtracting avoided incremental costs from retail rates. Any problems with the outcome in that case result not from the M-ECPR, but from the regulator's failure to rebalance regulated rates.

With resale competition and flexible prices the M-ECPR adjusts downward to reflect falling retail prices. That adjustment does not imply any reliance upon FDC cost methodology. Similarly, if there is facilities-based competition, no FDC methodology motivates the result under the ECPR that the incumbent LEC should price access at the incremental cost of the best alternative technology for the provision of network access.

VII

Did Professors Baumol, Ordover, and Willig Repudiate the M-ECPR?

In an affidavit filed on behalf of AT&T Corporation in the FCC's 1996 interconnection proceeding, William J. Baumol, Janusz A. Ordover, and Robert D. Willig implicitly endorsed the use of the M-ECPR for pricing mandatory network access but concluded that the proper price for the incumbent LEC to charge for mandatory network access under the Telecommunications Act of 1996 is total service long run incremental cost (TSLRIC).[1] The Baumol-Ordover-Willig affidavit prompted other economists retained by AT&T to assert in subsequent arbitration proceedings that even the creators of the rule assert it is inappropriate for determining the prices of unbundled elements.[2]

That assertion does not apply to M-ECPR and the caveats that Baumol, Ordover, and Willig expressed concerning the application of TSLRIC pricing. Moreover, the actual evidence on the existence of shared costs or common costs in the incumbent LEC's network revealed the factual error in the assumption that motivated the qualification raised by Baumol, Ordover, and Willig. Once the

---

1. Affidavit of William J. Baumol, Janusz A. Ordover, and Robert D. Willig on behalf of AT&T Corporation (May 17, 1996) [hereinafter Baumol-Ordover-Willig Affidavit], submitted in Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Notice of Proposed Rulemaking, CC Dkt. No. 96-98, (released Apr. 19, 1996).

2. DAVID L. KASERMAN, JOHN W. MAYO, MICHAEL A. CREW, NICHOLAS ECONOMIDES, R. GLENN HUBBARD, PAUL R. KLEINDORFER & CAROLS MARTINS-FILHO, LOCAL COMPETITION ISSUES AND THE TELECOMMUNICATIONS ACT OF 1996, at 15 (July 15, 1996) (citations omitted)

significance of that factual error is comprehended, there dissolves any apparent disagreement that might have existed between our assessment that the M-ECPR is appropriate for pricing the components of the local exchange network, and the contrary assessment by Baumol, Ordover, and Willig. Once these points of empirical misunderstanding are clarified, any such disagreement is revealed to be a false conflict, and it becomes clear that economic welfare would suffer if regulators rejected the M-ECPR in favor of a rule that priced mandatory access to the incumbent utility's network at TSLRIC.

A. BAUMOL, ORDOVER, AND WILLIG ENDORSED THE ECPR FOR PRICING MANDATORY NETWORK ACCESS

In recognition of the seminal contribution that Baumol and Willig have made to the theory of network pricing, scholars and jurists routinely call the ECPR the "Baumol-Willig Rule." Predictably, Baumol, Ordover, and Willig said in their 1996 affidavit that they "continue to believe that principles of ECPR are valid and serve a useful regulatory role."[3] The FCC's unsophisticated caricature of the ECPR, however, naturally caused Baumol, Ordover, and Willig to applaud the agency's tentative rejection of the FCC-ECPR "in a form *supposedly* advocated by us" and to state politely that the FCC's rejection of the [FCC-ECPR] "[was] proper, although for reasons that differ somewhat from those articulated in the Notice."[4] In other words, Baumol, Ordover, and Willig evidently concluded that the FCC's stated criticisms of the pricing rule *that the agency incorrectly described as being the ECPR* were misplaced.

Given that the FCC's stated reasons for rejecting its understanding of the ECPR did not motivate Baumol, Ordover, and Willig to conclude that application of the rule (as they originally and correctly defined it) would not serve the public interest in the present case, then by what rationale did they decline to apply to local telephony in the United States the same rule for pricing inputs that they advocated in railroading, in electric power, and in local telephony in New Zealand? The answer lay in the critical assumptions that Baumol, Ordover, and Willig made in their 1996

3 Baumol-Ordover-Willig Affidavit, *supra* note 1, at 8 ¶ 20.

4 *Id.* (emphasis added).

affidavit concerning the size and makeup of the opportunity-cost component of the rule in the specific context of local telephony.

As we demonstrate in Chapter 3 of this report, the critical cost assumption made by Baumol, Ordover, and Willig is empirically unsupported[5] Actual cost and price data confirm (1) that there are significant shared costs and common costs among network elements, such that pricing the incumbent LEC's wholesale and unbundled services at or near long-run incremental costs would fail to meet the statutory requirement that rates be just and reasonable and, in the case of unbundled elements, would exclude the reasonable profit allowed by statute; and (2) that there would be stranded costs *even if* the prices of wholesale and unbundled services were set according to the M-ECPR. Had Baumol, Ordover, and Willig been aware of such empirical evidence of the existence of economies of scope when assessing the suitability of the M-ECPR to the pricing of unbundled network elements in local telephony, their analysis would have led them to the same conclusion contained here: Pricing mandatory access to the incumbent LEC's network at TSLRIC would be insufficient on economic grounds to produce efficient incentives for entry and would be insufficient on economic (and constitutional) grounds to produce just compensation for government-ordered use of the LEC's property by its competitors.

B. Does Stand-Alone Cost Equal Incremental Cost, and Are Shared Costs and Common Costs Trivial?

A supplier would not voluntarily invest in a transaction unless he expected the returns from the transaction to cover all its economic costs, including a competitive return to invested capital. As noted earlier, the supplier's cost of investing in the transaction would include the highest net benefit of all opportunities forgone that is, *opportunity cost*. The M-ECPR extends that logic to the mandatory sale of network access by specifying: "optimal input price = the

5. This view is also refuted by data presented to the FCC by Ameritech. For example, joint (or shared) costs are 12 percent, and common costs are 15 percent, of the total costs of Ameritech Illinois. Only 55 percent of the Ameritech Illinois's total costs are incremental to specific services as defined by the Illinois Commerce Commission. Comments of Ameritech Corporation at 63, submitted in *Interconnection NPRM*.

input's direct per unit incremental cost + the opportunity cost to the input supplier of the sale of a unit of input."[6]

If the firm has economies of scale or scope, then its sale of network inputs to a competitor at incremental cost would not give the firm a sufficient contribution to cover its total costs. The sale of the input at incremental cost would entail an opportunity cost in the amount of the contribution to revenue adequacy that the regulated firm would forgo by selling the network element to a competitor rather than using that input itself to produce a final product whose price incorporated the requisite contribution margin. Stated differently, in the absence of government compulsion, no firm would sell an input to its competitor for less than the price that Baumol and Willig specified in their original exposition of the efficient component pricing rule. The rule, in other words, replicates the price that would result from voluntary exchange.

At the same time, the rule (1) establishes the proper incentives for efficient entry into the regulated market, and (2) ensures, when there are no competitive alternatives to the facilities necessary for access, that the price of government-mandated network access will not be so low as to be confiscatory under the Fifth Amendment.[7] Consequently, any pricing proposal for mandatory network access that would deviate from the rule must be scrutinized by regulators to ensure that it would not violate sound economic principles *and* constitutional protections against the uncompensated taking of private property.

The 1996 affidavit by Baumol, Ordover, and Willig, however, failed to provide either assurance. It assumed that an incumbent LEC would bear no opportunity cost by being required to sell unbundled network elements at TSLRIC. But that critical assumption had no empirical basis; indeed, as Part III of this report demonstrated, state PUC proceedings have received considerable empirical evidence substantiating the existence of shared costs and common costs in the provision of network elements necessary for local telephony. Stated differently, in their 1996 affidavit Baumol, Ordover, and Willig asserted that, if it were adjusted in the case of local telephony to reflect what they supposed was an absence of

---

6. WILLIAM J. BAUMOL & J. GREGORY SIDAK, TOWARD COMPETITION IN LOCAL TELEPHONY, (MIT Press & AEI Press 1994), at 94

7 *See* J. Gregory Sidak & Daniel F. Spulber, *Deregulatory Takings and Breach of the Regulatory Contract*, 71 N.Y.U. L. REV. (forthcoming 1996)

opportunity costs of any significant magnitude, the pricing rule would yield the following formula:

Efficient price of aggregate network element =
TSLRIC of aggregate network element + 0

Indeed, that formula had to be the correct interpretation of the Baumol-Ordover-Willig position, because the term "opportunity costs" did not appear in their affidavit despite its frequent use in their previous writings and testimony concerning the efficient component pricing. Baumol, Ordover, and Willig were able to conclude that the efficient price of unbundled network elements was TSLRIC, and to reach that conclusion in a manner consistent with their previous work on efficient component pricing, *only* because they assumed incorrectly, as it turned out that the incumbent LEC had "minimal or nonexistent" joint and common costs.[8]

Suppose, counterfactually, that the critical assumption of zero share costs or common costs were true. In that case, several remarkable conditions would obtain: (1) the local exchange would have no economies of scale or scope; (2) the local exchange market could be served just as efficiently by single-product firms, consistent with the classical definition of a perfectly competitive market; and (3) such technological conditions would obviate the access-pricing regime of the Telecommunications Act of 1996, as the services of the incumbent LECs' networks would be easily supplanted by competitive small-scale, single-product firms. If such a state of affairs existed, it would have been unnecessary for Baumol previously to have written:

> [E]ven if every one of a firm's services is sold at a price equal to its average-incremental cost, the firm's total revenues may not cover its total costs. Consequently, it is normal and not anticompetitive for a firm to price some or all of its products to provide not only the required profit component of incremental cost, but also some contribution toward recovery of common fixed costs that do not enter the incremental costs of the individual products . . . Any service whose price exceeds its per-unit incremental cost provides such a contribution in addition to the

8 Baumol-Ordover-Willig Affidavit, *supra* note 1, at 13 ¶ 35

> profit required on the incremental investment contained in the incremental cost.[9]

The opportunity-cost component of the rule seeks to generate for the firm the contribution to margin essential to recover the firm's unattributable costs and thus to ensure its continued solvency.

C. COMMON COSTS AND SHARED COSTS BETWEEN AGGREGATE CATEGORIES, AND BETWEEN INDIVIDUAL NETWORK ELEMENTS

Baumol, Ordover and Willig asserted that, with regard to *aggregate* categories of network elements (loop, switching, transport, signaling), "[e]conomies of scope, or cost subadditivities, among these categories are likely to be minimal or nonexistent."[10] However, actual empirical evidence contradicts that assertion. But even if it were empirically supported, that assertion by Baumol, Ordover, and Willig would not preclude the existence of shared costs or common costs *within* any one of the aggregate categories of network elements. In other words, even if the statement by Baumol, Ordover, and Willig had been correct on its face as an empirical matter, it still could simultaneously be true that appreciable economies of scope exist among individual network elements within an aggregate category, such that setting prices at TSLRIC for unbundled services would surely fail to recover the totality of shared costs and common costs within that aggregate category. The incumbent LEC, after all, is not being asked by its rival to price *all* loops taken together or *all* switching taken together as a bundle, but rather to offer significantly finer disaggregations of its services. It is therefore significant that Baumol, Ordover, and Willig recognized: "The competitive price for any such subcomponent must lie between the subcomponent's unit long run incremental cost and SAC [stand-alone cost]."[11] In other words, by their own analysis Baumol, Ordover, and Willig acknowledged that pricing access TSLRIC cannot recover shared costs and common costs.

Baumol, Ordover, and Willig further argued that the prices for unbundled network services should be priced above their

---

9. BAUMOL & SIDAK, TOWARD COMPETITION IN LOCAL TELEPHONY, *supra* note 6, at 102.

10. Baumol-Ordover-Willig Affidavit, *supra* note 1, at 13 ¶ 35.

11. *Id.* at 5 n.1.

incremental costs to recover shared costs and common costs, which within their framework equals "the difference between the TSLRIC of an aggregate of outputs, and the sum of the TSLRICs of each subset of those outputs."[12] According to Baumol, Ordover, and Willig, those costs "should be assigned to individual network elements on an efficient and competitively neutral basis."[13] Likewise, our earlier discussion of efficient component pricing showed that those costs should be recovered through prices on unbundled network services that exceed the TSLRICs for those services. Those costs should be recovered whether they are small or significantly large in which case, as Baumol, Ordover, and Willig observe, "the method of revenue recovery should be consistent with allocative and competitive efficiency."[14] That outcome could only be achieved by pricing above the incremental costs of the unbundled network services, according to the formula that Baumol and Willig had previously advocated elsewhere:

Efficient price of unbundled network element
= TSLRIC of unbundled network element
+ opportunity cost.

Our analysis concurs with the conclusion by Baumol, Ordover, and Willig that such recovery of costs should be bounded above by stand-alone cost, which would properly include any shared costs and common costs, and that the access price "should be no higher than the imputed price charged by the ILEC to itself in the context of a competitive offering."[15]

D. CAN INCUMBENT LECS EARN MONOPOLY PROFITS?

Baumol, Ordover, and Willig expressed concern in their 1996 affidavit that existing rate structures for incumbent local exchange carriers included monopoly profits, which they believed could be passed on to entrants in access prices determined according to the ECPR.[16] That assertion, however, like their earlier assertion that

12. *Id.* at 14 ¶ 37.
13. *Id.*
14. *Id.*
15. *Id.* at 14 n.7.
16. Baumol-Ordover-Willig Affidavit, *supra* note 1, at 8 ¶ 23.

shared costs and common costs in local telephony were insignificant, did not rest on any empirical evidence. Further, it was inconsistent with the history of price regulation of incumbent LECs, which has controlled their earnings either through traditional cost-of-service regulation or through incentive regulation.

Moreover, any returns that the LECs might have obtained from achieving cost efficiencies under incentive regulation were an intended consequence of such regulation; for the regulator to eliminate those returns retroactively would amount to a breach of the most essential element in the bargain that the LEC and the regulator struck when replacing rate-of-return regulation with incentive regulation. Those returns in any case have been limited by sharing rules and other regulatory constraints.

Finally, the assertion that regulators had been allowing incumbent LECs to earn monopoly profits was inconsistent with the incumbent LECs' existing and continuing obligations to serve. The opportunity-cost component of the efficient component pricing will necessarily be positive, Baumol had previously noted, "when a regulated firm has special-service obligations imposed upon it,"[17] as has been the case with any incumbent LEC. Elaborating on this point, Baumol has written:

> Examples include the arrangement under which the input supplier is also forced to serve as the "carrier of last resort," or when, as in the case of Telecom Corporation of New Zealand, the carrier is required to supply services to residential customers at rates that it claims to be insufficient to cover the pertinent incremental costs. *These obligations are appropriately treated as sources of common fixed costs for the firm; the costs must be covered legitimately by the firm's prices* and be taken into account in calculating its stand-alone-cost ceilings [for final-product prices].[18]

Far from reducing the size of such public-service obligations borne by incumbent LECs, the Telecommunications Act of 1996 increased

---

17. BAUMOL & SIDAK, TOWARD COMPETITION IN LOCAL TELEPHONY, *supra* note 6, at 108.

18. *Id* at 108-09 (emphasis added) (citing Clear Communications, Ltd. v. Telecom Corp of New Zealand, Ltd., slip op (H C Dec. 22, 1992))

their obligations by creating new unbundling requirements and more expansive universal service obligations.

1. STRANDED COST RECOVERY THROUGH COMPETITIVELY NEUTRAL END-USER CHARGES

In their 1996 affidavit, Baumol, Ordover, and Willig advocated keeping cross-subsidies to a minimum: "A deliberate wedge between prices and TSLRIC is most likely to result from a decision to subsidize universal service and other regulatory goals."[19] That is because pricing below incremental costs for some services requires obtaining subsidies elsewhere, encourages excess demand for those services, and harms the financial solvency of the incumbent, thus placing it at a disadvantage relative to entrants. Furthermore, obtaining those subsidies by adding overcharges to other services inefficiently reduces demand for those facilities and places the incumbent at a competitive disadvantage to entrants that can price flexibly, which leads to inefficient bypass of existing network facilities. This analysis by Baumol, Ordover, and Willig concurs with our conclusion in Part III that the rates of the incumbent LECs should be rebalanced to eliminate cross-subsidization.

Baumol, Ordover, and Willig also advocated competitive neutrality of funding and distribution mechanisms. That requires that regulatory obligations, price regulations, and unbundling requirements neither penalize nor reward incumbents or entrants. Baumol, Ordover, and Willig cautioned that deviations between prices and economic costs should not be allowed to distort competition between the incumbent LEC and its potential rivals: "To be competitively neutral, a regulatory wedge between prices and TSLRIC must never favor entrants over incumbents, or *vice versa*."[20] They elaborated:

> The reason is obvious: any such departures from competitive neutrality tend to channel business to inefficient suppliers. This inefficient allocation of business will raise costs, repress innovation and

19. Baumol-Ordover-Willig Affidavit, *supra* note 1, at 21 ¶ 60.
20. *Id.* at 21 ¶ 61.

> investments and as usual when competition is diverted needlessly burden consumers.[21]

But as Baumol had previously emphasized elsewhere, economic logic implies that this principle be applied not only to specific subsidies (for example, universal service), but to *all* pertinent costs, including the cost of regulatory obligations past, present, and future. The entry of competitors not burdened by such expenses raises the prospect that such costs will be stranded:

> Stranded costs are those costs that utilities are permitted to recover through their rates but whose recovery may be impeded by the advent of competition in the industry. Those costs represent expenditures incurred by a utility in the past in meeting its obligation to serve all customers within the areas in which it held an exclusive franchise, granted to it in the traditional regulatory regime.[22]

Baumol argued that such stranded costs should be recovered:

> The cost of recoupment of stranded costs can be considered part of the common costs to which the price of inputs supplied by the utility to other firms can appropriately contribute or even cover completely. A cost imposed by regulatory arrangements is a real cost for the enterprise as any other, and an input price that helps to cover that cost is merely contributing to adequacy of revenues for the firm.[23]

If regulators "omit or limit recovery of portions of opportunity costs," Baumol concluded, their "pricing policies will undermine economic efficiency."[24]

---

21. *Id.*

22. WILLIAM J. BAUMOL & J. GREGORY SIDAK, TRANSMISSION PRICING AND STRANDED COSTS IN THE ELECTRIC POWER INDUSTRY, (AEI Press 1995), at 98.

23. *Id.* at 147.

24. *Id.*

As stated earlier, the M-ECPR implies that an incumbent LEC's price for an unbundled network element should equal its long-run incremental costs plus its opportunity cost. But competition constrains the latter: The presence of facilities-based entry, and the possibility that entrants may purchase services under existing retail rates that are substitutes for the unbundled network elements of the incumbent LEC, reduce the likelihood that the incumbent will recover its total costs. That is because the incumbent's price will be constrained by the stand-alone cost of the best alternative. It therefore bears repeating that M-ECPR pricing is not fully compensatory. Thus, as Baumol, Ordover, and Willig advocated, state regulators should consider rate rebalancing *before* imposing a system of prices for wholesale services and unbundled network elements. If, however, the state regulator chooses not to rebalance rates, then, to preserve the existing contribution in the incumbent's existing rate structure, a system of end-user charges must accompany the pricing of wholesale services and unbundled network elements. As Baumol argued recently, "the efficient-component pricing rule, and the competitive model of which it is a constituent part, equip [regulators] to resolve [network] pricing and stranded cost disputes in the public interest."[25]

Baumol, Ordover, and Willig emphasized in their 1996 affidavit that cost must be examined on a forward-looking basis. That position necessarily applies to the future cost of regulatory obligations newly imposed on incumbent LECs by the Telecommunications Act of 1996. The act imposes six specific obligations on incumbent LECs, all of which will impose costs on a forward-looking basis that are not borne by potential entrants. One such costly obligation is the duty to provide interconnection to any requesting telecommunications carrier at "any technically feasible point within the carrier's network."[26] Equivalent access requirements apply to unbundled network elements. The costs of those newly established obligations will be stranded unless they are either (1) recovered through competitively neutral charges, as Baumol, Ordover, and Willig advocated in their affidavit and as we advocated in Chapter III of this report, or (2) included in the TSLRIC for a service.

---

25 *Id* at 158.

26 . 47 U.S.C. § 251(c)(2)(B)

In sum, our analysis is consistent with the recommendation of Baumol, Ordover, and Willig that the wedge between prices and costs be recovered in a competitively neutral manner. The relevant cost need not equal the incumbent's TSLRIC, however, but rather may equal the stand-alone cost of the best alternative. In their 1996 affidavit, Baumol, Ordover, and Willig accepted unquestioningly that the incumbent LEC's TSLRIC exactly equaled the stand-alone costs of potential entrants. In contrast, we regard that question as an empirical matter to be determined in competitive markets. Contributions to universal service funds, to shared costs and common costs (which will be present if the incumbent LEC's TSLRICs are less than the entrant's stand-alone costs), and to other regulatory obligations that cannot be recovered in competitive markets are appropriately collected through competitively neutral charges that do not distort consumption and investment decisions. That was precisely the recommendation of Baumol, Ordover, and Willig in their 1996 affidavit when one follows their proposal for universal service funding to its logical economic conclusion.

F. SUMMARY

Did the creators of the efficient component pricing rule reject the application of M-ECPR to the pricing of unbundled network elements in local telephony? Contrary to the assertions of some economists, the answer is no. The analysis of Baumol, Ordover, and Willig in their 1996 affidavit can be entirely reconciled with our analysis here. On the two most important regulatory questions concerning competition in local telephony, Baumol, Ordover, and Willig were in agreement with the analysis presented here. First, the efficient component-pricing rule is the proper method to price mandatory network access; mandatory access to the incumbent LEC's network should be no exception. Second, even when the M-ECPR is correctly administered, its automatic adjustment of the incumbent LEC's opportunity costs on a forward-looking basis will require regulators to impose competitively neutral charges to recover the LEC's stranded costs. The price of unbundled access must allow a market-allowed contribution to shared costs and common costs, over and above TSLRIC.

VIII

M-ECPR Pricing Should Be Applied to Resale and Unbundled Network Services

The Kaserman Report asserts that application of the efficient component pricing "leads to a lessening of competition resulting in allocative, productive, and dynamic inefficiencies" and that the rule itself "proposes that an incumbent be fully compensated for its book costs, however inflated these may be."[1] This chapter illustrates that the Kaserman Report mischaracterizes efficient component pricing and, as a result, misrepresents the efficiency and compensatory aspects of the rule. We illustrate that M-ECPR addresses a familiar problem facing the regulated multiproduct firm that is ignored by the Kaserman Report. If the firm has economies of scale or scope, then its sale of unbundled elements to a competitor at TELRIC would fail to give the firm sufficient revenues to cover its total costs. The sale of the input at incremental cost would entail an opportunity cost in the amount of the contribution to revenue that the regulated firm would forgo by selling the network element to a competitor rather than using that input itself to produce a final product whose price incorporated the contribution margin. Stated differently, in the absence of government compulsion, no firm would sell an input to its competitor for less than the price implied by the M-ECPR. The rule, in other words, replicates the price that would result from voluntary exchange. That is the price that will produce economically efficient outcomes.

---

1 Kaserman Report, at 14

A. M-ECPR Pricing Is Efficient and Compensatory Because It Recovers Economic Costs

M-ECPR pricing is efficient because it exactly recovers the LEC's economic costs. If the inputs supplied to competitors are standard components purchased in the marketplace, then the purchase cost of those inputs is their economic cost. For these types of inputs, as would be expected, the M-ECPR price is exactly equal to the market price. This is consistent with the M-ECPR formula, even if the firm is a producer of the input. The opportunity cost of selling such an input is the difference between the market price of the input and the firm's incremental cost of producing the input. Thus, the M-ECPR price, which is the sum of the firm's incremental cost and the opportunity cost of selling the input, is equal to the market price.

If the inputs supplied to competitors are created by the incumbent LEC, as is the case for certain unbundled services, and there is no viable market alternative, then the economic cost must be imputed. For a firm subject to regulation of its rates, either through cost-of-service regulation, incentive regulation involving price-caps, or some other method, the opportunity cost of supplying an input to competitors equals the earnings forgone by the LEC that could have been obtained had the LEC employed that input in providing service to end users. These earnings or net revenues forgone are not difficult to measure since any regulated company maintains records of its costs and revenues that can serve to provide estimates of earnings forgone in a straightforward manner.

It should be stressed that the forgone net revenues of the incumbent LEC are not independent of the LEC's economic costs. Under cost-of-service regulation, the revenues of the firm are equal to its operating cost plus a reasonable profit. Thus, the rates of the firm, which have been subject to approval by regulators, allow the firm to earn revenues that cover the total costs of providing its services, including any shared costs and any common costs. Under incentive regulation involving price-caps, or some other method, the initial rates were established with reference to the regulated LEC's cost of service. Moreover, the net revenues must stay within a range that is determined with reference to the firm's costs and the revenues that are subject to regulatory sharing rules. The forgone revenues of the firm subject to incentive regulation cannot exceed revenues determined by cost-based price caps.

If the inputs supplied to competitors are created by the incumbent LEC and are also available from competitors, the correct

measure of their economic cost is the market price of the input as supplied by the competitors of the LEC. That price provides the correct economic indicator of the input's value in its best alternative use. Therefore, with facilities-based competition, there will exist market prices for some unbundled services that provide a guide to estimating their best alternative use.

Contrary to the assertion made in the Kaserman Report, the M-ECPR is forward-looking because it allows prices for unbundled network services to adjust to reflect cost efficiencies and competition. Flexibility can be achieved by creating a system of price caps that use M-ECPR prices as the initial prices. Such M-ECPR-base price caps would provide incentives for the regulated firm to adjust prices downward to respond to competition. They would also provide incentives for future cost reductions. In the case of prices for resale services, these prices fall as retail cost efficiencies and competition drive down the retail price. For unbundled network services, prices would fall as competitive entry of facilities-based carriers caused market prices to fall. Falling market prices for unbundled network services would reduce the incumbent's opportunity costs. M-ECPR is forward-looking because it is based on *opportunities forgone*, which is a forward-looking method of evaluating the costs of alternative decisions. This is why the M-ECPR permits adjustment to market conditions.

B. M-ECPR Pricing Is Compensatory But It Is Not a "Make Whole" Device

The M-ECPR has important compensatory properties in that it covers the incremental costs plus opportunity costs of the incumbent LEC. This attribute also allows recovery of regulated investment under resale competition. When prices fall solely due to the forces of resale competition, reduction of wholesale prices for services sold at retail still allows the incumbent to recover its costs. The additional volume contributes additional wholesale revenues allowing for full recovery of regulated investment. However, the M-ECPR generally does *not* guarantee full cost recovery with facilities-based competition.

When there are alternative facilities-based access suppliers, the market price of services provided using those facilities determines the opportunity costs of unbundled network services. The economically correct measure of the LEC's opportunity cost of selling an unbundled network service (such as a port or a loop) is the difference between the market price of the service and the LEC's incremental cost. The M-

ECPR then says that the price of the service should be the sum of the LEC's incremental cost and the opportunity cost, which exactly equals the market price. Thus, the M-ECPR price always equals the price of the best alternative.

To illustrate with a simple example, suppose that the best market alternative is the service of loops priced at $25. The LEC's incremental cost of loops is $10. Therefore, its opportunity cost of selling the services of a loop to a competitor is $25 minus $10, which equals $15. The M-ECPR price (incremental cost plus opportunity cost) is simply:

M-ECPR Price = $10 + ($25 - $10) = $25.

Whenever there are market alternatives, the M-ECPR price should equal the lowest-priced alternative.

Thus, properly calculated, M-ECPR pricing takes into account market constraints on the contribution that the incumbent's revenues are able to make to the recovery of shared costs and common costs. Prices for resale and unbundled network services must be lowered to meet the competition in good faith.

It is likely that market alternatives will lower the revenues of the LEC below the "make whole" level. In other words, the LEC will not be "fully compensated for its book costs" as the Kaserman Report alleges. The reasons for this shortfall are many. Market alternatives embody the lowest cost technology. With cost-reducing technological change, obsolescence will cause prices to fall below levels expected under regulation. This does not indicate the presence of inefficiency or imprudence on the part of the LEC. All private investment decisions and private contractual agreements are subject to the same risk that lower cost alternatives will appear in the future.

In addition to technological change, the incumbent is likely to have higher costs than entrants because the incumbent continues to bear regulatory obligations such as carrier of last resort, universal service, and other regulatory incumbent burdens. In addition, the incumbent must satisfy new unbundling and access regulations. Entrants are not subject to these costly regulations. Thus, competitively supplied network elements provide a low-price alternative.

Moreover, entrants can "pick and choose" the customers and service areas to target, focusing on lower-cost, high-density areas. They need not recreate the incumbent's network, so that the best market

is likely to be below the incumbent's unit cost. Again, the best market alternative will be a low-cost option.

Therefore, pricing at the M-ECPR price when facilities-based market alternatives are present generally will prevent the incumbent LEC from recovering its total costs. This means that M-ECPR pricing is not a "make whole" device.

With facilities-based competition, remaining regulatory obligations and continuing incumbent burdens require that M-ECPR pricing be supplemented by a competitively neutral funding mechanism. Such a mechanism would be necessary to allow the LEC to recover its total costs, including the cost of meeting continuing regulatory obligations. This also could involve charges for a universal service fund recovered from all telecommunications carriers.

C. M-ECPR Pricing Satisfies Static and Dynamic Efficiency

The M-ECPR has both static and dynamic efficiency properties when the incumbent firm has pricing flexibility for resale and unbundled services. The M-ECPR is economically efficient because access is priced at economic costs, that is, incremental costs plus opportunity costs. Those purchasing wholesale services, unbundled network elements, or interconnection thus receive accurate price signals. Otherwise, services priced below costs, in the absence of market alternatives, would encourage overuse; conversely, overpriced services would discourage productive use of the telecommunications network.

Moreover, the M-ECPR satisfies dynamic efficiency in terms of investment in alternative facilities and entry decisions of competitors. If services were priced below their economic costs, then, in the absence of market alternatives, provision of services by facilities-based competitors would be discouraged; conversely, overpriced services would produce uneconomic bypass. By pricing services at the incumbent's economic cost, the M-ECPR provides efficient investment incentives. The rule provides incentives for efficient entry when resellers use the incumbent's existing facilities. In that case, entry occurs if and only if entrants are at least as efficient as the incumbent in retailing. The M-ECPR further provides incentives for efficient entry with facilities-based competition.

The M-ECPR exhibits efficiency properties with facilities-based competition. Following M-ECPR principles, the LEC's unbundled network should be priced at the cost of the best alternative, which allows prices to fall based on the efficiency of facilities-based

entrants. Pricing at the cost of the best alternative allows the market to determine the price of unbundled components. For equipment (such as switches) used as inputs to telecommunications, the price is determined by the purchase price, installation, and operating costs of the equipment. For inputs such as unbundled loops that are manufactured by facilities providers, the cost of the best alternative is the market price of transmission capacity supplied by facilities-based entrants. The market is the best determinant of the efficient pricing of network services. M-ECPR pricing is efficient because it is based on market benchmarks.

D. THE M-ECPR IS NEITHER AN ENTRY BARRIER NOR AN INCUMBENT BURDEN

The Kaserman Report also alleges that M-ECPR pricing is an entry barrier. Again, this assertion is based on a flawed understanding of the pricing rule. M-ECPR pricing exactly equals the incumbent's economic cost; it neither penalizes nor subsidizes entrants. With the M-ECPR, competitors must make efficient entry and investment decisions.

Pricing services below their M-ECPR price would lead to free riding by entrants, and excessive use of the underpriced facilities by resellers and others combining components to create networks. Such underpricing would discourage efficient competitors from constructing facilities.

Pricing services above their M-ECPR price would cause bypass of the overpriced facilities by resellers and others combining components to create networks. Such overpricing would encourage less efficient competitors to construct competing facilities, thus raising the total costs of telecommunications unnecessarily due to uneconomic duplication.

With resale competition only, and M-ECPR pricing, entrants resell service if and only if they are efficient -- that is, if their retailing costs are equal to or less than those of the incumbent LEC. The recovery of the LEC's retail rate net of avoided retail costs provides the right signal to competitive entrants. The LEC is indifferent between selling the service at retail or at wholesale. Entrants make the correct entry decision given the discount for the avoided retailing cost. As entrants bring retailing efficiencies, the retail price will fall; and given the discount for the avoided retailing cost, wholesale prices will fall by the same amount.

With resale competition, when there is product differentiation or branding of telecommunications services, as seems likely, the M-ECPR allows efficient entry and an increase in product variety as well. Then, even less cost-efficient entrants offering the benefits of differentiated products are able to make efficient entry decisions.

With facilities-based competition, M-ECPR pricing also provides incentives for efficient entry. Facilities-based entry is efficient if the marginal benefits to consumers of increases in transmission capacity (beyond those available using the incumbent's network) are at least as great as the cost of additional capacity. Entrants make efficient investment and entry decisions to create additional capacity only if the price for the incumbent's capacity equals the incumbent's average incremental costs of providing that capacity plus the incumbent's opportunity cost. It is efficient for the entrant to construct additional facilities only if it is profitable for the to do so at a price that is equal to or less than the M-ECPR price. Thus, the M-ECPR price is efficient because it sends the correct price signals to competitive entrants.

E. M-ECPR Pricing Reflects Forward-Looking Costs

M-ECPR pricing yields revenues that are less than or equal to the replacement costs of the firm. Thus the M-ECPR reflects forward-looking costs and provides correct economic signals to telecommunications customers. This is precisely why application of the M-ECPR is consistent with the FCC's August 1996 Interconnection Order.

The M-ECPR is forward-looking because it allows prices for network services to adjust to reflect cost efficiencies and competition. M-ECPR-based price caps provide incentives for the regulated firm to adjust prices downward to respond to competition. They also provide incentives for future cost reductions. In the case of wholesale prices for resale services, these prices fall as retail cost efficiencies and competition drive down the retail price. The M-ECPR is forward-looking because it is based on opportunities foregone. This is why it permits adjustment to market conditions. Opportunity costs are always prospective because they address the potential costs and benefits of economic decisions.

The M-ECPR price equals forward-looking incremental cost plus opportunity cost measured in terms of net earnings forgone by selling the productive input to a competitor. The present discounted

value of the expected net earnings stream is a forward-looking measure of earnings.

The present discounted value of expected net earnings is equal to the value of the firm based on standard finance analysis. For firms financed through debt and equity, the value of the firm equals the market value of the firm's debt and equity. A "fair" rate of return for a regulated firm has generally been understood as being equal to the regulated firm's cost of capital.[2] If a firm earns a return equal to its cost of capital, the market value of the regulated firm should equal its rate base, however it is valued. If the rate base is valued on the basis of historical cost, this measure of value can depart from replacement costs, depending upon technological change and changes in input prices. If replacement costs are above historical costs, then pricing based on regulated revenues is below replacement costs. If replacement costs are below historical costs, then pricing based on regulated revenues will yield earnings above replacement costs. To reflect replacement costs, the pricing method must therefore be one that adjusts depending upon whether replacement costs are above or below historical costs. As we will demonstrate, that is precisely what the M-ECPR does.

Replacement costs are the forward-looking costs of a firms assets. It has been observed that replacement "does not mean simply the minimum cost of producing an asset which performs the same function, but rather the cost of the most efficient alternative method for satisfying the required demand."[3] When competing market alternatives are not available, the costs of the regulated LEC provide a lower bound for replacement costs. When competing market alternatives are available, however, those alternatives provide the best indicator of replacement costs. Setting prices based on replacement costs is desirable because it provides the correct pricing signals to customers regarding the economic costs of providing a service.

M-ECPR pricing performs this function effectively. If facilities-based entry is not feasible, then the replacement costs of assets would be expected to exceed their historical costs. In that case, the M-ECPR prices, which are chosen based on the expected revenues that the regulated firm would earn, yield revenues that are less than or equal to replacement costs. Alternatively, facilities-based entry is

---

2 . See Bruce C. Greenwald, *Rate Base Selection and the Structure of Regulation*, 18 RAND J. OF ECON. 85 (1984); S. C. Myers, *The Applications of Finance Theory to Public Utility Rate Cases*, 3 BELL J. OF ECON. 58 (1972).

3 . Greenwald, *supra* note 2, at 94

feasible, then M-ECPR pricing is pegged to the price of the best alternative, which exactly equals the replacement cost of the facilities. Therefore, M-ECPR pricing *always* yields prices that are less than or equal to replacement costs. M-ECPR pricing thus provides an effective method of pricing based on forward-looking costs.

F. M-ECPR Pricing Is Nondiscriminatory

Because M-ECPR pricing recovers the LEC's economic costs -- that is, incremental cost plus opportunity cost -- it satisfies the requirement in Section 252(b)(3) that pricing of resale and of unbundled elements not be discriminatory. If prices for resale and unbundled network services were set below the LEC's economic costs (as the Kaserman Report recommends), then such pricing would be discriminatory, thereby violating the requirements of the *Act*. Entrants providing facilities-based services will not choose to provide such services unless they can recover the economic cost of those services. Thus, a firm will not enter the market and construct facilities unless it expects to earn revenues that cover its entry and operating costs. To price the facilities of the LEC below their economic costs would deny the same opportunity to the LECs. Thus, such below-cost pricing would discriminate against incumbents in favor of entrants. It would subsidize entrants at the expense of incumbents, which would necessarily entail discrimination between the two types of firms. Because TELRIC pricing fails to cover the incremental costs of *combinations* of services, it necessarily creates discriminatory pricing whenever shared costs are present.

The M-ECPR, in contrast, sets prices on the basis of economic costs in the manner that a competitive firm would price access to its facilities. Thus, M-ECPR does not discriminate between entrants and incumbents.

G. M-ECPR Pricing Is a Good Start Toward Rebalancing Rates

As we show, TELRIC pricing is likely to fail the incremental cost test to determine whether a price structure is subsidy free. This is because whenever any group of services has shared costs, which is a common occurrence in telecommunications networks, TELRIC pricing will not yield revenues that cover the incremental costs of that group of services.

M-ECPR pricing is a good start toward rebalancing rates. As with TELRIC pricing, each service yields revenues that cover its

incremental cost. However, M-ECPR pricing does more. By including the opportunity cost of each service, M-ECPR makes it more likely that any group of services will cover the incremental costs of that group of services. The M-ECPR is therefore more likely than TELRIC pricing to pass the incremental cost test by ensuring that services at least cover their incremental cost. This makes a good start toward rebalancing rates.

The M-ECPR yields revenues that cannot exceed the regulated LEC's costs due to regulatory constraints, and indeed those revenues usually will fall below regulated costs due to competitive market alternatives. Services that have competitive market benchmarks must of necessity cover their incremental costs. Thus, M-ECPR pricing, based on regulatory and market benchmarks, represents an allocation of shared costs or common costs that will be more likely to pass the incremental cost test, which applies to any combination of services.

H. M-ECPR Pricing Does Not Protect "Monopoly Rents"

The Kaserman Report asserts that the M-ECPR methodology protects monopoly rents that would otherwise accrue to the incumbent LEC's bottleneck facilities, and that the rule thereby deters welfare-enhancing entry. This criticism lacks both a factual and an economic foundation. The M-ECPR is designed to recover the incumbent LEC's economic costs of providing resale and unbundled network services.

The Kaserman Report's criticism of M-ECPR starts from a counterfactual assumption, that the incumbent is earning monopoly rents. Presumably if it were, this fact would manifest a failure of regulation that should be corrected directly rather that through access pricing. It is certainly possible that specific services contain markups that are used to provide subsidies for other services of the regulated LEC that are provided below cost. Then, the recovery of those contributions to margin may represent a preservation of some cross subsidies that are left in place by rate regulation. It would be misleading, however, to interpret this situation created by the existing regulated rate structure as a preservation of monopoly rents. It is preferable to eliminate the system of cross subsidies by rebalancing the rate structure, rather than selectively pricing some access services based on costs while at the same time pricing other services *below* cost. Such a selective approach not only is inconsistent, but represents a fundamental breach of the regulatory contract by not allowing the regulated firm the opportunity to recover its costs.

If facilities-based competition is not feasible, the basis for the opportunity cost calculation is the incumbent LEC's regulated margins. If the LEC is subject to price caps and sharing rules, these features further constrain its earnings. Thus, the economic rents of the LEC are limited by regulation.

When there is facilities-based competition, the M-ECPR methodology requires pricing at the best alternative price, even if that price lies below regulated margins. Thus, M-ECPR pricing cannot be said to protect those margins from competition. To the contrary, the M-ECPR method requires repeatedly adjusting the access price to equal the market price of the best alternative.

Moreover, the facilities of the incumbent LEC are far from being "essential." Entry barriers to facilities-based competition are not insurmountable, as evidenced by the substantial investment in facilities that has already occurred in the local exchange. In addition, technological change has lower the need to make irreversible, transaction-specific investment. Wireless technologies and other methods of transmission lower the specificity of entry costs in comparison with traditional technologies. Given current technology, there is little basis for considering the local exchange to be a bottleneck monopoly. The rents to facilities thus are limited by the cost of the best competitive alternative.

Thus, the monopoly-rents criticisms of M-ECPR in deregulated telecommunications markets rely on counterfactual assumptions. Regulation that existed before the opening of the market has served to limit monopoly rents; and if it has not, then any alleged regulatory failures should be corrected directly. Selective departures from an economically efficient pricing method will not yield either efficient or compensatory pricing of network access.

Beyond positing counterfactual assumptions, the related theoretical case against the M-ECPR makes unrealistic assumptions and errors of reasoning. There are several additional ways in which the "monopoly rents" criticism is misguided. For example, the Kaserman Report cites an article by Nicolas Economides and Lawrence White that alleges that, if the M-ECPR price is above marginal cost, there is an efficiency distortion.[4] The reasoning of Economides and White

---

4 *See* Nicholas Economides & Lawrence J White, *Access and Interconnection Pricing: How Efficient Is the "Efficient Component Pricing Rule"?*, 40 ANTITRUST BULL. 557 (1995). See also the critique of Economides and White in Alexander C Larson, *The Efficiency of the Efficient Component-Pricing Rule: A Comment*, ANTITRUST BULL. As Larson shows, the article by Economides & White has several problematic features (1996) forthcoming.

proceeds as follows. Because the M-ECPR price entails a markup above marginal cost (in their setting, marginal and incremental cost coincide), any lowering of prices toward marginal cost must improve welfare. Entry by a less efficient competitor that is, a competitor with marginal costs *greater than* those of the incumbent - will lower prices. Therefore, they assert, such inefficient entry improves welfare by lowering prices. Because the M-ECPR deters this type of inefficient entry, they conclude that the M-ECPR must not be efficient.

Each step of that reasoning is flawed. Are all markups above marginal costs inefficient? Surely not, since markups are a common feature of competitive markets, where firms cover fixed costs, or shared costs and common costs, through markups. Their objection to the M-ECPR seems to be that it involves a markup over marginal cost, which is an objection that would apply equally to *all* markups - such as average cost pricing or Ramsey pricing, where fixed costs, or shared costs and common costs, are recovered through markups.

This criticism is clearly misguided because it is directed at constant per-unit pricing *in general*, not at M-ECPR pricing in particular. The M-ECPR pricing method allows any type of pricing to recover incremental cost plus opportunity cost. Firms charge customers a two-part tariff consisting of a usage charge and a connection charge. The usage charge can be a marginal cost price. The connection charge is a per-customer charge that recovers the difference between the M-ECPR amount and the amount recovered through marginal cost pricing. Then, based on well-known economic analysis, competition between firms offering two part-tariffs assures an efficient outcome. Two-part tariff competition for the market eliminates excess profit, eliminates cross subsidies, and allows efficient entry.[5]

Consider the assertion by Economides and White that inefficient entry improves welfare. Inefficient entry does nothing more than raise total production costs for the industry. This cannot be a

---

The three major weaknesses of the analytic framework Economides and White employ are: (1) the assumption of monopoly pricing in the downstream market, (2) the assumption of Bertrand-like limit pricing in the downstream market once entrants purchase the required upstream productive inputs; and (3) the market price elasticities of demand that Economides and White assume for the downstream market

5 . This analysis is carried out in DANIEL F. SPULBER, REGULATION AND MARKETS 209-20, 260-61 (MIT Press 1989)

desirable outcome. Yet the objection of Economides and White to the M-ECPR is that such inefficient entry is deterred. This outcome cannot be a problem with M-ECPR. Rather, it is a virtue of pricing that reflects economic cost.

Because Economides and White object to any pricing above marginal cost, they would prefer that all regulated facilities be priced at marginal cost. If the incumbent firm is not to incur losses, marginal cost pricing requires either instituting a system of two-part tariffs or establishing an alternative means for cost recovery.

Economides and White assume that the incumbent possesses an essential facility that resembles manna from heaven. In their framework, the entrant cannot duplicate the facility at *any* price, yet the incumbent seems to have acquired the facility without incurring any cost. The facility is infinitely costly for the entrant and free for the incumbent. That assumption is certainly unrealistic. In fact, transmission facilities are costly to establish for incumbents and can be constructed by an entrant at some cost that may be greater, equal to, or less than that of the incumbent. If the incumbent incurred a cost in constructing the facility, then the alleged "profit" is little more than net revenue. The net revenue of the incumbent could be larger than, equal to, or less than the cost that the incumbent incurred in creating the facilities. Thus, even though the incumbent's retail price involves a markup above marginal cost, the incumbent's net revenue does not represent economic profit, but merely a recovery of investment. If the incumbent's net revenue is less than the cost of creating the facilities, including the costs of capital, then the incumbent could be making a *loss*, even with a positive markup over marginal cost. By ignoring the costs of establishing facilities in their assertion that the incumbent is making profit (really a short-run operating profit), Economides and White effectively assert that positive operating margins are not efficient, thus ignoring the recovery of, and return to, capital provided by net revenues.

In sum, although the opportunity-cost of selling facilities can include monopoly rents, if such rents are present, that fact does not indicate a problem with M-ECPR. Rather, it is a feature of the existing market. Yet, such a situation is *not* consistent with effective regulation. If the criticism of M-ECPR is based on the assumption that regulation is ineffective, then the solution is to fix the regulatory problem, not to redistribute income across firms. Moreover, the opportunity cost component of the M-ECPR is limited by the cost of the price of the best alternative net of the incumbent's incremental cost. By assuming that alternatives are prohibitively costly, Economides and White stack

the deck. As long as there is the potential for entry of facilities-based competitors, the rents on the incumbent's facilities are limited by the cost of competitive alternatives.

I. M-ECPR PRICING IS STRAIGHTFORWARD TO CALCULATE

M-ECPR pricing is straightforward to calculate, whether applying the "top down" method for existing retail services, or the "bottom up" method for unbundled network elements. For existing retail services, subtracting avoided retail costs, in accordance with the *Act*, is a straightforward calculation using existing retail rates. If a market retail benchmark is used, it is equally straightforward to net out the same avoided retail costs.

For unbundled network services, the M-ECPR has a distinct advantage over methods that require a "fully distributed cost" allocation methodology. Not only are such allocations necessarily arbitrary, but they require complicated data regarding the variable used to determine the allocation of shared costs or common costs, such as relative cost or usage measures. For those facilities for which there are market benchmarks, which includes certain types of equipment, the M-ECPR price is simply the market price of comparable facilities. For those facilities for which there is an *internal benchmark* available to customers, such as some types of loops, the M-ECPR price, again, is simply the existing price of the internal benchmark.

For those remaining facilities for which a market price or internal benchmark price is not available, it is still straightforward to apply the M-ECPR formula. The TELRIC component of the M-ECPR is available from internal cost studies. The opportunity-cost component is obtained by calculating the forgone net earnings from that service. That calculation generally is straightforward because the market prices of other components can be netted out from earnings to obtain the remaining earnings forgone. Because sufficient market benchmarks are available, as our numerical analysis demonstrates, that such approach avoids the unnecessary complexities of fully-distributed cost pricing that would of necessity supplement so called "TELRIC pricing."

IX

Failure to Apply the M-ECPR Will Result in a Government Taking of Private Property

The market-determined efficient component-pricing rule is not merely the proper economic prescription for the pricing of mandatory network access. It is also the rule that produces, under specific conditions described below, the level of compensation that is sufficient to avoid a taking of the incumbent LEC's property in violation of the Fifth Amendment. In this chapter, we explain the contractual and property-based protections that incumbent LECs have that require the regulator, when pricing unbundled network elements, to ensure that the LEC has the reasonable opportunity to recover all of its economic costs.

Local exchange carriers (LECs) are public utilities that assumed obligations to serve in return for the regulator's assurance that those utilities would earn a competitive return on invested capital, along with the compensation for the full cost of providing service. Regulators protect the utility's opportunity to earn a competitive return by controlling entry into its market; regulators also restrict the maximum earnings of the utility through rate setting, and they establish service requirements through universal service, carrier of last resort, and other rules. That arrangement, known as the *regulatory contract*, enabled the regulators to reconcile their ceilings on the earnings of utilities with the requirement that, in terms of actuarially expected value, prospective investors be offered a

competitive rate of return on their investments.[1] The regulator was thus said to have entered into a bargain with the public utility: In return for assuming an obligation to serve and charging not more than "just and reasonable" prices on a nondiscriminatory basis, the utility was guaranteed a franchise with regulated entry and income sufficient to recover, and to earn a competitive rate of return on, its invested capital.

When the state maintains regulatory obligations while it simultaneously eases entry restrictions, incumbent local exchange carriers encounter costly competitive disadvantages, known as "incumbent burdens."[2] Regulators typically require the LEC to provide universal service at a fixed price, regardless of the true cost of service, and to act as the carrier of last resort. In addition, regulation denies the LEC the pricing flexibility of the entrant, which places the utility at a competitive disadvantage. New entrants into regulated markets, of course, first target those customers whom regulators require the regulated incumbent to charge prices exceeding cost so that other customers may be charged prices below cost. As a consequence, when the state removes statutory barriers to entry, it will jeopardize the incumbent LEC's financial solvency unless it simultaneously allows the LEC to "rebalance" its rate structure to eliminate the implicit subsidies and unless the costs of incumbent burdens are either shared by all firms in the market or explicitly reimbursed by some third party.

In actuality, however, Congress and the state public utility commissions (PUCs) have ordered competitive entry into local telecommunications markets before having rebalanced rates and having accomplished the financing of special-service obligations more efficiently and equitably. As a result of the Telecommunications Act of 1996, every state will undertake proceedings requiring interconnection to the LEC's network and unbundled access to the LEC's basic service elements. Those

---

1. Another name given that arrangement is the *regulatory compact*. Because "the terms compact and contract are synonymous," Green v. Biddle, 21 U.S. (8 Wheat.) 1, 92 (1823) (Story, J.), it follows that the terms regulatory compact and regulatory contract are synonymous. A thorough discussion of the economic and legal foundation of the regulatory contract appears in J. Gregory Sidak & Daniel F. Spulber, *Deregulatory Takings and Breach of the Regulatory Contract*, 71 N.Y.U. L. REV. (forthcoming Oct. 1996).

2. The term "incumbent burdens" was introduced in Paul W. MacAvoy, Daniel F. Spulber & Bruce E. Stangle, *Is Competitive Entry Free? Bypass and Partial Deregulation in Natural Gas Markets*, 6 YALE J. ON REG. 209, 210, 224-31 (1989).

proceedings are critical to the establishment of a marketplace for telecommunications services that is both competitive *and* efficient, for the setting of charges for network access, if done incorrectly, has the potential to subsidize entry and penalize incumbency, or vice versa. It is easy to cheer the arrival of competition to industries where it previously has been forbidden or discouraged by law. But the predictable appeal that competition holds for legislators and regulators should not obscure the fact that the transition from regulated monopoly to competition, like the transition from dirty air to clean, is not free. Unless accompanied by other reforms, the advent of competition in local telephony will preclude the recovery, through market-determined prices, of two sets of costs: the historical costs that the LEC incurred to discharge its obligation to serve, and the future costs that incumbent burdens continue to impose on the incumbent LEC.

A. ECONOMIC RATIONALES FOR THE REGULATORY CONTRACT

Consumers and businesses voluntarily participate in a market transaction only if they receive *gains from trade* -- that is, only if the transaction yields positive net benefits for them. A supplier will not invest in a transaction unless the supplier expects the returns from the transaction to cover all economic costs, including a competitive return to invested capital. That principle is summarized in Armen Alchian's classic definition of cost: "In economics, the cost of an event is the highest-valued opportunity necessarily forsaken."[3] The supplier's costs of investing in the transaction include the highest net benefit of all opportunities forgone, known as *opportunity cost*.

1. Cost Recovery for Transaction-Specific Investment

Cost recovery is an essential element of contract law. A contract must provide *consideration* to each of the parties, which implies that those incurring costs must expect to recover those costs including a

3. Armen A. Alchian, *Cost*, *in* 3 INTERNATIONAL ENCYCLOPEDIA OF THE SOCIAL SCIENCES 404, 404 (David L. Sills ed., MacMillan Co. & Free Press 1968).

return to invested capital.[4] Cost recovery is an essential aspect of utility regulation as well.[5] Utilities would not have undertaken the extensive investments required to provide regulated service within their franchise region without the opportunity to recover their costs. The regulatory contract is often justified as a means of mitigating the risks of making large irreversible investments that are faced by regulated utilities. Customers of utilities gain from such commitments, since efficient levels of investment yield lower costs of service. There is an incentive to honor commitments regarding compensatory rates of return to assure that regulated firms will undertake future investment and that they will maintain their existing capital equipment. In practice, honoring commitments to investors in regulated utilities keeps down future borrowing costs by reducing investor risk.[6]

Cost-of-service regulation of public utilities is based on allowing a utility the opportunity to recover its investment, including a competitive rate of return.[7] Utilities have had to undertake substantial investments to discharge their obligation to serve. The purpose of a regulatory contract is to provide for recovery of "economic costs," by which we mean the full cost of an activity, including direct expenditures, the time cost of money expended for capital investment, and any other opportunity costs. As mentioned earlier, an opportunity cost of an activity is the net benefit forgone from the next best alternative activity. The time cost of money is an opportunity cost of an investment because it represents the highest return that the investor could have earned by investing the money elsewhere.

The expectation that a utility will be able to recover its costs applies as well to new expenditures that the utility makes to satisfy regulatory obligations even if the industry is partially or fully deregulated. The utility cannot be asked to provide services in the

---

4. Victor P. Goldberg, *Relational Exchange: Economics and Complex Contracts*, 23 AM. BEHAVIORAL SCIENTIST 337, 340 (1980), *reprinted in* READINGS IN CONTRACT LAW 16, 18 (Victor P. Goldberg ed., Cambridge University Press 1989).

5. *See* JEAN-JACQUES LAFFONT & JEAN TIROLE, A THEORY OF INCENTIVES IN PROCUREMENT AND REGULATION 53-127 (MIT Press 1993).

6. *See* DANIEL F. SPULBER, REGULATION AND MARKETS 610 (MIT Press 1989).

7. "In the absence of a detailed long-term contract, the regulated firm may refrain from investing in the fear that once the investment is in place, the regulator would pay only for variable cost and would not allow the firm to recoup its sunk cost." LAFFONT & TIROLE, *supra* note 12, at 54.

competitive market at regulated prices that are noncompensatory--that is, at prices that do not allow for full cost recovery, particularly when the firm is mandated to offer unbundled services. Moreover, deregulation of the local exchange telecommunications does not eliminate the responsibilities of regulatory authorities to allow the utility the opportunity to recover costs *already incurred* to satisfy the utility's obligation to serve. Regulators have a continuing responsibility to allow the utility the opportunity to recover those costs.

2. *Regulatory Opportunism and Asset Specificity*

The noted economist Oliver Williamson defines *opportunism* as "self-interest seeking with guile,"[8] and he describes utility regulation as a "highly incomplete form of long-term contracting" in which the terms are adapted to "changing circumstances" to assure the supplier of a fair rate of return.[9] The problem of regulatory opportunism stems from the fact that regulatory assets, including expenditures for plant and equipment and capitalized expenditures to perform duties mandated by regulators, are likely to be transaction-specific. That is, the assets have little value outside the regulatory transaction.[10]

The transition from regulation to competition being observed in markets traditionally served by public utilities is facilitated in large part by technological changes that affect the degree of asset specificity. The regulatory contract that was suited for an industry with significant asset specificity is not suited for an industry in which asset specificity has declined considerably. This problem of incompatibility between the degree of asset specificity and the regulatory regime arises in the transition to competition: Incumbent utilities have not yet recovered the costs of their assets that are specific to a regulated market, and entrants meanwhile can invest in facilities that have considerably less asset specificity (wireless telecommunications, for example) or can provide service with

---

8. OLIVER E. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM: FIRMS, MARKETS, RELATIONAL CONTRACTING 47 (Free Press 1985).

9. Oliver E. Williamson, *Franchise Bidding for Natural Monopolies In General and with Respect to CATV*, 7 BELL J. ECON. 73, 91 (1976).

10. An asset's degree of specificity to be "the fraction of [the asset's] value that would be lost if it were excluded from its major use." PAUL MILGROM & JOHN ROBERTS, ECONOMICS, ORGANIZATION AND MANAGEMENT 307 (Prentice Hall 1992).

minimal investment (resale of incumbent telecommunications services, for example). It would breach the regulatory contract for the regulator to make unilateral changes in regulation that might prevent a utility from recovering the economic costs of investments that it made to discharge its regulatory obligations to serve. Contractual protections of the interests of the utility and its investors exist so that the state and private companies can continue to make agreements requiring investments in highly specialized capital. The regulatory contract depends on protections to reduce and allocate the risk of cost recovery for specialized assets that cannot be salvaged if the contract is not performed.

As with private contracts, the regulatory contract is designed to address "hold-up" problems. By incurring substantial capital expenditures to perform its obligation to serve, the utility is vulnerable to confiscation.[11] In the absence of contract enforcement, the utility is at the mercy of the regulatory authority: By lowering rates to levels that do not allow a full recovery of costs, after the facilities have been created, a regulator could take advantage of the utility and its investors. The prices posted by a company supplying telecommunications services can be raised or lowered without incurring more than the costs of communicating the new tariffs to customers. The regulated rates are thus much more flexible than are the LEC's capital facilities because the latter are irreversible, market-specific investments. To the extent that they were tailored to meet regulatory obligations to serve, the LEC's investments need not be fully recovered in a competitive market setting. That means that the regulatory contract is necessary as a means of protecting the regulated utility from regulatory "hold-up."

The opening of the local telecommunications market to competition tempts regulators to behave in an opportunistic manner. The utilities have already constructed their network facilities. They will keep those facilities in operation as long as revenues cover their operating costs, even if revenues are not sufficient to allow even partial recovery of capital costs.

"Core" customers are those customers of the LEC who have limited opportunities to switch to competitive suppliers, while

---

11. For a similar argument, see Timothy J. Brennan & James Boyd, Political Economy and the Efficiency of Compensation for Takings, Resources for the Future Discussion Paper 95-28, at 25 (June 1995) ("there is the possibility of regulatory moral hazard . . . when the government can act opportunistically to capture the benefits of private investment through changes in regulatory policy")

"noncore" customers are better able to seek alternatives. Typically, core customers are residential and small business customers, while noncore customers are large commercial and industrial customers. Noncore customers can rely on the incumbent LEC as a backup service or carrier of last resort. Core customers thus often bear a greater share of overhead costs when deregulation leads to selective entry and bypass of the incumbent LEC. With continued regulation of the LEC's core markets, some of those costs would be shifted to remaining core customers while others would represent losses for utility investors. Thus, some putative benefits of competition are merely an income transfer from the LEC's investors and core customers to its noncore customers, rather than a gain due entirely to enhanced productivity. Some rate rebalancing is desirable to eliminate cross-subsidization from regulated rate structures. Deregulation should not, however, be used as a means to achieve gains for some customers by imposing losses on the LEC's investors.

3 Credible Commitments

Commitments made in bargaining situations influence the behavior of other actors only to the extent that the person making such commitments is credibly bound (by himself or others) to honoring them.[12] The notion of enforceable agreements plays a similar role in regulated industries as it does in competitive markets. As Professor Pablo Spiller of the University of California has shown both theoretically and empirically, the level of investment in long-lived infrastructure undertaken by a regulated (or recently privatized) public utility depends critically on regulatory institutions having been designed to ensure the credibility of the regulator's commitments that it will not act opportunistically once the utility has placed those nonsalvageable assets into service.[13] The utility's investors would

---

12. *See, e.g.*, MILGROM & ROBERTS, *supra* note 17, at 131; OLIVER E. WILLIAMSON, THE MECHANISMS OF GOVERNANCE 120-44 (Oxford University Press 1996); WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM, *supra* note 15, at 167; THOMAS C. SCHELLING, THE STRATEGY OF CONFLICT (Oxford University Press 1960).

13. Pablo T. Spiller, *Institutions and Regulatory Commitment in Utilities' Privatizations*, 2 INDUS. & CORP. CHANGE 387 (1993); Brian Levy & Pablo T. Spiller, *The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Five Country Studies of Telecommunications Regulation*, 10 J.L. ECON. & ORG. 201 (1994); Shane Greenstein, Susan McMaster & Pablo T. Spiller, *The Effect of Incentive Regulation on Infrastructure Modernization: Local Exchange*

not be willing to commit vast amounts of capital to carry out an obligation to serve unless the regulator's offer of an opportunity to earn a fair rate of return were credible. Regulated utilities relied upon those contractual assurances in planning and carrying out their investment and service plans. Conversely, the regulator would not be willing to provide a monopoly franchise and to authorize the utility's pricing and investment plans unless the utility's promises to provide services were credible. The legal and public policy context in which the regulatory process operates provides guarantees to the parties to the regulatory contract.

As with private contracts, the regulatory contract must involve consideration, for the agreement is voluntary. The regulated utility submits to various regulatory restrictions including price regulations, quality-of-service requirements, and common carrier regulations. In return, the regulated firm receives a franchise subject to entry regulation in its service territory and its investors are allowed an opportunity to earn revenues subject to a rate-of-return constraint. Without the expectation of earning a competitive rate of return, investors would not be willing to commit funds for the establishment and operation of the utility. The funds are committed to provide services to the customers of the regulated utility. Once the utility invests those funds, the long depreciation schedules typical in electricity and telecommunications regulation credibly commit the utility to performing its obligations under the regulatory contract by denying it the opportunity to recover its capital before the end of its useful life.

4. Relational Contracting

A question sometimes asked in regulatory proceedings is, "Where, Professor *X*, is this regulatory contract to which your testimony refers?" The regulatory contract is recorded in a bundle of documents: public utility statutes, utility commission precedents, adjudicatory decisions, rulemakings, hearings on the record, formal notices of proposed rulemaking, and public commentary. Such reasoning is neither novel nor inherently economic, for it is the same logic that propels the Supreme Court's analysis of state legislation

---

Companies' Deployment of Digital Technology, 4 J. ECON & MGMT STRATEGY 187 (1995).

that has given rise to a contractual obligation.[14] Although the original franchise agreement between the public utility and a municipality is usually the critical first document in the bundle of agreements concerning the relationship between the state and the utility, no single document is likely to encapsulate the entire regulatory contract. The relational contract between the utility and the regulated firm is analogous to a corporation, which is an easily identified entity but consists of multiple contracts that define the firm. The corporation is often said to be a "nexus of contracts" between the firm and its investors, employees, suppliers, and customers.[15] Although there may be articles of incorporation, the contracts that compose the firm are not be unified in a single document.

Professor Victor Goldberg of Columbia Law School provides an important early characterization of the regulatory contract. He observes that private contracts involve both an *ongoing relationship* that uses "rough formulae or mutual agreement to adjust the contract to current situations," and *agency*, which occurs when a firm deals with many customers who "find it desirable to act collectively through an agent both to negotiate the terms and to administer the contract over time."[16] Goldberg asserts that "regulation can be viewed as an implicit administered contract in which both elements are significant."[17]

Even if there were no explicit documentation at all of the relationship between the regulator and the firm, the regulatory contract would still represent an unambiguous meeting of the minds. As with private contracts, the regulatory contract has both express and implied provisions. The franchise award, orders approving rates, and orders approving capital expenditures are clearly formal written agreements. Inclusion of capital expenditures in the regulated rate

---

14. "In general, a statute is itself treated as a contract when the language and circumstances evince a legislative intent to create private rights of a contractual nature enforceable against the State. In addition, statutes governing the interpretation and enforcement of contracts may be regarded as forming part of the obligation of contracts made under their aegis." United States Trust Co. v. New Jersey, 431 U.S. 1, 17 n.14 (1977).

15. *E.g.*, FRANK H. EASTERBROOK & DANIEL R. FISCHEL, THE ECONOMIC STRUCTURE OF CORPORATE LAW 8-12 (Harvard University Press 1991); ROBERTA ROMANO, THE GENIUS OF AMERICAN CORPORATE LAW (AEI Press 1993).

16. Victor P. Goldberg, *Regulation and Administered Contracts*, 7 BELL J. ECON. 426, 428, 429 (1976).

17. *Id.* at 427.

base is certainly a formal contractual agreement. The regulatory contract also has implied features. The utility undertakes capital expenditures of some extended economic lifetime in anticipation of cost recovery. Regulatory approval of such capital expenditures implies that there will not be fundamental changes in the regulator's approach to the company's market environment during the economic lifetime of those investments without addressing the issue of compensating investors.

Through the regulatory process, parties present testimony and evidence in formal public proceedings for the record. The agency gives formal notice of proposed rulemakings and considers the comments of interested parties. That process establishes the regulatory bargain and serves not only to make the process transparent, but also to assure the participants that their interests are protected, just as contract rights and remedies protect the parties to private contracts. The formal proceedings make a public record that helps to protect the legal and economic interests of consumers and the firm's investors.

B. THE PRINCIPAL COMPONENTS OF THE REGULATORY CONTRACT

The three components of the regulatory contract are entry controls, rate regulation, and utility service obligations.[18] The state commission controls the entry of the utility's competitors and authorizes rates that give the utility's investors the opportunity to earn a "fair" rate of return on their investment. In return, the regulated utility must comply with regulatory accounting procedures for the disclosure of its costs, abide by price regulations, limit its business activities in other markets, invest in sufficient transmission and access services to all customers within its service territory who request service, operate efficiently as determined by the regulatory commission, make only investments that are "prudent," meet regulatory standards for quality of service, and comply with a host of other provisions.

The broad terms of the regulatory contract are governed by the regulatory authority's preceding decisions, legislation, and judicial oversight. Regulated rates are set through public rate hearings that follow rules of administrative procedure. The

---

18. A detailed analysis of these elements of the regulatory contract appears in Sidak & Spulber, *supra* note 1.

regulatory authority approves the utility's investment projects through prudency reviews and used-and-useful hearings. The regulators approve the prices charged by the regulated utility and review its financial performance. Thus, the regulatory contract is between the utility and the regulatory commission, as the agent of the legislature, which in turn represents the general public.

C. REMEDIES FOR BREACH OF THE REGULATORY CONTRACT

Contract remedies provide guidance on the measurement of stranded costs and the proper economic approach to determining compensation for those costs. Given that the LEC's costs were incurred under the regulatory contract, the opening of the LEC's market to competition--that is, the termination of the exclusivity of the utility's franchise--is a breach of a material term of that contract if not accompanied by a corresponding removal of incumbent burdens. Unilateral opening of the market to competition is opportunistic behavior by the promisor--namely, the regulator.

In private contracts, damage remedies for breach guard against opportunistic behavior. The standard remedy for breach of contract is to award the promisee its *expectation interest.*[19] The proper remedy for breach of the regulatory contract is therefore to give the LEC the expected level of profit that it would have received had there not been a breach of the regulatory contract. The contract price under the regulatory contract equals the sum of the LEC's revenue requirements over the years that the regulatory contract was expected to remain in force. As noted previously, the revenue requirement equals the utility's operating cost (plus depreciation), plus its allowed rate of return multiplied by its rate base. The LEC's variable cost equals its operating cost plus depreciation.

1. The LEC's Right to Expectation Damages for the Regulator's Breach of the Regulatory Contract

---

19. E. Allan Farnsworth, *Legal Remedies for Breach of Contract*, 70 COLUM. L. REV. 1145 (1970). Lon Fuller & William Perdue, *The Reliance Interest in Contract Damages*, 46 YALE L.J. 52 (1936). *see also* DAN B. DOBBS, REMEDIES: DAMAGES, EQUITY, RESTITUTION 786-88 (West Publishing Co. 1973)

The expectation damage remedy for breach of the regulatory contract can be calculated based on principles of contract law. It is useful to specify the method of determining those damages in the context of regulation.

Consider the simplest case of a two-period investment problem. In the initial period, the LEC makes an irreversible investment of I dollars in plant and equipment. The LEC expects to earn revenues R^e and to incur operating costs C^e in the second period. The LEC discounts its earnings at rate i, which represents the opportunity cost of capital in an investment of comparable risk. The expected profit of the LEC is therefore equal to discounted expected revenues net of operating costs minus capital investment:

$$\frac{R^e - C^e}{1+i} - I$$

The profit is also referred to as *economic rent*. The net revenues R - C are referred to as *quasi-rent*.

Economic rent provides an incentive for a firm to enter the market. That means that the contract must be such that expected profit is greater than or equal to zero. The LEC would not make an investment unless the present discounted value of net revenues exceeds investment cost.

Economic quasi-rent provides an incentive for a firm not to exit the market. Once the firm has sunk its irreversible investment I, the firm no longer considers the investment in its decision making. It decides whether or not to produce depending on whether expected revenues cover expected costs, $R^e \geq C^e$. That is precisely the temptation for the other party to the contract to behave opportunistically. The regulator has an incentive at that point, after the investment has been made, to seek to lower revenue payments to the level of expected costs. The LEC would continue to operate even if revenues were lowered all the way to the level of expected costs. Thus, regulatory opportunism is an attempt to capture the LEC's quasi-rent.

Suppose that the regulator breaches the contract after the LEC has made the irreversible investment in plant and equipment. If the LEC does not operate, it does not receive revenues R, but it also does not incur operating cost C. Thus, expectation damages for breach of contract equal the net revenues forgone:

Expectation damage payment = $R^e - C^e$.

Thus, expectation damages equal the firm's expected net earnings and correspond exactly to the firm's quasi-rent. If the expectation damage payment is made, then the LEC earns the profit that it would have made had the contract been honored. Moreover, the regulator is not tempted to breach the contract simply to capture the quasi-rent, because that would be the precise amount of the damage payment.

$$PDV = \sum_{t=0}^{T} \frac{R_t^e - C_t^e}{(1+i)^t}.$$

In the *PDV* calculation, the terms R_t^e and C_t^e denote expected revenues and operating costs in period *t*, and *i* is the discount rate.

2. *Competition and Mitigation of Damages*

If the LEC's productive assets are removed from service as a result of competitive rules and continuing regulation, then its stranded cost is a loss to society. As in the case of any loss of resources, steps to mitigate the loss should be taken by parties in a position to do so.[20] The common law is replete with instances where a party legally entitled to compensation for a harm it has suffered nonetheless is obliged to mitigate that harm if possible.[21] Not surprisingly, state PUCs have addressed the recovery of "nonmitigable" stranded costs, a concept whose meaning we shall now explore.

a. *The LEC's Duty to Mitigate and the Regulator's Duty Not to Impede Mitigation*

Though it is clear that the LEC's duty to mitigate stranded costs serves the interest consumers, it is also clear on closer inspection that

---

20. The following discussion expands that found in WILLIAM J. BAUMOL & J. GREGORY SIDAK, TRANSMISSION PRICING AND STRANDED COSTS IN THE ELECTRIC POWER INDUSTRY 111-13 (AEI Press 1995).

21. *E.g.*, Sauer v. McClintic-Marshall Construction Co., 179 Mich. 618, 146 N.W. 422 (1914); RESTATEMENT (SECOND) OF CONTRACTS § 350 comment b.

mitigation serves the LEC's best interest as well. That is so because the LEC's large business customers do not have service contracts that terminate simultaneously. As customers with early expiration dates depart, they leave the as-yet-unrecovered portion of stranded costs to be borne by a dwindling number of remaining customers. But the overwhelming number of those remaining (commercial and industrial) customers can be presumed to operate in competitive markets for their own goods and services. A firm in a competitive market that is made to pay a higher price than its rivals for an essential input such as telecommunications will suffer losses and, in the extreme case, eventually cease operations. Companies that cease operations do not buy any telecommunications services from the LEC, even if they remain contractually obligated to do so.

Knowing that it cannot bankrupt or financially jeopardize its remaining customers in that manner, the LEC has a strong incentive to find new customers for its excess capacity. The obligation illustrates that the economic interests of the utility and consumers are indeed often entirely compatible, despite appearances to the contrary.

Those losses are offset by revenues that the LEC will earn in the marketplace *using those same facilities*. As in the preceding example, the expectations damages that would restore the LEC to the position that it would have occupied had the regulatory contract not been breached equal the LEC's revenue requirement net of competitive market revenues. ***Therefore, the proper economic measure of stranded costs equals the difference between (1) the LEC's net revenue requirement under regulation and franchise exclusivity and (2) the net revenues earned by the LEC from those stranded facilities in the competitive market.***

It is important not to deduct all of the LEC's potential earnings in the competitive market, for they may include earnings from newly expanded facilities that would have been obtained even if the regulatory contract had continued in force. Only those revenues earned from facilities that were released by the termination of the regulatory contract should be used to offset the losses.

Some harm is nonmitigable. "Regulatory assets," such as deferred rate increases, generally have no market value because they are no more than accounting conventions. Common sense and economic efficiency dictate that the regulator not perpetuate policies that continue to increase the magnitude of such regulatory assets at the same time that the regulator is contemplating remedies for breach of the regulatory contract. Even if the regulator takes steps on its own to mitigate the stranding of regulatory assets, it will still be

difficult for the LEC to mitigate damages resulting from its inability to recover the cost of facilities that deregulation has made obsolete. It may be the case that *no* form of mitigation is available to the LEC other than to do what competition would require--namely, to retire facilities whose revenues fail to cover operating costs.

Furthermore, the regulator has a duty not to interfere with the LEC's efforts to mitigate stranded costs. Mitigation requires the LEC to make the best use of capital facilities created under regulation. It is therefore essential that the regulator not restrict the incumbent LEC's pricing and product offerings in the new competitive environment. The regulator's imposition or continuation of pricing restrictions and quarantines can only increase the magnitude of the LEC's nonmitigable stranded costs, which ultimately will harm consumers.

b. The Measurement of the LEC's Expectation Damages Net of Mitigation

Expectation damages emphasize the public utility's forgone earnings as a consequence of the regulator's breach of the regulatory contract. One should therefore compute the value of stranded assets by calculating the LEC's expected net revenue stream under regulation and subtracting the LEC's expected net revenue stream under competition.

The regulator breaches the regulatory contract by opening the market to competition without issues of stranded costs and incumbent burdens. The utility is likely to continue operating. It may experience lower revenues, but its costs may change as well. Let R_1 and C_1 denote expected revenues and costs under regulation, and let R_2 and C_2 denote expected revenues and costs under competition. Then, the fundamental measure of the change in the firm's net expected earnings is defined as:

$$\Delta \equiv (R_1^e - C_1^e) - (R_2^e - C_2^e).$$

The expectation damages for a given period equal the difference between the contract price net of regulated costs and the market price net of competitive market costs:

$$\textit{Expectation damages} = \Delta$$

The net revenues in the competitive market, R_2^c - C_2^c, are the *mitigation* of contract damages. If the LEC earns this amount and receives the damages payment, that is sufficient to restore the seller's expected profit. The expectation damage payment assumes that the payment is made at the time that the net revenues would have been incurred.

Measurement of expectation damages is further complicated because the assets of the deregulated LEC have long lives. Let PDV_1 denote the present discounted value of expected net revenues under regulation as previously defined. Similarly, define PDV_2 as the present discounted value of expected net revenues earned by the firm under competition. The economically correct measure of damages net of mitigation is to take the difference between the present discounted values of the two cash flows:

$$\textit{Expectation damages} = \Delta^* \equiv PDV_1 - PDV_2.$$

When there is only a single period, that expression coincides with the single- period expectation damage measure. When there is more than one period, the calculation of damages encounters at least two difficulties. First, the time horizons for the two *PDV* calculations can easily differ. For example, the assets may be retired from service much sooner in the competitive case than they would be in a regulated industry. So there are two distinct time horizons, T_1 under regulation and T_2 under competition. Second, the discount rates will most likely differ in the two *PDV* calculations. For example, increased risk in the competitive market will require a higher rate of discount in the competitive *PDV*. Therefore, there are two discount rates, i_1 under regulation and i_2 under competition. Because the competitive firm expects to earn PDV_2 under competition, it follows that the expectation damage payment (possibly with different time horizons and discount rates for the two *PDV* calculations) restores the expectation of the firm to its initial expectation, which is PDV_1.

D. Contract Modification: The Replacement of Rate-of-Return Regulation with Incentive Regulation

Parties to a contract sometimes modify their agreement and thus supersede the old contract with a new one. With respect to the

regulatory contract, modification has occurred when the regulator and the LEC have agreed, through the formality of public rulemakings, to alter a key provision of the contract, such as the manner in which the price of the LEC's output is determined and whether the LEC's profit level will be regulated along with its price. That modification has taken the form of the transition from cost-of-service, rate-of-return regulation to incentive regulation such as price caps.[22] State legislatures have also participated in some modifications of the regulatory contract by repealing statutes that prohibit competitive entry into regulated services such as local exchange telephony.[23] Some of the new regulatory structures even carry the name "social contract."

Changes in regulatory procedures, such as a switch from rate-of-return regulation to a system of price caps does not necessarily represent a termination of the regulatory contract. Generally, such changes in telecommunications regulation have preserved the regulator's obligation to provide the LEC with an opportunity to earn a competitive rate of return on its investment.

The basic system of price caps often keeps in place other aspects of rate regulation. The regulator continues to control rates through the caps; the LEC has price flexibility below the price limit. Price-cap formulas frequently feature sharing rules that require the LEC to divide earnings above some threshold amount with its customers. Regulators typically continue to assume responsibility for the LEC's financial health. The basic dimensions of the regulatory contract remain in place if regulators retain the system of entry controls as revenue protection devices and maintain the LEC's service obligations. Thus, the switch to incentive regulation, while maintaining other components of the regulatory contract, represents at most modification, not abandonment, of the contract.

Changes in the mechanism of rate adjustment are an administrative procedure instead of a fundamental change in contract terms. Price-cap mechanisms provide incentives for efficiency by allowing utilities to keep some of the gains from cost reductions. Such benefits existed under rate-of-return regulation as a consequence of lags between rate hearings. Price caps confers pricing flexibility allowing the LEC to carry out some limited

---

22 . *See* DAVID E.M. SAPPINGTON & DENNIS L. WEISMAN, DESIGNING INCENTIVE REGULATION FOR THE TELECOMMUNICATIONS INDUSTRY (MIT Press & AEI Press 1996)

23 . *E.g.*, CAL. PUB. UTIL. CODE § 2882.3, VA. CODE § 56-235.5

changes its rate structure, while keeping regulatory control over total revenues. Incentive regulation begins to constitute a fundamental renegotiation of the regulatory contract only when it is coupled with relaxation of entry controls and changes in the LEC's obligations to serve.

The use of price caps and other forms of incentive regulation does not alter the manner in which damages for breach of the regulatory contract are calculated. The damages should still equal the present value of net revenues. The amount of damages should be adjusted to the extent that the pricing method alters the net revenue expectations of the LEC. The relaxation of entry barriers reduces earnings, and competitive opportunities allow for mitigation as before. The formula for calculating damages thus remains the same.

E. MISTAKE AND IMPOSSIBILITY

When, in private contracts, an unforeseen event makes the performance of a contract substantially more costly for one of the parties than at the time the parties entered into their agreement, the party facing that higher cost of performance may argue that he should be excused from performing the contract because it is impossible to do so.[24] Similarly, one party in those circumstances may seek to be excused from performance on the grounds that no contract in fact exists because of the (presumably mutual) mistake of the promisor and promisee. One would similarly expect regulators to claim mistake or impossibility as a defense to efforts by the LEC to enforce the regulatory contract. It was a mutual mistake of fact, the state would assert, not to foresee that a competitive market structure could arise in the relevant network industry. Similarly, the advent of a competitive market, the state would argue, makes it impossible for it to ensure that the LEC can recover its invested capital and earn a competitive rate of return on it.

Before we examine the plausibility of such arguments, its bears emphasis that by their very nature such defenses raised by the regulator reinforce the conclusion that the LEC and the state entered into a contract. The thrust of those defenses is that the formation of the regulatory contract was faulty because of mutual mistake, or that forces beyond its control prevent the regulator's performance of that contract at a cost that the parties would have considered reasonable

---

24 *See* Richard A. Posner & Andrew M. Rosenfield, *Impossibility and Related Doctrines in Contract Law: An Economic Analysis*, 6 J. LEGAL STUD. 83 (1977).

ex ante. In either case, the regulator's defense forecloses the argument that it never had a contractual relationship with the LEC. Furthermore, whenever a party invokes the defense of impossibility or mistake, the natural question to ask is whether the parties already contracted, implicitly if not explicitly, for the risk in question to be borne by the party now seeking to have the contract declared void. In the case of a LEC, that question is especially compelling, for a critical objective of the regulatory contract is to reduce the volatility surrounding the allowed rate of return so that the LEC can efficiently use debt to fund its investments in transaction-specific, long-lived investments in infrastructure.

Consider now the remedy if the regulatory contract were declared void and service were terminated. When, because of mistake or impossibility, a contract is rescinded or deemed never to have been formed in the first place, the court orders the parties to make restitution of the benefits conferred upon one another.[25] That remedy is intended to prevent the parties from being unjustly enriched at the expense of the other or unjustly penalized. The parties are to be restored to the position that they would have occupied had the contract not been signed. That exercise presents difficulties, for there are costs incurred from the transaction -- namely, the investment of the LEC, which cannot be reversed.

For the LEC, restitution of the benefits that it conferred upon the state (for consumers, as third-party beneficiaries) suggests a damage remedy similar to recovery of reliance expenditures. Because the LEC is subject to cost-of-service regulation, the LEC's expected revenues were meant to recover the economic costs of providing service. Thus, the LEC was expected to be allowed to recover the cost of its investment and a competitive rate of return. To the extent that the LEC did not recover some portion of its costs under the agreement, it should be allowed to recover the remaining amount from consumers.

A court should offset such recovery by deducting any benefits that the LEC received up until the moment of rescission. That offset would include the maximum of the scrap value of the capital investment or the returns that could be obtained from continued operation of the facilities to provide service in the competitive market. By deducting the returns from continued use of the facilities, the LEC would not benefit from the continued services

---

25. RESTATEMENT OF CONTRACTS § 468 (1932); RESTATEMENT OF RESTITUTION § 150 (1939); DOBBS, *supra* note 35, at 266, 722, 741, 974

its being set aside.

The question is, Who is responsible for preventing mistakes? The efficient solution to that question is to place the responsibility for preventing mistakes on the party who can do so at the least cost. The LEC has a responsibility to present accurate data of cost and performance of its service obligations to the regulatory authority. Those responsibilities already are reflected in disclosure requirements. The regulator has a responsibility to make clear its own regulatory policy, in terms of what types of investment are approved for inclusion in the rate base, what prices the LEC may charge, and what the LEC's service obligations are. The regulatory authority surely is the party best informed about impending changes in its own policies, particularly with regard to substantial deregulation. The regulator has a professional staff and operates a system of public hearings on the record. It should not be able to sustain a defense that it did not understand the terms of the regulatory contract.

F. DEREGULATORY TAKINGS

The Takings Clause of the Fifth Amendment states: "Nor shall private property be taken for public use, without just compensation."[26] Even if one refuses to recognize that the regulatory contract is enforceable as a matter of contract law against the regulator in the event of its breach, the abnegation of that relationship between the regulator and the LEC (whatever legal name one chooses to attach to it) effects a taking of private property for public use--namely, the promotion of competition in a regulated industry--without just compensation. We call that form of confiscation of private property a *deregulatory taking*.

Sweeping deregulation promises to bring the benefits of competition to local telecommunications markets. Those benefits include improvements in operating efficiencies, competitive prices, efficient investment decisions, technological innovation, and product variety. The benefits of competition, however, do not include forced transfers of income from shareholders of LECs to their customers and competitors as a result of asymmetries in regulation. Asymmetric regulation can only serve to impede competition and impair the financial health of incumbent LECs. As regulators dismantle barriers to entry and other regulatory restrictions, they must honor their past commitments and avoid actions that threaten to confiscate or destroy the property of utility investors on an unprecedented scale.

The Supreme Court has placed takings cases into three categories.[27] In declining order of judicial solicitude given the property owner, the categories are physical invasions of property; confiscatory public utility rates; and regulatory takings. Breach of the regulatory contract does not fit automatically into any one of those categories because, being unprecedented, it necessarily is a case of first impression under the Takings Clause. That is true even with respect to the precedents addressing public utility regulation. Respectable arguments can be made for and against recovery of

26. U.S. CONST. amend. V.

27. We confine our analysis to the Takings Clause of the U.S. Constitution. Analogous provisions in the state constitutions, some of which predate the Fifth Amendment, may offer even stronger protections against uncompensated confiscations of property. *See, e.g.*, Burrow v. City of Keene, 122 N.H. 590, 596 (1981) ("the New Hampshire Constitution makes explicit what is implicit in the Fifth Amendment to the Federal Constitution, namely, that no *part* of a man's property shall be taken from him ... without his consent") (emphasis in original).

stranded costs, but ultimately the Court will have to rely on first principles of legal and economic theory to decide whether to recognize a deregulatory taking as an event necessitating the state's payment of just compensation. Close examination of the Court's reasoning supports the conclusion that, under all three branches of existing takings jurisprudence, the regulator's abrogation of the regulatory contract would be a compensable confiscation of the property of the regulated firm. That result holds whether one casts a deregulatory taking as a physical invasion of property, as a confiscatory setting of public utility rates, or as a noninvasive regulatory taking.

G. JUST COMPENSATION FOR TAKINGS

At what magnitude is the compensation paid for a taking of private property "just"? *Compensation for involuntary exchange is just when it is equivalent to the compensation that could be derived from voluntary exchange.* Another way of stating the proposition is that the property owner is treated justly when he is made to be indifferent between voluntarily selling his asset in the market and submitting to the state's power of eminent domain to condemn his asset for public use.[28] That economic reasoning corresponds to the general principle in both American constitutional law[29] and English common law for determining fair compensation for a taking.[30]

---

28. *See* RICHARD A. EPSTEIN, TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN 182 (Harvard University Press 1985) ("In principle, the ideal solution is to leave the individual owner in a position of indifference between the taking by the government and retention of the property.")

29. *E.g.*, Olson v. United States, 292 U.S. 246, 255 (1934). The Court has also repeatedly stated: "The owner is to be put in the same position monetarily as he would have occupied if his property had not been taken." United States v. Reynolds, 397 U.S. 14, 16 (1970). *Accord*, United States v. New River Collieries Co., 262 U.S. 341, 343 (1922); Seaboard Air Lines R. Co. v. United States, 261 U.S. 299, 304 (1922). That formulation of compensation should not be confused with reliance damages: If the property owner were restored to the *status quo ante*, he could voluntarily transfer his property to a willing buyer at its expectation value. Thus, the Court's formulation implicitly requires that restoration of the property owner to the *status quo ante* will compensate him for all the opportunity costs of losing his property to government confiscation.

30. "The purpose of compensation is that it gives to the owner compelled to sell the right to be put as far as money can do it, in the same position as if his land had not been taken from him." 8 HALSBURY'S LAWS OF ENGLAND ¶ 250 (4th ed.). *see also* Nelungaloo Pty. Ltd. v. Commonwealth, 75 C.L.R. 495, 571 (High Court 1948)

What, then, is the price that the property owner would demand before he would voluntarily part with his asset? Another way of phrasing the question is to ask what would be the full cost to the property owner of parting with the asset. The critical insight to answering that question comes from Armen Alchian's definition that "the cost of an event is the highest-valued opportunity necessarily forsaken."[31] The property owner, therefore, would demand the asset's opportunity cost. English common law contains a corresponding expression of that economic reasoning: The property taken is to be valued not merely by reference to the use to which it is being put at the time, but the owner is also entitled to compensation for the potentialities or possibilities of development--that is, the property's opportunity cost.[32] American courts have similarly ruled that the property owner is entitled to compensation for the property's "most profitable purpose, or advantageous use."[33]

A deregulatory taking deprives shareholders of the expected returns associated with entry controls and pricing regulations, as well as the intended use of the regulated property, that existed before the deregulation. Thus, it is not necessary to determine the purchase costs of the regulatory assets, nor their resale value, nor their replacement costs. The utility placed the assets in service in expectation of the earnings that would be received. The expected returns of the firm constitute *investment-backed expectations.*

Therefore, just compensation for a deregulatory taking should equal the change in the expected returns to the owners of the property. In the basic example of single-period returns, with compensation paid in the current period, just compensation is the difference between the expected net returns under regulation and the expected net returns under competition deriving from the property:

$$\textit{Just compensation} = \Delta .$$

If the property is expected to generate returns over multiple periods, those returns should be discounted at the appropriate rate, so that

---

("[T]he purpose of compensation . . . . is to place in the hands of the owner expropriated the full money equivalent of the thing of which he has been deprived.")

31. Armen A. Alchian, *Cost, in* 3 INTERNATIONAL ENCYCLOPEDIA OF THE SOCIAL SCIENCES 404, 404 (David L. Sills ed., MacMillan Co. & Free Press 1968)

32. Robinson Bros. (Brewers) Ltd. v. Houghton & Chester Le Street Assessment Committee, 2 K.B. 445 (1937), *aff'd*, A.C. 321 (1938) (House of Lords)

33. *E.g.*, Emmons v. Power Utils. Co., 83 N.H. 181, 184 (1927)

compensation equals the difference between the present discounted value of net earnings expected under regulation and those expected under competition. To make the investors whole, they should be compensated for the change in the value of the firm:

$$\textit{Just compensation} = \Delta\ \bullet.$$

Therefore, for the one period or the multiperiod case, just compensation for a deregulatory taking exactly equals damages for breach of contract.

Another way to determine the change in investment-backed expectations is to consider the change in the value of the firm to the shareholders as a consequence of deregulation. The value of the firm is the sum of each year's discounted cash flows net of investment requirements.[34] Thus, in the absence of additional investment in the firm, the value of the firm is the present discounted value of expected earnings:

$$V = \sum_{t=0}^{T} \frac{(R_t^e - C_t^e)}{(1+i)^t}$$

The firm has a different value under regulation than it does under competition. Let V_1 and V_2 respectively denote the value of the firm calculated for net revenues under regulation and the value of the firm calculated using expected net revenues under competition. Then, it should be apparent that the change in the value of the firm is the difference between the two present discounted values of cash flows:

$$V_1 - V_2 = \Delta\ \bullet.$$

Thus, just compensation for a deregulatory taking from investors is equal to the change in the value of the firm.

---

34. *See, e.g.*, J. FRED WESTON, KWANG S. CHUNG & SUSAN E. HOAG, MERGERS, RESTRUCTURING AND CORPORATE CONTROL (Prentice Hall 1990)

H. THE NEED TO SUPPLEMENT THE EFFICIENT COMPONENT-PRICING RULE WITH A COMPETITIVELY NEUTRAL END-USER CHARGE TO ENSURE JUST COMPENSATION

Access pricing that promotes only *efficient* entry, interconnection, and bypass in the market at issue also serves to compensate the utility for its opportunity cost. Thus, if the access pricing rule is calculated properly, and if there is no competition in the provision of access, then the rule will serve the same function as contract damages or just compensation. Therefore, under the efficient component-pricing rule, interconnection prices are not confiscatory under the Takings Clause. We will demonstrate first why that result obtains and then show how the M-ECPR will *fail* to provide just compensation if there is competition in the provision of any element of network access. In the presence of such competition, just compensation requires that the incumbent LEC receive an end-user charge equal to the residual amount of unrecovered costs that remain after the incumbent LEC has priced access to each network element at the *lower* of the M-ECPR price *or* the stand-alone cost of providing that element. In the face of competitive provision of network access or network elements, even a price set according to the M-ECPR will constitute a taking unless it is accompanied by an end-user charge of the magnitude just described.

1. Just Compensation in the Absence of Competition for Network Access

The efficient component-pricing rule recovers the utility's opportunity cost of entry D in each period. By applying the M-ECPR over time, the utility recovers the net present value of expected revenues. In each period, the utility's net earnings from selling its final output plus the net earnings from selling access equal the net earnings it expected to have obtained under regulation,

$$(R_2 - C_2) + \Delta = R_1^e - C_1^e.$$

Thus, the present value of the utility's total net earnings is equal to the present value of the earnings that it expected under regulation, PDV_1. Applying the M-ECPR in each period to recover opportunity

costs thus is equivalent to a one-time payment of Δ^* in the initial period.

If the regulator imposes an access pricing rule that fails to compensate the utility for the opportunity costs of the resources used to provide unbundled access, then the regulator will have given the utility less compensation for that involuntary exchange than that to which the utility would be entitled under established takings jurisprudence. Moreover, the relevant opportunity cost subject to full compensation will not be a static one, but rather a dynamic one that takes into consideration, in the case of a local exchange carrier, the profits that the utility will forgo from lost sales of interactive narrowband, interactive broadband, and enhanced services supported by the advanced information network. In short, if the regulator orders the utility to provide unbundled access to its basic service elements at a price less than that implied by the efficient component-pricing rule, the regulator will effect an uncompensated taking of the utility's property.

Duquesne supports that jurisprudential proposition. There the Court said that decisions regarding the rates of return for regulated utilities "should be commensurate with returns on investments in other enterprises having corresponding risks" and should not "jeopardize the financial integrity of the companies . . . by impeding their ability to raise future capital."[35] If the regulator were to require the utility to sell unbundled access to its basic service elements at a price that did not include the utility's full opportunity cost, the utility's shareholders would suffer a corresponding forfeiture in their share price. That forfeiture in turn would cause future investors to demand a risk premium from the utility--which is to say that the company would face a higher cost of capital that reflected the risk that the regulator might unexpectedly take future actions, contrary to the regulatory contract, that would arbitrarily expropriate shareholder wealth.

2. *Just Compensation in the Presence of Substitutes for Network Access*

One significant caveat must be added to the preceding claim that an equivalence exists between just compensation and the price for mandatory network access computed according to the efficient

35 488 U.S. at 312, 314

component-pricing rule. The M-ECPR is compensatory in the sense that it covers the incumbent utility's direct economic costs and opportunity costs. The M-ECPR, however, is not fully compensatory in certain circumstances.

The presence of facilities-based entry into the provision of the bottleneck technology, and the possibility that entrants may purchase, under existing retail rates, services that are substitutes for the unbundled network elements of the incumbent utility, reduce the likelihood that the utility will recover its total costs. The M-ECPR may indicate that the incumbent utility should charge a price for network access that exceeds the stand-alone cost of a rival technology for the provision of access (such as wireless loops, or the self-provision of switches). In that case, the market will allow the incumbent to charge at most a price for access that equals the stand-alone cost of the rival access technology. The residual that remains to be recovered to meet the utility's total costs must be collected by an alternative method, such as a competitively neutral, nonbypassable end-user charge.

3. *What Costs Does the End-User Charge Recover?*

The end-user charge recovers four categories of cost burdens that the incumbent LEC cannot recover through competitive prices but has incurred to discharge its obligation to serve: (1) shared costs of network operation, incurred among two or more (but not all) of the incumbent LEC's services, but not wholly attributable to any single service; (2) common costs of network operation, incurred among all of the incumbent LEC's services; (3) losses incurred in providing services to customers at regulated prices that are below the incremental cost of providing such service; and (4) costs incurred as a result of incumbent burdens that the incumbent LEC continues to bear after the advent of competition, but which entrants are not required to bear. The end-user charge would *not* recover monopoly rents or cost inefficiency.

1. *Northern Pacific Railway* and the Regulator's Redefinition of the Intended Use of Dedicated Property

The Supreme Court's 1915 decision in *Northern Pacific Railway Co. v. North Dakota* has great relevance to the mandatory unbundling of

network access now occurring in local telephony, for the decision emphasizes that private property that a regulated utility has dedicated to a public purpose cannot be appropriated by the government for a different purpose.[36] The case involved a challenge by two railroad companies to a North Dakota statute setting maximum rates on the intrastate carriage of coal. The railroads claimed that the rates forced them to carry coal at a loss or at an uncompensatory rate (taking into account a competitive return to capital) and therefore constituted a taking of private property. Although the North Dakota Supreme Court agreed that the rates forced the companies to carry coal at a uncompensatory rate, it nonetheless deemed those rates not to be confiscatory because the companies overall continued to earn a reasonable return on their intrastate business.

The Supreme Court reversed. It held that the statute was an attempt to take a carrier's property without due process of law in violation of the Fourteenth Amendment. Although the state enjoys broad power to regulate private property devoted to a public use, Justice Hughes, writing for the eight-member majority, stressed that, "the State does not enjoy the freedom of an owner."[37] That the state may reasonably regulate to ensure that a carrier fairly discharges the obligations of its charter does not mean that state may redefine the public use to which the carrier's property is dedicated, even if the carrier's total business continues to earn a sufficient return:

> The fact that the property is devoted to a public use on certain terms does not justify the requirement that it shall be devoted to other public purposes, or to the same use on other terms, or the imposition of restrictions that are not reasonably concerned with the proper conduct of the business according to the undertaking which the carrier has expressly or impliedly assumed . . . . The public interest cannot be invoked as a justification for demands which pass the limits of reasonable protection and seek to impose upon the carrier and its property burdens that are not incident to its engagement. In such a case, it would be no answer to say that the carrier obtains from its entire intrastate business a return as to the

36. 236 U.S. 585 (1915).

37. *Id.* at 595. The lone dissenter, Justice Pitney, wrote no opinion.

> sufficiency of which in the aggregate it is not entitled to complain.[38]

As an example, Justice Hughes stated that if the firm "has held itself out as a carrier of passengers only, it cannot be compelled to carry freight."[39] This simple example from 1915 has a contemporary counterpart in the debates of the 1990s over mandatory unbundling of access to telephony and electric power networks: If the regulated firm has held itself out as an integrated network providing service directly to customers, can it be compelled to rededicate that network to providing service to other (unregulated) firms that compete with the regulated firm for sales to retail customers? *Northern Pacific Railway* says no. Given the relevance of that answer, it is remarkable that the public debate over the Telecommunications Act of 1996 appears never to have considered the question.

Northern Pacific Railway also established that the proposed redefinition is not made any more constitutionally permissible by the fact that the state intends that redefinition to serve an important public policy goal that materially benefits the state's residents. The Court considered it beside the point that North Dakota believed that the rates would "aid in the development of a local industry," an industry whose "infancy" and potential "to confer a benefit upon the people of the State" were matters of sincere concern to the state.[40] North Dakota's goal of "making the community less dependent upon fuel supplies imported into the State"[41] could not justify its resorting to an appropriation of private property as the means to achieve that objective:

> [W]hile local interests serve as a motive for enforcing reasonable rates, it would be a very different matter to say that the State may compel the carrier to maintain a rate upon a particular commodity that is less than reasonable, or--as might equally well be asserted--to carry gratuitously, in order to build up a local enterprise. That would be to go outside the carrier's undertaking, and outside the

---

38. *Id.* at 595-96
39. *Id.*
40. *Id.* at 598.
41. *Id.*

> field of reasonable supervision of the conduct of its business, *and would be equivalent to an appropriation of the property to public uses upon terms to which the carrier had in no way agreed.*[42]

This passage illuminates the contemporary debate over the regulatory contract because its logic rests on the consensual nature of regulation: The firm dedicates its private property to a public purpose only as the result of voluntary exchange. Justice Hughes emphasized throughout the opinion that, although the legislature's discretion to set both general and particular rates is extremely wide and such rates enjoy a presumption of reasonableness, it is another matter entirely when the state acts to alter fundamentally the obligations imposed on the carrier by its acceptance of the original regulatory contract: "The constitutional guaranty protects the carrier from arbitrary action and from the appropriation of its property to public purposes outside the undertaking assumed . . . ."[43]

The Court's emphasis on the original understanding of the intended use of regulated property in *Northern Pacific Railway* sheds light on why, and the degree to which, the regulated firm would have willingly opted for asset specificity rather than asset generality in making its investments. If the regulated firm had expected that it could be required to use its dedicated property for a purpose other than that for which such property was originally dedicated, then the firm would have borne the risk that, in the newly designated purpose, the property might fail to earn a sufficient return originally understood by the utility and the municipality to be necessary to allow the firm to recover that capital and a competitive return on such capital over its useful life. Faced with such risk, the firm presumably would have opted instead for a different kind of capital having a lesser degree of asset specificity or a shorter useful life, or both. While investment in that alternative kind of capital would have reduced the risk to the regulated firm of having its regulated property redirected to an originally unintended use, that investment might not have been the most efficient capital in terms of minimizing the cost to society of producing the service in question. If so, then the regulator's rededication of the use of the dedicated property would impose a social cost.

---

42 . *Id.* (emphasis added)
43 . *Id.* at 604.

There is an additional implication, relating to entry regulation, of the requirement that the regulator not rededicate the use to which regulated property is to be put. Some states have long forbidden municipalities to grant exclusive franchises for the provision of services such as local telephony and electricity.[44] Given that the absence of franchise exclusivity raised the risk that a utility would not receive a reasonable opportunity to recovery its irreversible and nonsalvageable investment in network infrastructure, and given that the utility's rates were regulated not to exceed just and reasonable levels, why would the utility's investors nonetheless have been willing to risk their capital in this manner? Perhaps such investors received a risk premium relative to the return on capital for utilities in jurisdictions that did not forbid franchise exclusivity. But it seems at least as likely that such a premium was unnecessary because the risk was not appreciable. In other words, investors even in jurisdictions that forbade franchise exclusivity may have taken sufficient comfort in knowing that their transaction-specific investments were to dedicated to a *specific purpose*--namely, the provision of retail services *directly to customers* in the municipality that granted the franchise. Since the Supreme Court's decision in the *Express Package Cases* in 1885 it had been clear under the common law of common carriage that a public utility could not be required to sell interconnection to another carrier.[45] And early cases such as *Pacific Telephone & Telegraph Co.* v. *Eshleman*, decided by the California Supreme Court in 1913, emphasized that a regulator could not mandate unbundled network access to accommodate a competitor, and that a state legislature could do so *only if* it paid just compensation to the incumbent utility.[46] Thus, when investors built the first local telephone networks under nonexclusive franchises, it would not have occurred to them, or to the municipality franchising them, that the municipality (or its successor, the state public utility commission) might subsequently rededicate such regulated property to the purpose of providing a rival firm the infrastructure with which to lure away the incumbent LEC's retail customers. Indeed, the early years of local telephony witnessed a race among competing facilities-

---

44. E.g., TEX. CONST. art. I, § 26.

45. 117 U.S. 1 (1995); *see* MICHAEL K. KELLOGG, JOHN THORNE & PETER W. HUBER, FEDERAL TELECOMMUNICATIONS LAW 13-14 (Little, Brown & Co. 1992).

46. 166 Cal. 640, 664-65, 137 P. 1119, 1127-28 (1913).

based LECs with overlapping networks to maximize subscribership in a service area.[47]

The one form of potential competition that the utility and the municipality did originally envision was of a completely different sort. If competition were to occur, it would take the form of another utility receiving another nonexclusive franchise to build its own transaction-specific infrastructure. Yet, such facilities-based entry was not expected to occur because local exchange carriers and electric utilities were thought to be natural monopolies; indeed, such entry was considered futile and wasteful. That is why entry regulation taking the form of the prior grant of certificates of necessity and convenience placed so much emphasis on avoidance of duplicative facilities. In other words, neither the municipality nor the original franchised LEC ever expected that competitive entry would take the form of mandated access to the incumbent's network.

Furthermore, if the incumbent's network was to be occupied--in any degree--by some party other than the utility that owned it, that party was understood to be the municipality itself. Some franchise agreements gave the municipality the option to buy out the utility's network at the end of the franchise term for a price voluntarily negotiated by the parties or, in the case of deadlock, for a price set by arbitration.[48] Of course, at any time during the franchise term the municipality independently had the option simply to exercise eminent domain over the utility's network, which would trigger an analogous valuation process for determining just compensation for the forced buyout.

The relevance of *Northern Pacific Railway* to the FCC's 1996 interconnection order is encapsulated in the novel pricing methodology that the agency unveiled. The FCC introduced the

---

47. MILTON MUELLER, UNIVERSAL SERVICE: COMPETITION, INTERCONNECTION, AND MONOPOLY IN THE MAKING OF THE AMERICAN TELEPHONE SYSTEM (MIT Press & AEI Press forthcoming 1996)

48. *E.g.*, An Ordinance Granting to Central Power and Light Company, Its Successors and Assigns, an Electric Light, Heat and Power Franchise, Corpus Christi, Texas § 4 (July 2, 1935) ("Upon the termination of this grant, the grant as well as the property, if any, of the Grantee in the streets, avenues and other public places, in the then city limits of the City of Corpus Christi, shall thereupon, upon a fair valuation thereof being paid to the Grantee, be and become the property of the City of Corpus Christi, and the Grantee shall never be entitled to any payment or valuation because of any value derived from the franchise or the fact that it is or may be a going concern duly installed and operated, provided, however, it shall be optional with the City of Corpus Christi whether or not it acquires title to said properties in said manner ").

concept of total *element* long run incremental cost (TELRIC), which is to be distinguished from total *service* long run incremental cost (TSLRIC). TELRIC embodies more than a new kind of costing exercise. It reflects a fundamental redefinition of the output of the regulated local exchange carrier. In the past, the output of a LEC consisted of services. After the FCC's 1996 interconnection order, the incumbent LEC's output has been redefined to consist of elements. The difference is significance in at least two respects.

First, the incumbent LEC built its network in the manner that it did so that it could discharge an obligation to serve--that is, to provide services to consumers. The incumbent LEC, however, now faces both an ongoing obligation to provide services to consumers and a new obligation to supply elements to competitors. The latter was never contemplated when the incumbent LEC dedicated the private property of its investors to a public purpose.

Second, there will likely be significant transactions costs of using the incumbent LEC's network to provide elements rather than services as its intended output. Those new costs are a cost of achieving the benefits that Congress and the FCC envisioned from the mandatory unbundling of local telephony. But it is neither efficient nor constitutional to make the shareholders of incumbent LECs absorb those costs. Rather, such costs must be fully recovered in the rates that an incumbent LEC may charge for unbundled elements. If demand conditions preclude setting prices at a sufficiently high level to recover those costs, then an end-user charge must be employed to recover the residual amount of cost beyond what can be recouped through the market-allowed price.

X

ACPR Pricing for Wholesale Services Is Unworkable and Will Lead to Inefficiency

The Kaserman Report recommends an adjusted form of M-ECPR pricing for wholesale services that is intended to penalize the incumbent LEC for assumed excess profits and inefficiency. The authors denote this procedure the Avoided Cost Pricing Rule (ACPR), perhaps to make it appear consistent with Section 252(d)(3) of the *Act*. Under the ACPR, the wholesale price of a service is given by the following formula:

$$P_w = P_R - TSLRIC_R - X_R - \pi_R$$

where:

P_w	=	Wholesale price;
P_R	=	Retail price;
$TSLRIC_R$	=	Total Service Long Run Incremental Costs (TSLRIC) per unit incurred at the retail level;
X_R	=	Dollar value (per unit) of production inefficiencies of the incumbent LEC at the retail level; and
π_R	=	Excess economic profit at the retail stage, which is constrained to be non-negative.

Furthermore, the Kaserman Report defines the TSLRIC of retail service as ". . . all of the costs associated with the retail activities of the ILEC that will be avoided when the ILEC ceases to perform those retail activities."[1] By definition, then, the avoided cost of retail is equal to the costs that will be avoided if the ILEC exits the retail function entirely. Note also that the TSLRIC of retail service excludes any incremental costs due to wholesaling.

Each of the components is problematic from the standpoint of either economic efficiency or practicality, or both. If implemented, the ACPR would require a rebirth of cost-of-service regulation that would retard greatly the growth of local exchange and interLATA competition in the telecommunications industry. We discuss each component in turn.

A. Total Service Long Run Incremental Costs at the Retail Level ($TSLRIC_R$)

To the superficial eye, it may appear "reasonable" to calculate the avoided cost of resale by assuming that the incumbent LEC (ILEC) leaves the retail market altogether. However, this assumption overlooks two important facts. First, that avoided retail cost per unit is generally an increasing function of the amount of retail business lost. Second, in the normal course of events, wholesale customers of the ILECs will be taking away retail business from the ILEC in increments far smaller than the ILEC's entire business.

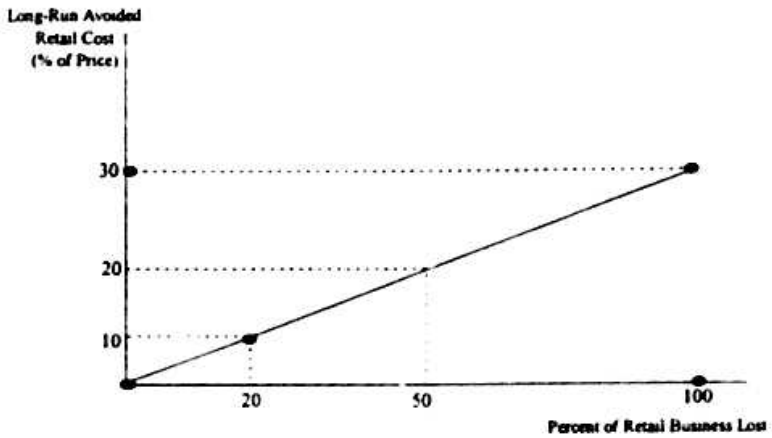
Figure X-1 depicts the avoided long run cost (per unit) as a function of the percentage of the ILEC's retail business lost. The solid circles on the curve represent actual calculations based on GTE data. Now suppose that an alternative LEC were to capture 20 percent of the ILEC's retail business. According to the curve in Figure VII-1, this would save the ILEC an amount equal to 10 percent of the retail price. Even if the alternative LEC has the same retailing costs as does the ILEC, this does not put the two firms on an equal footing under the Kaserman Report proposal. According to the proposal espoused in the Kaserman Report, the actual wholesale discount would be 30 percent, based on the assumption that the alternative LEC was capturing all the ILEC's retail business. Thus, the wholesale discount would exceed the ILEC's actual cost savings.

The avoided-cost calculation advocated in the Kaserman Report permits an alternative LEC to profitably enter even if its own

1 Kaserman Report, at 18

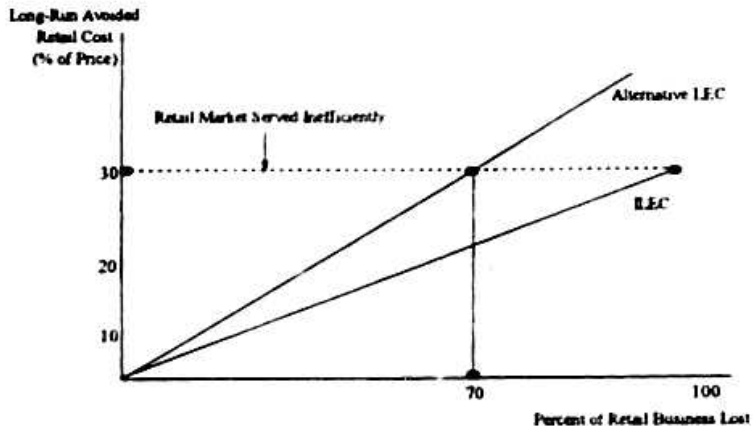
retailing costs are considerably higher than those of the ILEC. For example, if the wholesale discount is 30 percent, then an alternative carrier whose own retail costs are 20 percent of P_R at a 20 percent market share could profitably enter, even though the cost to society of having 20 percent of the retail market served by the alternative LEC is twice as high as if it were served by the ILEC. This process continues, so that if the wholesale discount is set at 30 percent of P_R and if the alternative LEC is equally efficient to the ILEC, the ILEC must necessarily lose the whole retail market.

FIGURE X-1
LONG RUN AVOIDED RETAIL COST
AS A PERCENTAGE OF RETAIL BUSINESS LOST



Even if the alternative LEC is less efficient than the ILEC, it can still take away retail business profitably. In Figure X-2 the avoided-cost curve of the alternative LEC lies above that of the ILEC, meaning that by serving more customers it incurs a higher cost than does the ILEC. As the curve is drawn, the alternative LEC can take away up to 70 percent of the ILEC's retail business, even though the retail cost to society is higher as a result.

FIGURE X-2
INEFFICIENT ENTRY ENCOURAGED BY THE
AVOIDED COST CALCULATION IN THE KASERMAN REPORT



B. RETAIL PRODUCTION INEFFICIENCIES (X_R)

The very premise for this adjustment is misguided. Its motivation is that regulated firms such as ILECs have no incentives to be productively efficient and, hence, must have substantial excess costs. For example, in GTE's three largest states, California, Florida, and Texas, price-cap regimes are in effect. In California, the price-cap plan has frozen nominal prices since the beginning of 1996 and from 1990 to 1995 had a high productivity offset (4.5%). According to the price-cap formula, price ceilings for retail prices adjust annually according to rate of change in inflation, less the firm's expected productivity *vis-à-vis* the rest of the economy. That is, if inflation grew at a rate of 3 percent and expected productivity was 4.5 percent, prices would decline by 1.5 percent (i.e., 3 percent less 4.5 percent). The higher the productivity offset, the greater the firm's incentive to cut costs. In those states in which GTE operates under rate-of-return regulation, prudency reviews serve to monitor the firms costs, while "regulatory lag" provides an incentive to reduce costs.

A second difficulty is practicality. The very definition of X_R involves a comparison between the current efficiency of GTE and an outside calculation of "maximum" efficiency. Such a comparison is impossible to make with any degree of accuracy, particularly in the

time frame during which wholesale pricing decisions must be made by state and federal regulators. Consider, for example, the problem of simply specifying the standard of comparison. Cost would have to be computed dynamically, taking into account not only the features of GTE's network, but also projected demands for services -- including hard-to-model effects of competition -- as well as regulatory constraints involving service quality and universal service. This is a modelling exercise so grandiose and complex that it could take months or years before all parties could agree on the technical details of how to specify the problem, let alone how to evaluate the results.

The Kaserman Report suggests that it is not necessary to compute $TSLRIC_R$ and X_R separately. Instead, the authors propose subtracting out embedded unit cost from revenues and using that value as a proxy. This procedure would be correct only if there were no shared costs or common costs. In the presence of shared costs and common costs, the result of the procedure suggested by the Kaserman Report will be to get the sum of $TSLRIC_R$ and whatever portion of shared costs and common costs is allocated to the service in question. Even with no inefficiency at all, this procedure results in an overestimate of proper wholesale discount, which is $TSLRIC_R$. For a large service like local toll, where significant resale competition is to be expected, this effect will be especially large. Because the X_R term would need to be calculated separately for each of GTE's dozens of services, this procedure would amount to setting the wholesale discount by some form fully distributed costs.

Because the alternative LECs need consider only their *incremental costs* of retail, then if they and the ILEC are of equal efficiency, the ILEC can never win. It would be required to offer a wholesale discount greater than $TSLRIC_R$, even if it were perfectly efficient. Thus, all of the retail business would inevitably go to the alternative LEC. Furthermore, this could happen even if the alternative LEC was less efficient than the ILEC, as long as the alternative LEC's incremental cost of retailing did not exceed the ILEC's fully distributed cost for the service in question.

In sum, the Kaserman Report's proposal to subtract X_R from the retail price leads to either one of two dead ends. Either X_R is computed directly, which is hopelessly complex, or the wholesale discount is set through fully distributed cost methods which guarantee that the ILEC gives a sure profit to an equally efficient alternative LEC.

C. THE ROLE OF MONOPOLY PROFITS (π_R)

Computing monopoly profits, π_R, is even more problematic than computing X_R. In addition, there is a formidable problem of what one would look for in deciding on a definition of excess profit, given that GTE is subject to traditional costs-of-service regulation in very few states.

Consider the problem involved with the π_R offset is that in those states GTE companies are under some form of incentive regulation with wide limits on its rate of return. In California, for example, GTE's rate of return can vary from 7.75 percent up to 13 percent without triggering regulatory action. In such a case, how would the Kaserman *et al.* propose to decide what is an excess profit? The California Public Utilities Commission (CPUC) has already decided that in the interests of providing performance incentives, and in exchange for a rate freeze, GTE's rate of return should not be subject to micro-management. To include a π_R offset to the wholesale price would require an entire new rate of return proceeding in each GTE state. Furthermore, in states such as California, inclusion of the π_R offset would amount to profit sharing even if GTE were within the no-sharing band, which would violate that Commission's regulatory framework. To include the π_R term is to abrogate the earnings-sharing mechanisms that currently exist.

The next conceptual problem with π_R comes from its definition as excess profit from the retail business. Presumably the starting point for this would be the difference between P_R and $TSLRIC_R$. However, this is a misleading calculation since some or all of this difference is needed to cover shared costs and common costs, as well as to keep basic exchange rates low. Indeed, it is hard to know what to make of the contribution earned on a particular retail service, since it expected that the ILEC may earn a high contribution on some of its services, in order to keep prices for other services (such as basic residential service) low.

Finally, the Kaserman Report ignores the incentive effects of π_R. To the extent that contribution for a particular service is high, this may well be due to increased efficiency of the ILEC. The π_R offset directly penalizes the ILEC for this efficiency and deters the ILEC from further reductions in cost, lest they lead to further rises in π_R.

In sum, practical difficulties accounting difficulties in computing would make the ACPR impossible to implement without

new litigation and extensions of regulatory control. The incentive effects make the π_R offset inefficient on economic grounds.

XI

TSLRIC Pricing of Unbundled Network Services Creates Economic Inefficiency

The Kaserman Report recommends that the prices for unbundled network elements be set equal to the Total Service Long Run Incremental Cost per unit (TSLRIC).[1] To be sure, TSLRIC pricing certainly is simple to understand. It would be a mistake to equate simplicity with accuracy, however. Although there are conceivably some savings in administrative costs to "getting pricing right," those possible cost savings are trivial compared with the short-term and long-term market distortions that would be certain to result from taking the easy way out. TSLRIC pricing is overly simplistic because it is simply the wrong pricing policy.

The problem with TSLRIC pricing generally is that it does not equal economic costs. That is why TSLRIC pricing creates economic inefficiencies. The problems with TSLRIC pricing outlined below stem from that basic defect.

A. TSLRIC Pricing Does Not Reflect the Firm's Total Direct Costs

The incremental cost of production is of value to the firm when it makes decisions comparing incremental revenue with incremental cost. However, because a multiproduct firm has shared costs and common

1. In the FCC's parlance, the term TELRIC would be used in place of TSLRIC

costs, TSLRIC pricing does not provide a complete picture of the firm's direct costs.

Certainly, there are circumstances in which TSLRIC pricing equals the firm's economic costs of production. If the firm provides only one service, then the incremental cost and stand-alone cost of the service are equal, and incremental pricing provides an accurate estimate of the firm's costs of production. If the firm provides multiple services, but the services have no shared costs or common costs -- that is, there are no economies of scope -- then incremental cost pricing provides an accurate estimate of the costs of production. These circumstances do not describe the technology and cost of local exchange telecommunications.

If all of the firm's services were to be sold at their TSLRIC, then the firm's total costs would not be covered. The difference between a firm's total costs and the sum of that firm's incremental costs is equal to the firm's shared costs and common costs. Thus, under TSLRIC pricing the firm would incur losses exactly equal to this remainder -- that is, the firm's shared costs and common costs.

The firm's shared costs and common costs are precisely its economies of scope, which means that they are the firm's efficiency gains from jointly producing multiple services. To price without regard to those cost is to penalize a firm for its efficiencies.

Because TSLRIC pricing fails to recover any of the incumbent LEC's shared costs or common costs, it interferes with the LEC's opportunity to earn a fair rate of return on its investment or even to recover its investment. That outcome violates section 252(d) of the Telecommunications Act, which calls for the firm to recover its costs, with pricing that may include a reasonable profit. TSLRIC pricing *guarantees* losses and thus is confiscatory. Policy that requires TSLRIC pricing would therefore constitute a taking.

Some would suggest that the firm subject to TSLRIC pricing can make up its losses elsewhere, perhaps from retail sales. Although appealing on the surface, such a suggestion requires that earnings from other services be sufficient to cover shared costs and common costs. Such an unfounded belief can easily fail to be consistent with market conditions. Competition need not lower margins on those services identified by competitors in their unbundling requests, it is just as likely to do so on the remaining services. Indeed, with TSLRIC pricing, competitors are most likely to purchase those services that would have a markup in a competitive market, in order to free-ride on the LEC. Competitive firms are able to stay in business when they recover joint and common or shared costs through revenues above incremental costs. The market-allowed contribution of "other services" cannot be

predicted *a priori*. What is certain is that a firm that does not cover its joint and common or shared costs will not remain in business very long.

B. TSLRIC Pricing Does Not Reflect the Firm's Economic Costs

TSLRIC pricing is not efficient because it does not reflect the LEC's economic costs, which include the direct incremental cost *plus* the opportunity costs of the facilities to which the incumbent LEC is providing access. The TSLRIC pricing method is neither efficient nor compensatory because the LEC will not be allowed the opportunity to recover its economic costs.

Pricing the firm's outputs sold to customers differs from pricing the firm's inputs sold to competitors. The economic costs can be expected to differ. The incremental economic costs of inputs sold to competitors must equal the direct economic costs and the opportunity costs to the firm of those inputs. To exclude the firm's opportunity costs in one's definition of costs, as do advocates of TSLRIC pricing, is simply an argument by competitors for a free ride, not an assertion about economic efficiency.

C. TSLRIC Pricing Should Not Be Confused with Competitive Pricing

Some economists and regulators justify TSLRIC pricing by analogizing it to marginal cost pricing. That justification is based on a misunderstanding of one the most basic principles of economics. It is true, of course, that when price exceeds the marginal cost of production, there may be additional benefits to consumers from expansion of output to the point where marginal cost equals the price. That does not imply, however, that utility regulators should set prices for any and all services at their marginal cost (the cost of producing the last unit) or at average incremental cost (the incremental cost of producing the service divided by the number of units of the service provided). There are several fundamental problems with jumping to that conclusion.

With marginal cost pricing, costs are not covered in the presence of economies of scale (or, in the case of a multiproduct firm, when there are economies of scale and scope). Economists are familiar with the problem of pricing a bridge that costs $100 to build. The marginal cost of providing the services of the bridge are zero. What

should be the price of crossing the bridge?[2] Efficiency considerations alone might suggest pricing at zero. Yet, the bridge then would not be economically viable. One solution would be to finance the bridge using general taxation. That policy, however, would transfer income to users of the bridge from those taxpayers who are not users of the bridge. Whether such a solution is viewed as efficient depends on how income transfers are to be evaluated in determining the effect on social welfare. These income transfers have consequences for economic efficiency. Accordingly, it is desirable for users of the bridge to pay for the cost of the bridge.[3]

The analogy between competitive markets and regulated pricing as a guide to efficient pricing is somewhat strained. Even in the ideal case of "perfect competition" covered in the basic economic textbooks cited by Professors Kaserman et al, competitive firms cannot be said to price at marginal cost. Rather, the "perfectly competitive firm" takes the market price as a given and offers its output for sale at the market price. The firm, in this theoretical ideal case, sets its *output* level such that the firm's marginal cost equals the market price. This is how in equilibrium the marginal cost of the firm equals the market-clearing price. This is different from the problem of a regulator seeking to determine the marginal cost of the regulated firm. The regulated firm's marginal cost will vary depending on the types of services and the volume of services that the firm offers. For regulators to determine what price equals the firm's marginal cost, *at the level of services demanded at that price*, is a fundamentally different and more complex problem. To make that determination, regulators not only would have to predict marginal costs at each level of output over a relevant range, but also would have to make projections of the quantity demanded of those services at the relevant prices so as to determine the equilibrium prices.

Finally, when textbooks speak of the marginal or incremental cost of the firm, they are referring to the firm's marginal *economic* cost. As any textbook will indicate, economic costs of the firm's inputs refer

---

2. J. Dupuit, *On the Measurement of the Utility of Public Works*, in READINGS IN WELFARE ECONOMICS 255 (Kenneth J. Arrow & Tibor Scitovsky eds., Irwin 1969). Harold Hotelling, *The General Welfare in Relation to the Problems of Taxation and of Railway and Utility Rates*, 6 ECONOMETRICA 242 (1938).

3. To further illustrate how TSLRIC pricing fails to be a useful solution when there are significant shared costs and common costs, suppose now that the bridge accommodates both passenger cars and pedestrians. Again, the incremental costs of allowing each type of service equal zero. The shared costs and common costs are $100. Advocates of TSLRIC pricing would suggest pricing the bridge at zero for both passenger cars and pedestrians. As before, the bridge would not remain economically viable.

to the direct cost of purchasing the inputs or the imputed *opportunity cost* of inputs that are not purchased. The firm's costs refer to the costs of the inputs used by the firm, with the cost function of the firm defining the minimum cost of producing output given the firm's technology and cost of inputs.

D. TSLRIC Pricing Promotes Free Riding by Competitors

TSLRIC pricing fails to address the problem of selling inputs to competitors. To illustrate these issues clearly, imagine a fast-food stand that offers both hot dogs and hamburgers, each of which is cooked on the same grille. The unit incremental cost of cooked hot dogs to the firm is $1, and the unit incremental cost of cooked hamburgers is $2. The total cost of the grille is $100. The fast-food stand charges its customers $1.50 and $2.60 for hot dogs and hamburgers, respectively, allowing the firm to cover its shared costs and common costs.

Proponents of TSLRIC pricing would have that fast-food stand sell cooked hot dogs and hamburgers to rival fast-food sellers at $1 and $2, respectively, ignoring the shared costs and common costs of the grille, which is the capital of the fast-food stand. The rivals could then offer the cooked hot dogs and hamburgers to the firm's customers at prices that are equal to or lower than the prices of the fast-food stand. Without question, this free riding would increase competition for the fast-food stand that owns the grille, so much so that the firm would be driven out of business. But such a pricing solution does not conform with any pricing behavior actually observed in a competitive market, and it cannot be justified on grounds of economic efficiency.

E. TSLRIC Pricing Subsidizes Entrants

Some proponents of TSLRIC pricing may argue that prices set at TSLRIC do not involve cross subsidies, so that TSLRIC pricing would rebalance rates. That claim is simply false. The "incremental cost" test for cross subsidization requires that each service, *and each combination of services*, must cover its incremental cost.[4] This outcome easily fails to occur with TSLRIC pricing as soon as the firm produces more than two services and any group of services has shared costs. This result is illustrated by the following example with three services.

---

4 *See, e.g.*, William J. Baumol & J. Gregory Sidak, Toward Competition in Local Telephony 69-72 (MIT Press & AEI Press 1994)

Incremental cost of service A	=	$1
Incremental cost of service B	=	$1
Incremental cost of service C	=	$1
Shared cost of service A and B	=	$5
Total cost of all services	=	$8

The example shows that the incremental cost of services *A* and *B* taken together is $1 + $1 + $5 = $7. TSLRIC pricing would set the price of each service at $1. Services *A* and *B* taken together would have revenues of $2, which would fail to cover their $7 incremental cost. Thus, TSLRIC pricing creates cross subsidies.

In a general sense, TSLRIC pricing creates cross subsidies when multiple services are available that have shared costs or common costs. Those costs do not magically disappear. Failure to cover those costs makes those services available collectively at less than their total costs.

What are the consequences of cross subsidization? Entrants will make efficient decisions about the mix of resale and facilities-based competition only if their access to existing networks is provided at prices that accurately reflect economic costs. Subsidizing services by pricing them at TSLRIC sends the wrong price signals and leads to incorrect decisions. When prices are too low, excessive use of underpriced facilities will result and thus distort the decisions of resellers. The entry and expansion of resellers is thus not only encouraged, but also financed by underpriced facilities.

Moreover, when network services are priced too low, the building of competing facilities is likely to be discouraged. Thus, rather than stimulating facilities-based competition, TSLRIC pricing discourages it. Why should an entrant seek a competitively priced alternative when it can free-ride on the LEC's facilities at below-cost prices? TSLRIC pricing turns out to be a misnomer: It should more appropriately be termed "individual-service LRIC," for it ignores the incremental costs of *combinations* of services.

Indeed, the problem is compounded by unbundling "at any technically feasible point," as envisioned by section 251(c)(3) of the Telecommunications Act.[5] Finer and finer partitioning of services wrings out the shared costs from TSLRIC prices and thus increases the subsidies inherent in such pricing. In the limit, the finer partitioning of services creates TSLRIC prices that will not cover the incremental costs of *any* pair or group of services that have shared costs.

5 . 47 U.S.C. § 251(c)(3)

F. TSLRIC Creates Incentives for Excessive Unbundling Because It Ignores That Unbundling Shifts Costs from Attributable Costs to Shared Costs and Common Costs

A firm cannot apply any pricing methodology independently of the characteristics of the products and services for which prices are being chosen. On the demand side, the characteristics of the products and services will affect the willingness of consumers to pay for those products and services. On the supply side, if the firm sets prices subject to regulatory controls based on its costs of service, then the definitions of the products and services will significantly affect the costs that are attributable to those products and services.

The pricing methodology that regulators adopt for resale and unbundled network elements should be flexible enough to adapt to the regulations governing the extent of unbundling. Efficient and compensatory pricing must allow the firm to recover its economic costs, including both its attributable costs and its unattributable costs ¾ namely, its shared costs and common costs.

The measurement of costs depends on the definition of the firm's services. For a multiproduct firm, changes in the definition of classes of services and individual services will affect measures of incremental cost. Generally speaking, the more services that are defined by subdividing sets of services, the lower the attributable costs of individual services, and the higher the shared costs and common costs of those service. Without any increase or decrease in total costs, it is simply more difficult to identify the attributable costs of a particular service as one moves toward higher levels of disaggregation in the classification of services.

Suppose, for example, that a company produces services that are grouped into two categories, *A* and *B*, and each category of services is sold as a bundle. The average incremental cost of category *A* is $10. The same is true of the average incremental cost of category *B*. Moreover, the firm has common costs of $20. Suppose that there are two services within category *A*, each of which has an incremental cost of $4, and that the two services have shared costs of $2, for a total of $10. By unbundling services in category *A*, the shared costs and common costs of the firm rise by $2 to $22.

Therefore, unbundling has the effect of decreasing the proportion of costs that are attributable and correspondingly increasing the proportion of total costs classified as shared or common. To the extent that the degree of unbundling follows regulatory dictates, the

resulting service definitions may bear little relation to technological and managerial measurements of costs. Consequently, it becomes increasingly difficult to identify the firm's underlying cost components. Reliance on regulatory accounting measures, based on regulatory service classifications and unbundling requirements, is likely to cause inefficient decisions concerning the pricing of network components. That inefficient outcome is particularly likely to occur if, as one would expect the packages of retail services that the LEC offered before the imposition of mandatory unbundling were intended to facilitate optimal management decisions about pricing and service offerings.

This effect of unbundling on cost calculations counsels regulators to take careful account of the interplay between unbundling requirements and pricing. Competing carriers have an incentive to request pricing at incremental cost to the LEC as a means of obtaining network services in a manner that avoids paying for the LEC's shared costs and common costs. Further, by requesting a finer and finer partition of LEC services into unbundled components, competitors shift costs away from measures of incremental cost and toward measures of shared costs and common costs. In the limit, groups of services may individually have negligible incremental costs, even though as a group, their shared costs and common costs are significant.

TSLRIC pricing thus creates a perverse incentive. Unbundling requests from competitors using LEC services may be strategic actions, rather than legitimate requests for access to network services. Competitors not only avoid paying a portion of shared costs and common costs, but also have an incentive to request ever finer partitions of services, and interconnection at every technologically feasible point, so as to shift costs farther away from incremental costs and into shared and common costs. This strategic opportunity allows competitors to "free ride" on the LEC.

M-ECPR pricing avoids those perverse incentives because competitors must pay for the costs of the services that they purchase ¾ both the incremental costs and a portion of the shared costs and common costs. By allocating shared costs and common costs in a competitively neutral manner, M-ECPR pricing eliminates the incentive for competitors to make strategic requests for excessive unbundling. Instead, a competitor will purchase resale and unbundled network elements on the basis of its market prospects rather than as an attempt to game the regulatory system.

G. TSLRIC Pricing Fails to Include Increases in Shared Costs and Common Cost That Result From Unbundling

Unbundling has costs. The provision of resale services and network components entails two types of costs: transactions costs and production costs. Unbundling should not be an end in itself, because the bundling of products and services reduces customer transaction costs and enhances convenience. Access to a few types of local network elements is sufficient to achieve the objectives of deregulation. Competitive markets are capable of resolving the tradeoff between the need to customize offerings and the advantages of bundling. The costs of mandated unbundling must be reflected in estimates of the LEC's incremental costs, shared costs, and common costs and thus included in the prices for resale and unbundled network elements.

Peter Huber has emphasized that "unbundling imposed on a LEC service that faces competition will, at best, only raise prices and inconvenience customers."[6] With the many forms of competition in the local exchange, many unbundling regulations are rendered unnecessary. As Huber has noted, bundling in a competitive market is self-regulating: "If private branch exchanges (PBXs) compete directly against LEC-supplied Centrex service, then it makes no sense to order the unbundling of either. Suppliers of both PBXs and Centrex will bundle or unbundle as customers demand, or will quickly lose ground to more responsive competitors."[7] He has argued that regulators "should not unbundle 'interfaces,' 'functions,' or 'capabilities,' still less the billing and ordering systems used to sell them."[8] Regulatory commissions can achieve their open access goals with limited unbundling; they need only selectively target several points of entry to the local exchange network that are shown not to be competitive and then price that network access at compensatory levels.

Unbundling entails transactions costs in comparison with goods and services that are sold together, because the firm must break down ordering, purchasing, billing, and pricing information for individual components.[9] For this reason, many goods and services are

---

6. Peter W. Huber, *Competition and Open Access in the Telecommunications Markets of California* (Feb. 8, 1994).

7. Id., at 7.

8. Id., at 112.

9. Most products and services offered by competitive companies are bundles of attributes or features. Customers also benefit from the convenience of purchasing a range of products and services from the same supplier that offers lower transactions costs through "one-stop-shopping" and bundling of products and services. Companies

sold as packages. Imagine buying an automobile or even a computer part by part. The final product is not only a physical package of components, but is also sold as a single product requiring only one set of transactions. Even when automobiles are customized with options, customers receive discounts when they choose standardized options packages. The greater the extent of standardization of bundles of features offered to either the customers or the competitors of the LECs, the lower will be the transactions costs associated with offering those features. Conversely, the more that regulatory commissions require that each retail service or network component be sold separately, or in individually customized service packages, the greater will be the associated transactions costs.

Excessive unbundling is not only inefficient and unnecessary. It entails products costs as well. To unbundle retail services and network components, the LEC often needs to install complex switching equipment and to provide additional interconnection facilities for competitors. As with transaction costs, the more such resale and access facilities can be standardized, the lower will be the associated costs. If unbundling and regulated pricing requirements shift the costs to the LECs, competitors will have an additional strategic incentive to demand unique, customized wholesale and access services from the LEC.

The transaction costs and production costs due to unbundling represent *wholesaling* costs for the LEC. The incremental wholesaling costs that are attributable to individual services or elements must be included in their prices. In addition, any increase in shared costs or common costs that result from unbundling also should be reflected in the prices for resale and unbundled services. A competitive firm would not provide a service if it did not generate sufficient revenues to cover its costs. Regulators should account for wholesaling costs in their pricing rules. If competitors do not bear the full economic costs of the services that they purchase, they will not make efficient purchasing and investment decisions.

TSLRIC pricing will capture wholesaling costs if and only if all these costs are attributable. But it will not capture those transaction costs and production costs due to wholesaling that increase shared costs or common costs. Thus, TSLRIC pricing will fail to reflect the full economic costs of unbundling.

The inefficiencies associated with the transaction costs and production costs of specialized services under mandatory unbundling are a problem when costs are shifted to the LEC's other customers or

---

compete by offering packages of goods and services that enhance customer convenience.

when the LEC is expected to shoulder those costs as a means of easing the transition to competition. Unbundling becomes an incumbent burden that potentially hinders the LEC's ability to compete and subsidizes new entrants thereby distorting their decisions about how much to invest in competing facilities. Just as overpriced network services can induce inefficient bypass decisions, so also can subsidized wholesale services can induce under-investment and overuse of network components relative to less costly alternatives.

H. TSLRIC Pricing Creates Incentives for the Incumbent to Reduce its Common Costs or Shared Costs

Because TSLRIC pricing fails to compensate the LEC for its shared costs and common costs, adoption of such pricing would create an incentive for the LEC to reconfigure its network and change the structure of the company so as to increase the proportion of costs that would be attributable to those services priced at TSLRIC, and to lower costs that would be classified as shared costs or common costs. This shift in the LEC's cost structure would not represent efficiency gains: By lowering shared costs or common costs, the company would potentially increase *total* costs because it would lose some of the benefits of economies of scope. Moreover, the reductions in uncompensated shared costs or common costs that are necessary to enable the firm to break even could result in a lowering of the quality of service or the elimination of some services that are uncompensated. Thus, TSLRIC pricing creates a situation that is ripe for the law of unintended consequences.

I. TSLRIC Pricing Lacks Dynamic Pricing Flexibility and Creates Incumbent Burdens

TSLRIC pricing lacks dynamic flexibility, for there is no room for price adjustment. Pricing at the lowest possible level is not sustainable in the long run because no company can continue to operate indefinitely without covering its shared costs and common costs.

Proponents of TSLRIC pricing argue that because prices in competitive markets tend toward incremental costs, regulators should reduce price to its lowest level. That argument is flawed because it presupposes that the competitive market eliminates all margins over marginal cost. To the contrary, competitive markets determine the size of relative margins on products depending on many factors, including the extent of shared costs and common costs, demand elasticities,

product differentiation, transactions costs, and marketing and sales efforts.

A system of price caps protects consumers from price increases while allowing competitive price decreases. TSLRIC, however, is inconsistent with price caps. It does not allow prices to be adjusted in response to competition. Regulators should not adopt TSLRIC pricing to pursue a mistaken representation of how markets operate. Instead, regulators should let competition determine the margins on unbundled services. TSLRIC pricing, by automatically eliminating *all* margins, leaves the incumbent LEC no room for competitive price adjustment and thus creates a competitive disadvantage relative to new entrants.

The Telecommunications Act of 1996 offers a unprecedented opportunity for further growth of competition in local exchange telecommunications. As a precondition, however, the *Act* requires additional regulation of prices for resale and unbundled services. To achieve the intended benefits of competition, it is essential that regulatory commissions grant LECs sufficient flexibility to adjust their prices for resale and unbundled network services to reflect customer demand and market conditions. Regulatory rules for pricing of resale and unbundled services should allow the LECs to recover their economic costs, including the additional costs of following unbundling rules. If prices for resale and unbundled network services are to be regulated, then price controls should not discriminate against the LECs by placing them at a competitive disadvantage in the marketplace.

Regulatory commissions should allow the LECs the same flexibility in pricing and defining unbundled services that is available to the competitive local exchange carriers. Regulators should not mandate excessive unbundling of the "components" of demonstrably competitive services, for competitive markets suffice to determine the efficient extent of unbundling.

Whether the LEC is providing services to retail customers or to other telecommunications companies, negotiation and competition should be relied upon as much as possible to price services and to resolve whether particular services should be offered in combination with others or "a la carte." TSLRIC pricing is an extreme negotiating position taken by competitive local exchange carriers seeking access to network services and elements at prices below economic costs.

The regulatory commission should not establish pricing and unbundling restrictions that bias decisions about the type of technology a carrier may employ to offer local service. The absence of such restrictions should apply equally to LECs and competitive local exchange carriers. The pricing of unbundled services should be

determined by customer choice and competitive interaction between LECs, the competitive local exchange carriers, and the many other providers of transmission capacity. TSLRIC pricing can bias technology choice by eliminating the rewards from economies of scope, thereby encouraging separation of network services into components associated with incremental costs.

J. TSLRIC Pricing Is Discriminatory

TSLRIC pricing is discriminatory because it creates subsidies for entering competitive local exchange carriers at the expense of the LECs. As we have demonstrated, TSLRIC pricing does not cover the LEC's direct economic costs, because it ignores shared costs and common costs. Moreover, TSLRIC pricing creates cross subsidies because it yields revenues that fail to cover the incremental costs of any two or more services that have shared costs. TSLRIC pricing further fails to cover the LEC's economic costs because it ignores the LEC's opportunity costs when it is compelled to sell inputs to competitors.

No competitive firm would agree to pricing below costs. No competitive firm could offer services that subsidize one another, or that contain subsidies for competitors and thus encourage free-riding on its facilities. By forcing the LEC to accept prices that would never be agreed to by a competitive firm, TSLRIC pricing places the LEC at a competitive disadvantage relative to its competitors. Facilities-based competitors certainly will not be subject to such pricing regulations. The discriminatory impact on the LECs of TSLRIC pricing is undeniable.

XII

The FCC's *First Report and Order* Effects a Taking

The FCC's *First Report and Order* in its 1996 interconnection proceeding established a blueprint for the uncompensated taking of the incumbent LEC's private property. The FCC's order had that effect because it (1) denied recovery of historic costs incurred by the incumbent LEC to discharge its obligation to serve; (2) allowed the incumbent LEC to recover only a "reasonable" portion, not all, of its shared costs and common costs that cannot be captured in the total element long run incremental cost (TELRIC) of a network element; (3) forbade the incumbent LEC to recover shared costs and common costs on network elements (particularly loops) that have a low enough price elasticity of demand to bear higher levels of cost recovery without exceeding an entrant's stand-alone cost for that particular element; and (4) forbade the incumbent LEC to pursue cost recovery by charging up to stand-alone cost for unbundled network elements other than loops. Consequently, the FCC has foreclosed the possibility that the incumbent LEC will be able even to achieve the recovery of forward-looking costs that the agency's order purports to endorse. We consider now each of the four preceding factors by which the FCC has denied the incumbent LEC full recovery of all the economic costs that it incurred to discharge its obligation to serve the public.

A. Prohibition on the Recovery of Historic Costs

The FCC's order precludes the recovery of the incumbent LEC's historic costs through the prices charged for mandatory access to unbundled network elements. The FCC stated that "the sum of the direct costs and the forward-looking common costs of all elements will

likely differ from the incumbent LEC's historical, fully distributed costs."[1] The Kaserman Report similarly rejects using the price of mandatory network access to recover any portion of historic, embedded costs.[2] It bear emphasis, in contrast, that even the efficient component-pricing rule does not guaranty full recovery of historic costs because the market-allowed M-ECPR price of a network element is at all times capped by the entrant's stand-alone cost of producing that element by the least-cost technology then available. Consequently, as we explained in Part III, even a system of M-ECPR prices for network access will have to be accompanied by an end-user charge to make the incumbent LEC whole for its stranded costs and thus avoid a taking.

B. PROHIBITION ON THE RECOVERY OF ALL FORWARD-LOOKING COSTS

In its August 1996 order, the FCC endorsed the pricing of unbundled network elements according to a rule that would give the incumbent LEC its TELRIC plus some amount of "forward-looking common costs."[3] The FCC reasoned:

> Given . . . common costs, setting the price of each discrete network element based solely on the forward-looking incremental costs directly attributable to the production of individual elements will not recover the total forward-looking costs of operating the wholesale network. Because forward-looking common costs are consistent with our forward-looking, economic cost paradigm, a *reasonable* measure of such costs shall be included in the prices for interconnection and access to network elements.[4]

It is telling that the FCC did not state that "the *full* measure of such costs shall be included in the prices for interconnection and access to network elements." If the shared costs and common costs in question are indeed forward-looking, and if the FCC indeed purports to endorse the pricing of mandatory network access on the basis of forward-looking costs, then it is incongruous for the agency to permit the incumbent LEC to charge the entrant for only some portion of those forward-looking costs. Plainly, the deficit in the amount of forward-

---

1 *Id.* at ¶ 698

2 Kaserman Report at 12-14

3 *First Report and Order*, *supra* note 1, at ¶¶ 694-98

4 *Id.* at ¶ 694 (emphasis added, footnote omitted)

looking costs that the incumbent LEC will be allowed to recover will be tantamount to a direct subsidy from the LEC to entrants.

The FCC has read the 1996 legislation as promoting competition in the local exchange without regard to whether that competitive entry is efficient. But even that questionable interpretation of the public interest cannot justify the FCC's forced transfer of wealth from the shareholders of incumbent LECs to the shareholders of the entrants firms--which, far from being infant firms, are giant corporations such as AT&T, MCI, and Time-Warner.

C. Prohibition on the Recovery of Shared Costs and Common Costs in the Pricing of the Few Network Elements That Can Contribute to Recovery of Unattributable Costs

The FCC offered two cost-allocation methods by which an incumbent LEC would be allowed to seek to recover forward-looking common costs. The effect of both proposals, however, will be to deny the incumbent LEC any practical ability to recover its nonattributable costs.

The first method was a fixed markup: "One reasonable allocation method would be to allocate common costs using a fixed allocator, such as a percentage markup over the directly attributable forward-looking costs."[5] The practical effect of a fixed percentage markup, however, is to subsidize entrants at the expense of the incumbent LEC. If the fixed percentage produced a price exceeding the entrant's stand-alone cost, then the entrant would self-supply that particular network element rather than buy it from the incumbent LEC. (In addition, as we shall explain presently, the FCC would forbid such a price, assuming unrealistically that the incumbent LEC were so ignorant of basic economics as to attempt to charge a price so high.) If the entrant self-supplied the element, then the incumbent LEC would earn no contribution whatsoever to recovery of its unattributable forward-looking costs.

On the other hand, if the fixed percentage produced a price less than what the incumbent LEC otherwise would charge for the element (bearing in mind that the incumbent LEC in no event could price the element above its stand-alone cost), then the entrant would buy the element from the incumbent LEC rather than self-supply it. In that case, the incumbent LEC would have been forced to forgo a significant share of the overall contribution earned for its recovery of forward-looking shared costs and common costs. The shortfall in contribution

5. *Id.* at ¶ 696.

would equal the difference between (1) the element's stand-alone cost and (2) the sum of the element's TELRIC and its fixed-percentage markup over TELRIC. That shortfall to the incumbent LEC is a coerced transfer to, and subsidy for, the entrant.

The FCC's second method for allocating common costs among unbundled network elements was an example of what economists have dubbed "reverse Ramsey pricing" because of its tendency to minimize rather than maximize consumer welfare. The FCC stated:

> We conclude that a second reasonable allocation method would allocate only a relatively small share of common costs to certain critical network elements, such as the local loop and collocation, that are most difficult for entrants to replicate promptly (i.e., bottleneck facilities). Allocation of common costs on this basis ensures that the prices of network elements that are least likely to be subject to competition are not artificially inflated by a large allocation of common costs.[6]

Citing Ramsey pricing specifically, the FCC ruled that "an allocation methodology that relies exclusively on allocating common costs in inverse proportion to the sensitivity of demand for various network elements and services may not be used."[7] Despite the well recognized welfare-maximizing characteristics of Ramsey pricing principles, the FCC believed that an analogous method of allocating forward-looking shared or common costs across network elements would violate the 1996 legislation:

> We conclude that such an allocation could unreasonably limit the extent of entry into local exchange markets by allocating more costs to, and thus raising the prices of, the most critical bottleneck inputs, the demand for which tends to be relatively inelastic. Such an allocation of these costs would undermine the pro-competitive objectives of the 1996 *Act*.[8]

---

6. *Id*

7. *Id* (citing Frank P. Ramsey, *A Contribution to the Theory of Taxation*, 37 ECON. J. 47 (1927)).

8. *Id*

By imposing this "reverse-Ramsey" constraint on the incumbent LEC's pricing of network elements, the FCC condemned the LEC to insolvency. It is a sham for the FCC to have told incumbent LECs that they can recover their forward-looking shared or common costs only by raising the prices of their most price-sensitive network elements above TELRIC. Such a constraint ensures that the incumbent LEC will be denied the ability to recover any appreciable amount of its unattributable forward-looking costs. That constraint is tantamount to the FCC ordering every incumbent LEC to write a check to each prospective rival to help pay for its cost of entry into the local market.

D. PROHIBITION ON PRICING ANY ELEMENT AT STAND-ALONE COST

Lest any doubt remained concerning the futility of its rules for pricing network elements, the FCC removed that doubt with its imposition of one final, fatal constraint: "In no instance should prices exceed the stand-alone cost for a specific element, *and in most cases they should be below stand-alone costs.*"[9] The first half of that sentence is superfluous. The laws of economics already prohibit a firm from charging a price exceeding stand-alone cost. The second half of the sentence, however, introduces a serious, new regulatory constraint that assures that the incumbent LEC would never be able to cover its total forward-looking costs.

After forbidding the incumbent LEC to use its pricing of unbundled loops to recover forward-looking shared costs and common costs, the FCC has taken away as well the LEC's ability to raise the price of its remaining unbundled elements to *their* stand-alone costs. Given the ability of the entrant to combine at will its own self-provision of elements with its purchase of unbundled LEC elements, the FCC has ensured that the incumbent LEC will be prevented from earning the requisite contributions from its sale of unbundled elements to recover the total forward-looking costs of its network.

Paradoxically, the FCC's pricing rules for unbundled network elements will discourage the facilities-based competition in local telephony that the 1996 legislation envisioned. It would, after all, be foolish for any entrant to build its own network from scratch when the FCC has mandated that incumbent LECs must sell unbundled network elements below their stand-alone costs, and when loops in particular must be sold to entrants at prices that may exceed TELRIC by only a scintilla.

---

9 *Id.* at ¶ 698 (emphasis added)

XIII

Application of the FCC's Fully Distributed Cost Method for Establishing Prices for Unbundled Network Elements

As our report has demonstrated, M-ECPR prices replicate the prices that would result from voluntary exchange and, therefore, produce economically efficient outcomes. M-ECPR pricing is efficient because it exactly recovers the LEC's economic costs and, thus, satisfies the cost criterion in the *First Report and Order* that "incumbent LECs' prices for interconnection and unbundled network elements shall recover the forward-looking costs directly attributable to the specified element, as well as a reasonable allocation of forward-looking common costs."[1]

In this chapter, we apply an alternative "reasonable allocation" factor suggested by the FCC in the *First Report and Order* for assigning forward-looking common costs. This application provides a comparison between the FCC's alternative allocation factor and M-ECPR. After consideration of the FCC's alternative, which is based on a fully distributed cost allocation, we conclude that M-ECPR provides a superior method of implementing the pricing requirements in the *Act* and the *First Report and Order*.

We explicitly do not endorse the FCC's fully distributed cost method for allocating forward-looking common costs. However, even though highly flawed and inferior to M-ECPR as a pricing methodology, that method at least assigns some forward-looking common costs, unlike the Kaserman Report which merely assumes away all such common costs. Moreover, by assigning some forward-looking common costs to the prices of unbundled network elements, the

1 *First Report and Order*, at ¶ 682

FCC's fully distributed cost allocation is also superior to the default values in the *First Report and Order* which do not even cover GTE's TELRICs.

In the *First Report and Order*, the FCC stated that "[o]ne reasonable allocation method would be to allocate common costs using a fixed allocator, such as a percentage markup over the directly attributable forward-looking costs."[2] We note that this allocation method is mathematically identical to a fully distributed cost allocation known as the "attributable cost" method.[3] The problems raised by fully distributed cost allocations have been well established in economics.[4] The fundamental problem with such prices is that, by design, they reflect only firms' costs and do not account for market demands. They are, therefore, inherently arbitrary because they do not reflect dynamic market forces, but instead follow from static cost assignment rules. Not surprisingly given their *ad hoc* nature, fully distributed cost prices can cause cross subsidization because the prices can exceed stand-alone costs.

If the FCC's "equal percentage markup" rule resulted in prices in excess of stand-alone costs, those prices presumably would be lowered so as not to violate the requirement in the *First Report and Order* that "sum of a reasonable allocation of forward-looking common costs and the total element long-run incremental cost of an element shall not exceed the stand-alone cost associated with the element."[5] However, as a result of its arbitrary nature, the equal percentage markup rule also can result in prices well below stand-alone costs and thereby prevent the recovery of forward-looking common costs.

Despite the manifold infirmities inherent in fully distributed cost-based prices, we show how to calculate the prices of unbundled network elements using the FCC's "equal percentage markup" in order to facilitate a comparison with M-ECPR prices. The attributable cost method assigns forward-looking common costs to each element according to that element's share of total TELRIC. That is, the method

---

2 *First Report and Order*, at ¶ 696.

3 STEPHEN J. BROWN AND DAVID S. SIBLEY, THE THEORY OF PUBLIC UTILITY PRICING (Cambridge University Press 1986); *see also* DANIEL F. SPULBER, REGULATION AND MARKETS (MIT Press 1989) at 130. As these authors show, under certain circumstances the attributable cost method yields Aumann-Shapley prices, which are axiomatic prices for cost allocation.

4 *See, e.g.*, DANIEL F. SPULBER, REGULATION AND MARKETS (MIT Press 1989) at 133; *see also* Braeutigam, R. (1980), *An Analysis of Fully Distributed Cost Pricing in Regulated Industries*, 11 RAND JOURNAL OF ECONOMICS 182; Baumol, W., Willig, R., and Koehn, (1987), *How Arbitrary is Arbitrary, or Towards the Deserved Demise of Full Cost Allocations*, 120 PUBLIC UTILITIES FORTNIGHTLY 16-21.

5 47 C.F.R. § 51.505(c)(1), in *First Report and Order*, Appendix B, at B-30.

assigns common costs according to an element's share of attributable costs. The attributable cost method can be expressed as follows:

$$\textit{Price of Unbundled Element} = \textit{TELRIC} + (y)(\textit{FLCC})$$

where:

TELRIC = Total Element Long Run Incremental Cost,
FLCC = Forward Looking Common Costs, and
y = an element's share of total attributable costs (i.e., total TELRIC).

The "equal percentage markup" rule yields an equivalent expression:

$$\textit{Price of Unbundled Element} = \textit{TELRIC}\,(1 + z/100)$$

where:

z = equal percentage markup over TELRIC.

Thus, in applying the attributable cost method, the first step is to calculate the relevant TELRICs, which are shown in column (A) of Table XIII-1, and then to determine each element's share of the total TELRIC (see column (B) of the table). The next step is to multiply each element's share of total TELRIC by total forward-looking common costs (see column (C) of the table). An element's total cost allocation equals the sum of the TELRIC (column (A)) and its share of forward-looking common costs (column (C)). Alternatively, we also can calculate the equal-percentage markup over TELRIC to be applied to each element so as to achieve the same cost allocation, in this case that markup equals 56 percent, as shown in column (D) of the table.

We now examine the unbundled network element prices that result from this application of the FCC's equal percentage markup rule. GTE's loop and port prices equal the appropriate TELRIC's multiplied according to the equal percentage markup rule, which yields a loop price of $36.27 and a port price of $7.03. Both these prices exceed GTE's proposed M-ECPR prices for unbundled loops and ports. This occurs as a result of the fact that the equal percentage markup rates exceed the cost of entrant's best available market alternatives. As noted, this can occur because fully distributed cost-based rates can exceed entrants' stand-alone costs, in violation of the requirement in the *First Report and Order* that unbundled network element prices not exceed stand-alone costs. As noted, the equal percentage markup rates for GTE's loops and ports presumably would be reduced to the level of the respective stand-alone costs.

In contrast, the equal percentage markup prices for GTE's unbundled switching services are less than GTE's proposed rates, which equal its effective rates for these rate elements. In this case, the FCC's method would prevent the recovery of forward-looking common costs from services with prices at or below stand-alone costs. Thus, the equal percentage markup rule penalizes GTE by lowering prices on services where its rates do not exceed entrants' stand-alone costs.

In sum, application of the FCC's equal percentage markup rule yields prices that will not enable GTE to recover its forward-looking common costs. Thus, even assuming, *arguendo*, that equal percentage markup prices were found acceptable, they would still necessitate a competitively neutral end-user charge so that the FCC's cost recovery mandate (i.e., that prices for unbundled network elements should recover the relevant TELRIC plus a reasonable share of forward-looking common costs) would be met.

TABLE XIII-1
FIXED ALLOCATOR OR ATTRIBUTABLE COST METHOD

Unbundled Network Element	(A) Long Run Incremental Cost ($ Million/Year)	(B) Share of Total Long Run Incremental Costs [4]	(C) Reasonable Share of Forward-Looking Common Costs [5] ($ Million/Year)	(D) Equal Percentage Mark-Up Over Total Element Long Run Incremental Cost (%) [6]
Loops	415.3	0.672	306.0	56
Local Switching	193.7	0.314	142.7	56
Tandem Switching	1.1	0.002	0.8	56
Transport [1]	7.5	0.012	5.5	56
Other [2]	0.0	0.000	0.0	56
Total	617.6 [3]	1.000	455.1	56

Notes
[1] Includes dedicated transmission links and common/shared facilities
[2] Includes databases and signaling systems, collocation, operator services, directory assistance, and subscriber numbers
[3] This total TELRIC is net of "other" costs
[4] Equals Column A divided by the sum of total element long-run incremental costs
[5] Equals Column B multiplied by the total forward-looking common costs
[6] Equals [(forward-looking total costs/forward-looking incremental costs) - 1] x 100

PART VIII

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF BERT I. STEELE

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR FULL NAME AND BUSINESS ADDRESS.

A. My name is Bert I. Steele. My business address is 600 Hidden Ridge Drive, Irving, Texas 75038.

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

A. I am employed by GTE Telephone Operations as Manager - Pricing and Tariff Support. In this capacity I have responsibility for supporting incremental cost models and their application to support the pricing of network services for all of the GTE Telephone Operations ("Company" or "GTE").

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I have a Bachelor of Science Degree in Mathematics from Gannon University and a Master of Engineering Degree in Engineering Science from Pennsylvania State University. I joined GTE in 1972 with General Telephone Company of Pennsylvania. During the course of my career with GTE, I have held various valuation engineering, marketing, product management, and regulatory positions throughout GTE Telephone Operations. I assumed my present position in January of 1994.

Approximately fourteen of my twenty-four years with GTE have been in the area of developing incremental costs for pricing decisions. I have taken a number of incremental cost and pricing courses from AT&T, Bellcore, United States Telephone Association ("USTA"), GTE and the University of Chicago. For seven years I have been an active participant of the USTA Economic Cost Analysis Subcommittee and the USTA Training/Education Work Group responsible for promoting awareness, understanding and proper application of economic principles. At present, I am the chairman of the USTA Economic Analysis Training/Education Work Group.

Q. HAVE YOU TESTIFIED BEFORE THIS OR ANY OTHER STATE REGULATORY COMMISSIONS?

A. I have testified on behalf of GTE's telephone operating companies as an expert witness in the area of incremental costing before numerous state public utility commissions including: Florida, California, Pennsylvania, Oklahoma, Wisconsin and Illinois.

COST STUDIES

Q. WHAT COSTING PRINCIPLES DID GTE EMPLOY IN DEVELOPING ITS TOTAL ELEMENT LONG-RUN INCREMENTAL COST ("TELRIC") STUDIES?

A. Exhibit No. BIS-1 to this testimony contains a detailed description of the cost study methodology and principles used by GTE to develop its TELRIC estimates for unbundled network services. Tab 1 of the

separately filed "GTE's Cost Submission" in this proceeding contains further discussion on GTE's costing method and models. The cost study methodology conforms to the long-run incremental cost study methodology documented by Federal Communications Commission in its First Report and Order dated August 8, 1996. Certain parts of the FCC's First Report and Order have been stayed. Although I reference some of its provisions in my testimony, I do not endorse all of the FCC's rules.

Q. WHAT COST STUDIES HAS GTE FILED IN THIS PROCEEDING?

A GTE's Cost Study Submission contains TELRIC estimates for certain "network elements" as well as Total Service Long-Run Incremental Cost ("TSLRIC") estimates for select bundled "services." The Company has provided TELRIC estimates for the following elements:

- Network Interface Device ("NID"): Basic and 12X
- Loops: 2-wire and 4-wire
- Local Switching
  - Ports: 2-wire analog and DS-1
  - End Office Switching: Originating and Terminating
  - Vertical Features
- Tandem Switching
- SS7 Signal Links: 56kb and DS-1
- SS7 Signal Transfer Point ports
- Transport: Common and Dedicated

Collocation element cost studies were also provided for:

- Network Access Cross Connection: DS-0, DS-1, and DS-3 levels
- Physical Engineering Fee
- Building Modification Charges
- Partitioned Space Rental
- DC Power
- Cable Space Charges

The GTE Submission also provides Service Provider Number Portability cost studies:

- Remote Call Forwarding per number ported
- Simultaneous Call paths

And it includes Service Ordering and Service Connection Activities.

In addition, TSLRIC studies were performed and submitted for other services that the Company offers (e.g., basic local service, vertical services, toll, and switched access). These studies were one of the components used in deriving the Company's total "forward-looking" costs for its services. This estimate of total forward-looking costs helped the Company to estimate its "forward-looking" common costs.

GTE's Cost Study Submission also includes its "Avoided Cost Study" analysis, which is a primary component of its recommended resale rates. This study and the resulting recommended price levels for resold services is the topic of GTE's Resale/Avoided Cost Presentation.

Q. WHAT DISTINCTION DOES GTE MAKE BETWEEN TELRIC AND TSLRIC STUDIES ?

A. GTE uses the terminology "TELRIC" when referring to network element cost studies and "TSLRIC" when referring to cost studies performed for GTE's current services.

Q. WHAT COST STUDIES ARE YOU SPONSORING?

A. I am presenting GTE's TELRIC and TSLRIC cost study methodology as described in Exhibit No. BIS-1 to my testimony. I am also sponsoring GTE's TELRIC and TSLRIC study results with the exception of non-recurring charges (i.e., service order cost studies), collocation and avoided costs. The cost study process and results for these three items are being handled by other witnesses in the proceeding.

Q. YOUR EXHIBIT NO. BIS-1 DOCUMENTS GTE'S TELRIC AND TSLRIC METHODOLOGY. PLEASE PROVIDE AN OVERVIEW OF GTE'S METHODOLOGY.

A. The cost study prepared for this proceeding is a very special type of cost study which captures the impact of providing loops, switching and transport network elements. In this regard, all of the forward-looking costs for loop facilities are assigned to loop network elements, all of the forward-looking costs for switching are assigned to switching network elements and all of the forward-looking costs for transport are assigned to transport network elements. None of the

Q. WHAT DISTINCTION DOES GTE MAKE BETWEEN TELRIC AND TSLRIC STUDIES ?

A. GTE uses the terminology "TELRIC" when referring to network element cost studies and "TSLRIC" when referring to cost studies performed for GTE's current services.

Q. WHAT COST STUDIES ARE YOU SPONSORING?

A. I am presenting GTE's TELRIC and TSLRIC cost study methodology as described in Exhibit No. BIS-1 to my testimony. I am also sponsoring GTE's TELRIC and TSLRIC study results with the exception of non-recurring charges (i.e., service order cost studies), collocation and avoided costs. The cost study process and results for these three items are being handled by other witnesses in the proceeding.

Q. YOUR EXHIBIT NO. BIS-1 DOCUMENTS GTE'S TELRIC AND TSLRIC METHODOLOGY. PLEASE PROVIDE AN OVERVIEW OF GTE'S METHODOLOGY.

A. The cost study prepared for this proceeding is a very special type of cost study which captures the impact of providing loops, switching and transport network elements. In this regard, all of the forward-looking costs for loop facilities are assigned to loop network elements, all of the forward-looking costs for switching are assigned to switching network elements and all of the forward-looking costs for transport are assigned to transport network elements. None of the

costs, from a cost study objective perspective, for loops, switching or transport facilities are assigned to GTE's common costs. Stated another way, all of the these forward-looking costs are included in the per unit TELRIC and TSLRIC results, respectively. Accordingly, the "cost objects" are the wholesale network elements not the retail services. This is consistent with the FCC First Report and Order ("Report"), which states in Paragraph 690, for example: "***The increment that forms the basis for a TELRIC study shall be the entire quantity of the network element provided.***"

Q. ARE THE LONG-RUN INCREMENTAL COST STUDY RESULTS ESTIMATES OF GTE'S ACTUAL FORWARD-LOOKING COSTS?

A. Yes. GTE's cost study results are forward-looking and representative, to the extent possible, of the future costs expected to be incurred by GTE. These long-run incremental cost study results are not for a hypothetical carrier nor are they representative of the costs for a new entrant. Rather, all input prices for equipment, installation, maintenance, repair and other expenses are estimates of GTE's future costs. These input prices are based on the most efficient outcome available to GTE as neither a hypothetical nor embedded view is appropriate for determining long-run incremental costs for the LEC. Forward-looking costs for the actual carrier in question should be used to perform TELRIC and TSLRIC studies.

Q. DO THE COST STUDY RESULTS PROVIDE CONSERVATIVE ESTIMATES OF GTE'S LONG-RUN INCREMENTAL COSTS?

A. Yes. The TELRIC and TSLRIC studies performed by GTE are conservative in that they do not adjust for the overall change in risk created by the introduction of competition intended by the Telecommunications Act of 1996. In addition, the cost study models currently available to GTE and the resulting input factors assume, for the most part, that GTE is the sole provider of loop, switching and transport facilities in the local network. This fact alone tells us that the cost numbers must be lower bound estimates of GTE's future costs since most certainly the marketplace will experience facility-based entry.

Depreciation rates and cost of capital should be adjusted to account for risks that a carrier incurs. Depreciation rates, in particular, should be adjusted for declining technology costs, sunk investments and rapid technology change. As even the FCC noted in the Report, an increase in risk due to entry into the market can increase the LEC's cost of capital. However, due to time constraints imposed by the Telecommunications Act, GTE was unable to adjust its depreciation lives for sunk investments and declining technology costs. In addition, the cost of capital used is based on GTE's current capital structure and rate of return. The cost of capital, therefore, was not adjusted to account for changes in risk.

Q. DO THE GTE TELRIC RESULTS INCLUDE COMMON COSTS?

A. No, there are no common costs incorporated in GTE's TELRIC results. Common costs, therefore, are addressed from a cost recovery or pricing perspective rather than from a per unit TELRIC perspective.

Q. WHY DOES GTE's COST STUDY SUBMITTAL INCLUDE LOOP COST STUDY RESULTS FROM THE BENCHMARK COST MODEL - VERSION 2 ("BCM II")?

A. The BCM II results provide an independent estimate of GTE's two-wire loop costs. A comparison of the GTE TELRIC for two-wire loops with the BCM II results provides a further reflection of the conservative nature of GTE's cost studies. (The following companies have taken an active role in sponsoring BCM: Sprint, US West, and NYNEX. See "Benchmark Cost Model," submitted to the FCC, CC Docket No. 80-286, September 12, 1995. BCM II development has been led by Sprint and US West.)

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Docket No. 961169-TP
Docket No. 961173-TP
Direct Testimony of Bert I. Steele
Exhibit No. BIS-1
FPSC Exhibit No. _____

GTE TELEPHONE OPERATIONS
TELRIC/TSLRIC METHODOLOGY

I. SUMMARY

This document presents a complete overview of the manner in which GTE develops costs for its services and its basic network functions (BNFs), which are the components that typically constitute a service. The type of cost developed for both BNFs and services is Total Service Long Run Incremental Cost (TSLRIC). TSLRIC, by design, does not incorporate any common cost and, as such, cannot be used for pricing without adjustments to reflect the total cost of doing business.

A TSLRIC is a very special type of cost that tries to capture the incremental impact of providing a service (or network element), such as basic loop.[1] Contained within this service definition is a collection of services provided to residence, business and carrier customers, such as residential local exchange service, business local exchange service and unbundled loop service. The TSLRIC, as a cost, is characterized by the basic principles that help to define it. These principles establish the increment of study, the conditions under which a cost should be included, the range of options to consider, the means of selecting between options, and the set of costs to be excluded.

Based on this set of principles, and on a set of engineering process cost models for switching, transport, outside plant and signaling, GTE develops costs for its

---

[1] In its recent First Report and Order (CC Docket No. 96-98), the FCC states: "While we are adopting a version of the methodology commonly referred to as TSLRIC as the basis for pricing interconnection and unbundled elements, we are coining the term 'total element long run incremental cost' (TELRIC) to describe our version of this methodology." The Commission explained that TELRIC refers explicitly to discrete network elements, such as local loops and switching, in contrast to TSLRIC, which refers to conventional services such as interstate access service and local residential or business exchange service. The Commission also suggested that a TELRIC study likely would account for a greater percentage of a carrier's total costs than would a TSLRIC study.

The distinction between TSLRIC and TELRIC, thus, is one that relates to the object of study (e.g., retail services versus unbundled network elements). There is no distinction between the two regarding the fundamental long run incremental cost methodology. This methodology states that the LRIC for a service or element is equal to the total costs of the carrier with that service or element minus the total costs without that service or element. In its LRIC studies of both services and elements, GTE has followed this same methodology, which is also the methodology presented in the Commission's First Report and Order. Of course, whether or not the Commission's hypothesis that a TELRIC study would account for a greater percentage of a carrier's total costs than would a TSLRIC study is an empirical question, and the Commission's Order offers no evidence on that point.

services and for BNFs. The modeling process consists of first isolating and expressing on a unit basis the costs that change with the volume of service and then of associating with each unit a share of the fixed and standby capacity costs that do not vary with the level of output. Both these volume sensitive and volume insensitive costs need to be included with a properly developed TSLRIC.

The use of TSLRIC presents limitations that must be kept in mind. As a pricing tool, the user of a TSLRIC must first resolve how to appropriately modify it to account for common costs explicitly excluded by the principles. Although these costs are generally substantial, there are no clearly defined cost causative principles that dictate how to assign them to services. In addition, the TSLRIC, as it is developed today by GTE's models, is based on a narrow definition of the principles that ignores the costs of an uncertain environment: the world as it is postulated assumes all demand is known and static. This same method of TSLRIC should be refined to capture the interrelationship between the industry with rapidly changing technology and increased risk. This interrelationship is reflected in the adjustment of plant lives and the cost of money.

II. Definition of TSLRIC

TSLRIC is defined as the additional cost incurred by the company to produce the entire output of a particular service, holding constant the production of all other services produced by the company. In other words, TSLRIC is equal to the company's total cost of producing all of its services, assuming the service in question is offered, less the company's total cost of producing all of its services without the service in question. Strict adherence to this definition of TSLRIC would involve the preparation of two major cost studies, with the total costs calculated in one study subtracted from the total costs calculated in the other. However, it would be extremely difficult and complex to estimate TSLRIC in this manner. Instead, an estimate of TSLRIC is completed in a manner that can be calculated directly for the network element or service in question. Consistent with this approach, GTE has estimated the TSLRIC for its services by deriving the volume sensitive (variable) and volume insensitive (fixed) costs for each service.

III. TSLRIC Principles

Principle No. 1: Long run implies a period long enough so that all costs are avoidable.

Long run is a period of time long enough so that all costs are treated as avoidable. Variable, as a term, is synonymous with volume sensitive and therefore not synonymous with avoidable. Avoidable costs include both volume sensitive and volume insensitive costs.

Principle No. 2: Cost causation is a key concept in incremental costing.

Cost causation is a consistent and fundamental principle of TSLRIC studies. The principle of cost causation should be utilized to determine the appropriateness of including a cost in a TSLRIC study. The basic principle of cost causation is that only those costs that are caused by a cost object in the long run should be directly attributable to that cost object. Costs are considered to be caused by a cost object if the costs are brought into existence as a direct result of the cost object or, in the long run, can be avoided when the company ceases to provide the cost object.

For example, within the telecommunications industry, the principle of cost causation is best viewed from the standpoint of providing a service and what costs are necessary to offer that service. All costs caused by a decision to offer a service should be included in a TSLRIC study of that service.

Principle No. 3: The increment of the study should be the entire output of the service (or group of services) under study.

The methodology and associated TSLRIC studies are intended to answer the specific cost question: "What is the change in the company's costs due to offering or not offering the service?" Consistent with this definition, TSLRIC studies shall provide a measurement for the entire service under study. The TSLRIC results, therefore, will include both the volume sensitive and volume insensitive costs. The volume sensitive costs represent costs that change with output. The volume insensitive costs are fixed with respect to a given output, yet are incremental with the service offering.

Principle No. 4: All costs shall be forward-looking and reflective of the costs expected to be realized by the company.

TSLRIC studies shall be forward looking and representative, to the extent possible, of the future costs expected to be incurred by the company. TSLRIC studies do not necessarily reflect a company's embedded base facilities. Rather, studies shall account for the most efficient and cost-effective means available to the company. The technologies addressed shall be known and actually are being deployed by the company.

Principle No. 5: Common Costs are not part of a TSLRIC study, except for a TSLRIC study for the company as a whole. Recovery of those costs should be a pricing issue.

TSLRIC studies should include costs that are often called overhead costs, if those costs are caused by the decision to offer the cost object. TSLRIC studies of individual services should exclude overheads that are not demonstrated to be caused by the cost objects. Recognition of such costs will be treated as a pricing issue. No cost should be assumed to be volume insensitive shared or common costs on the basis of its accounting treatment.

IV. GTE's TSLRIC Methodology

A. Overview

GTE's TSLRIC methodology incorporates a two-step process to identify the total costs for a given service offering. In the first step, the TSLRIC method identifies the volume sensitive costs. The volume sensitive costs represent the costs that vary with changes in the level of output for the service. The second step identifies the volume insensitive costs for the service. The volume insensitive costs represent the costs that are fixed with respect to changes in output, yet are incremental with the offering of the service. The results of the TSLRIC cost study represent the sum of the volume sensitive and volume insensitive costs.

The GTE methodology determines the TSLRIC associated with being in the loop, switching and transport business. The cost objects or services under evaluation are generic loop, switching and transport units of production. Within this approach, the TSLRIC for a voice-grade loop, for a specific distance and density, is the same regardless of the customer "type" ordering the service (i.e., a business customer versus a residential customer). Likewise, the TSLRIC for a minute-of-use for an outgoing call is the same for a local, EAS or toll call. This approach to TSLRIC analysis is particularly attractive because it brings to the

surface cost information that is both easy to understand as well as consistent with the principles listed above. The approach assigns, on an equal and uniform basis, all of the forward-looking costs attributable to loops, switching and transport to the services that cause GTE to incur these costs. Accordingly, the costs associated with GTE's loop, switching and transport networks are identified and included in the service-specific TSLRIC studies. None of these facility-related costs are treated as shared or common.

Because incremental cost studies deal with forward-looking costs, one must have a means of assessing the future technologies from which products and services will be provided. GTE has performed such assessments for loop, central office switching and interoffice transport technologies. GTE's current and future plans identify the technologies that are expected to experience growth. Certain embedded technologies and vendor-specific embedded products are not experiencing growth, and these embedded technologies and products are not incorporated in GTE's TSLRIC studies.

GTE's TSLRIC studies incorporate a mix of copper and pair-gain facilities to satisfy the technology requirements for voice grade loops. Fiber facilities are used for loops at the DS-1 and DS-3 levels (i.e., 1.544 Mb/s and 45 Mb/s digital transmission levels). The predominant switching technology used by GTE to satisfy future growth is digital, and it is the sole technology used in the TSLRIC studies. Lucent 5ESS ("5ESS"), NTI DMS ("DMS") and AGCS GTD-5^{R} EAX ("GTD-5") digital switching technologies were analyzed to determine the cost of switched-based network services. Further, the predominant interoffice transmission technologies used by GTE to satisfy future growth are fiber optics facilities. Accordingly, fiber optic system costs are examined in GTE's TSLRIC studies for interoffice transport.

GTE utilizes engineering process models (e.g., COSTMOD System and SCIS) to measure the incremental costs of local, toll, switched access, unbundled loops, unbundled ports and other network services. The models, by definition, are designed to directly and explicitly reflect the underlying production technology by duplicating the processes required to engineer and provision the particular production function under review. Production units required to satisfy the desired demand are developed based on a set of engineering design criteria. The resulting production units are then multiplied by their respective unit costs, using a price list developed by component, to determine the associated investments. The engineering design criteria are determined based on the technology under review and reflect the network design standards used by GTE.

GTE TELEPHONE OPERATIONS
TELRIC/TSLRIC METHODOLOGY

Engineering process models are appropriate for telecommunications services since a discrete and well defined set of standard engineering design criteria are undertaken during the network design process. These algorithms and practices are readily incorporated into engineering process model equations. The necessary technology-specific technical information is available from vendors and GTE engineers.

GTE uses the COSTMOD System (COST MODel System), including the Bellcore SCIS (Switching Cost Information System) model, to measure the costs of the various network services. The COSTMOD System ("COSTMOD") is an integrated cost development tool that employs various "Technology Modules" and "Application Modules" to model the costs of services utilizing loop, switching and transport facilities. The models are populated with company specific information required by the models to size and determine the number of associated production units. This includes office/system size, technology, traffic data and mileage information, along with other information needed to run the models.[2] The following modules are contained in the COSTMOD System.

The Technology Modules include:

- Loop Technology Module (for voice grade applications);
- GTD-5 Switching Technology Module;
- Fiber Optic Technology Module;
- DMS Switching Technology Module (via the Bellcore SCIS model);
- SS7 Technology Module (System Signaling Seven -- out-of-band signaling);
- Lucent 5ESS Switching Technology Module (via the Bellcore SCIS model).

The Application Modules include:

- Usage Application Module (calls and minutes for local, toll, switched access);
- GTD-5 Switching Features Application Module (for custom calling and other features);
- DMS Switching Features Application Module (for custom calling and other features via SCIS);
- Lucent 5ESS Switching Features Application Module (for custom calling and other features via SCIS).

[2] A description of the COSTMOD System, including SCIS, is provided in Appendix 1.

The COSTMOD System provides the technology and application modules necessary for modeling costs. The technology and application modules are used in different combinations for assessing costs. The technology modules provide the costs for the technologies (e.g., fiber optic systems) under investigation, without regard to use or application. When the technology modules are used in conjunction with an application module, the costs for GTE services are identified.

In practice, the technology and application modules are linked or combined to assess the costs for network services. In order to estimate the costs for a network element or service, a user of the COSTMOD System must first identify the relevant technology modules needed to support the element or service. Each technology module provides the investment costs for each cost category, or cost driver (e.g., cost per busy hour centrum call second). The unit investments provided by each technology module are then passed to the relevant application module where, along with user-input feature or service data, they are applied to determine the incremental cost for the element or service under study (e.g., minutes and calls via the usage application module).

The production unit-dependent investments provided by the engineering models are converted into the per-unit costs of providing GTE's services, based on annual cost factors. These annual cost factors represent the relationship between plant investment and expenses incurred by GTE. These state-specific cost factors are identified by USOA (Uniform System of Account) categorization reflecting the forward-looking technology under analysis. The annual cost factors include depreciation, return, income taxes, maintenance and repair, customer operations and miscellaneous taxes (e.g., ad valorem tax, gross receipts tax).[3]

B. Modeling Process

1. Service Mapping

Most of the services provided by a telecommunications company can be perceived to consist of various functional components. Some of these components represent primary network functions that are designated "basic network functions" or "BNFs." Other components, such as billing and collection, are non-network related and are designated non-BNF components. The following table provides an example of the relationship between services (i.e. Local Exchange and Toll Services) and their components. The mapping is

[3] Customer operations expenses are the only "administrative costs" identified in GTE's TSLRIC studies.

broken into two categories: BNF Components and Non BNF Components. Table 1 below shows how local exchange and toll services are mapped into different components.[4]

Table 1
Mapping of Cost Components to Services

Service	BNF Component	Non-BNF Component
Local Exchange Service	Network Access Channel Basic Level Network Access Channel Connecton-Basic Analog Level-Switch Interface Network Access Channel Connecton-Basic Level Intraoffice Call Setup Intraoffice minute-of-use (MOU) Outgoing Call Setup Outgoing MOU Incoming Call Setup Incoming MOU Tandem Call Setup Tandem MOU Sw. Transport Per Setup Termination Sw. Transport Per MOU Termination Sw. Transport Per Setup Per Air Mile Sw. Transport Per MOU Per Air Mile Measurement (if a Measured Service) DTMF	Billing and Collecton Directory Assistance Directory Terminating Access Charges
Toll Service	Outgoing Call Setup Outgoing MOU Incoming Call Setup Incoming MOU Tandem Call Setup Tandem MOU Sw. Transport Per Setup Termination Sw. Transport Per MOU Termination Sw. Transport Per Setup Per Air Mile Sw. Transport Per MOU per Air Mile Measurement	Billing and Collecton Terminating Access Charges

2. Estimating the TSLRIC

TSLRIC includes both volume sensitive and volume insensitive costs. As previously stated, the TSLRIC for a service is estimated by a two-step approach. The first step is to estimate the volume sensitive costs for the service, and the second step is to incorporate the volume insensitive costs to determine the TSLRIC for the service.

Volume sensitive costs are determined by the engineering process models in conjunction with the annual cost factors previously addressed. The engineering models simulate the investment of providing the BNF and associated service on

[4] A description of the basic network functions (i.e., BNFs) is provided in Appendix 2.

a forward-looking basis, based on a host of parameters (e.g., loop length, central office size, call volumes, holding times, transport distance, etc.). These investment costs are converted into monthly costs using annual cost factors for depreciation, return, income taxes, maintenance and repair, customer operations and miscellaneous fees and taxes (e.g., ad valorem tax, gross receipts tax).

GTE has developed a series of engineering process models within its COSTMOD System to develop investment costs. GTE also uses Bellcore's Switching Cost Information System (SCIS) to develop switch-related costs associated with the DMS (Nortel) and 5ESS (Lucent Technologies) switches. The GTE engineering process models, which reflect the long run view of costs, account for advancement or delay in investment attributable to changes in output for network services. The models provide good estimates of this causal relationship when a production component is divided by its usable capacity. This capacity cost calculation essentially smoothes the "lumpy" investment to account for the advancement or delay of future costs due to the change in output. It provides a good measurement of the volume sensitive cost for telecommunications BNFs and associated services.

The following table summarizes the engineering process models used by the Company to estimate volume sensitive costs:

GTE TELEPHONE OPERATIONS
TELRIC/TSLRIC METHODOLOGY

Table 2

Summary of Engineering Process Models

Engineering Process Model	Output
Loop Technology Module	- Network Access Channel Basic Level
GTD-5 Switching Technology Module	- Network Access Channel Connection-Basic Analog Level Switch Interface - Touch Call (DTMF) - Cost input for Usage Services Application Module - See Below
DMS Switching Technology Module 5ESS Switching Technology Module (via Bellcore SCIS model)	- Network Access Channel Connection-Basic Analog Level Switch Interface - Touch Call (DTMF) - Cost input for Usage Services Application Module - See Below
Fiber Optic Technology Module	- Transport Per Termination (Voicegrade, DS1, DS3) - Transport Per Air Mile (Voicegrade, DS1, DS3) - Also used as input into Usage Service Application Module - See Below
SS7 Technology Module	- Input into Usage Services Application Module - See Below
Usage Services Application Module	- Intraoffice Call Setup - Intraoffice MOU - Outgoing Call Setup - Outgoing MOU - Incoming Call Setup - Incoming MOU - Tandem Call Setup - Tandem MOU - Measurement - Sw. Transport Per Setup Termination - Sw. Transport Per MOU Termination - Sw. Transport Per Setup Per Air Mile - Sw. Transport Per MOU Per Air Mile

The last component of TSLRIC is the volume insensitive costs. The volume insensitive costs represent the costs associated with standby capacity. GTE must have sufficient capacity to service its customers on a ready-to-service basis. In this industry, the nature of the service and the market expectation have made the service delays unacceptable. Accordingly, GTE must install sufficient capacity in its network in advance of the realization of customer demand. The cost of this "standby capacity" is a necessary component of the TSLRIC studies for GTE's services. The cost for standby capacity was determined for loops (feeder) and transport based on examination of GTE's forward-looking objective utilization levels in conjunction with the forward-looking actual utilization levels required to support GTE's "standby" obligation. The volume insensitive costs for switching were identified by using the COSTMOD and SCIS models. In this case, the volume insensitive costs represents the difference between the total cost, by technology type, and the total volume sensitive costs. Taking these

costs into account in this manner assures that the entire cost of the network facility is included in the TSLRIC calculation.

3. Company Specific Expenses

The following expenses items are included in GTE's service-specific TSLRIC studies:

- Depreciation;
- Return;
- Income Taxes;
- Plant Specific Maintenance and Repair (by technology);
- Central Office Land and Buildings;
- Customer Operations (e.g. Sales);
- Miscellaneous Fees and Taxes (e.g., ad valorem tax, gross receipts tax).

The following expenses items are not presently included in GTE's service-specific TSLRIC studies. These costs are specific to service groups offered by GTE or are common to the GTE as a whole.[5] It is not unusual for these costs to range from 35% to 45% of a company's total costs:

- Plant Specific Expenses - network support, general support, and general purpose computers (adjusted for data processing costs for billing production);
- Plant Nonspecific Expenses;
- General Support Assets - furniture, office support equipment, company communications equipment, and general purpose computers;
- Land and Buildings (other than Central Offices);
- Indirect Labor - indirect support/supervision and indirect departmental labor expenses;
- Corporate Expenses;
- Other Taxes and Fees, such as local franchise taxes, federal superfund taxes, local and state business license and occupation taxes.

[5] GTE's current TSLRIC studies rely on the accounting treatment of "overhead or common" expenses . See Principle No. 5 and Model Limitations.

V. Model Limitations

As with any model, it is important to understand the limitations of TSLRICs, as currently developed. First, the TSLRICs cannot be directly used to determine prices for services. Based on principle 5, which states that common costs should be excluded, it is clear that common costs will not be covered if all services are priced at TSLRIC. All of the services must be marked-up to cover common cost if the firm is to stay in business. The TSLRIC principles provide no guidance on how services are to be marked-up. Second, TSLRICs tend, for various reasons, to be conservative estimates of GTE's cost of business.

A. Impact of Uncertainty, Competition and Growth

TSLRIC studies, as they are conducted today, assume that input price and demand are known with certainty. This assumption can have a significant impact on the cost of service. In the case of demand, it is typically assumed that for any wire center location and surrounding service area, the customer base is in place and will not change in the future. In the case of input prices, such as switch cost, it is assumed that all prices are known, available to all participants, and unchanging in the future. In actuality, demand is neither static nor known with certainty at the time plant is installed, nor is the costs of equipment known and unchanging over time.

Modeled costs for a known, static demand have efficiencies and economies of scale and scope that can never be achieved. Actual demand requires smaller, more costly quantities to offset the uncertainty in demand (e.g., feeder loop plant). In high growth areas, this cost can be substantial, since the uncertainty in demand and the frequency of additions increase with growth rate. In addition, as the market becomes more competitive, actual demand will become more uncertain and plant utilization and cable sizes will drop as market share erodes, driving up the cost.

In the case of investment, uncertainty will lead directly to higher costs of capital and shorter plant lives. Potential drops in input prices which, according to the model, translate into lower prices and lower margins will result in either delays in investing by the firm or shorter plant lives to allow the recovery of the investment before prices drop. This same potential squeeze on margin will also result in investors requiring a higher return on their money to cover the risk.

B. Other Factors

TSLRIC estimates tend to be conservative for a variety of reasons other than uncertainty, competition and growth. One of the more significant reasons is due to the difference between the accounting definition of common costs and the TSLRIC definition of common cost. The accounting definition of common cost includes many items which are, in reality, service specific but separated from the service by the way in which they are accounted for on the books. Another reason why the TSLRIC results are conservative is the modeling process. Models, by design, assume a standard environment which does not reflect any of the potentially high cost anomalies which can occur. Densities are generally assumed to be uniform, soil conditions average, traffic and weather conditions standard, and catastrophes like earthquakes, hurricanes and floods never happen.

VI. Appendixes

A. Appendix 1: COSTMOD System (including SCIS)

B. Appendix 2: Basic Network Function (BNF) Definitions

GTE TELEPHONE OPERATIONS
COSTMOD System (including SCIS)

INTRODUCTION

This narrative provides a description of the methodology used by GTE in estimating the long run incremental costs associated with various network services. The costs developed by this approach are GTE's estimates of the long-run incremental costs of providing such services. The costs of installing and maintaining loop, switching, and transmission facilities, including directly associated operating expenses (developed externally via annual cost factors) are identified by the **family of cost models comprising the CostMod System**.

By definition, a model is a representation of something real; it shows relationships among variables and can be used to predict or explain a process or mechanism, such as an OSP facility incorporated in a telecommunications network. Despite their utility, however, one must recognize all models for what they are -- artificial representations for real-world processes or mechanisms, and as such, they have practical shortcomings. The criteria by which a particular modeling technique is selected should seek to minimize these inadequacies.

There exists a number of modeling techniques which may be employed in estimating network service costs. Foremost among these techniques are engineering process models, which, by definition, are designed to directly and explicitly reflect the underlying production technology by attempting to duplicate the processes required to engineer and provision the particular production function under review, given certain inputs. Production units that are required to satisfy the desired traffic load are developed based on a fixed set of rules. The resultant production units are then multiplied by their respective unit costs (based on some "master price list" developed by component part number) to determine the associated investment. It should be noted that these "rules" are defined consistent with the technology under review, and should be expected to change from technology to technology, and from vendor to vendor.

Engineering process models are perhaps the most appropriate for the telecommunications industry, since a discrete and well-defined set of standard engineering procedures are undertaken during the network design process. These algorithms and practices, such as the use of Erlang-B or Poisson tables to determine the optimal number of interoffice trunks for a given traffic load and desired grade of service, are readily incorporated into engineering process model equations. Furthermore, the various technology-specific information is also available from

manufacturers. The models employed by GTE Telephone Operations and described later in this narrative follow this approach to network services cost development.
GTE Telephone Operations utilizes engineering process model techniques to estimate costs. For example, the transport cost models are based on the production functions inherent in DS-1/DS-3 digital transmission facilities that are typically used to provide interoffice trunking, while the switching cost models are based on the production functions inherent in digital stored program control (SPC) switching facilities that are typically used to provide switched network services. The models determine the appropriate input combination (e.g., processors, memory, cable, repeaters, etc.) for producing any given level of output (e.g., call attempts, CCS, circuits), based upon the engineered capacity that is provided to accommodate demand (e.g., ABSBH). The units in which inputs are purchased are called production units. The investment required to purchase each production unit depends upon the type of digital technology involved. Further details for each model are provided in their respective narratives.

The GTE-developed CostMod System is a PC-based, user-friendly, integrated cost development tool that employs various **"Technology Modules"** (e.g., loops, digital stored program control (SPC) switching, digital transport, etc.), along with various complementary **"Application Modules"** (e.g., usage services, vertical services, etc.) to produce "cost models" applicable to a large portion of the GTE Telephone Operations network service spectrum. Development of this system is a multi-phase, long-term endeavor that began several years ago and will continue for some time to come.

The PC CostMod Release 2.0 & 2.1 models, reflecting the GTD-5 EAX digital SPC switching technology (AG Communication Systems) up to and including System Version Release (SVR) 1.6.2.1, represented Phase-I of this evolutionary process. This involved the migration of a mainframe computer program to a PC platform. While this cost model integrated both digital SPC switching and digital transport to determine costs for usage services, it made no provision for the costing of the various special features or "vertical services" (e.g., call waiting, call forwarding, Centrex features, etc.) available with the GTD-5 EAX technology. In response to this need, the CostMod VS model, representing Phase-II of the CostMod System evolution, was designed primarily to assist in the cost development process for these special features available with the GTD-5 EAX digital SPC switching technology under SVR 1.6.3.X.

This cost model is derived from the **"GTD-5 EAX Switching Technology Module"** of the CostMod System, which develops the resource costs (i.e., cost primitives) for each "functionally significant" switching resource category, and the **"GTD-5 EAX Switching**

Application Module" of the CostMod System, which applies the cost primitives to user-input feature-specific traffic data in order to develop the investment associated with individual vertical service features. Release 1.4 of the CostMod VS model includes 380 special features and services available with the GTD-5 EAX digital SPC switching technology under SVR 1.7.1.1. Due to its modular design, the model is easily expanded as new features are developed by the manufacturer and released in future SVRs.

Comparable costs for the DMS-10 and DMS-100F (Northern Telecom), and the 5ESS (AT&T Network Systems) digital SPC switching technologies are developed via the Bellcore "Switching Cost Information System" (SCIS). GTE uses this model under license agreement with Bellcore. This "cost model" comprises the **"DMS-10 Switching Technology Module,"** the **"DMS-100F Switching Technology Module,"** and the **"5ESS Switching Technology Module"** of the CostMod System, which develop the resource costs (i.e., cost primitives) for each "functionally significant" switching resource category, and the **"DMS-10 Switching Application Module,"** the **"DMS-100F Switching Application Module,"** and the **"5ESS Switching Application Module,"** of the CostMod System, which apply the cost primitives to user-input feature-specific traffic data in order to develop the investment associated with individual vertical service features.

Phase-III of the CostMod System evolution incorporated digital transport facilities, local loops, and SS7 network costs via the **"DS-1 Technology Module," "Fiber Optic Technology Module,"** the **"Loop Technology Module,"** and the **"SS7 Technology Module,"** respectively, while Phase-IV reflected usage costs coincident with their respective tariff format via the **"Usage Services Application Module."** This module will provide the capability for a cost analyst to apply different rate structures (e.g., first minute/additional minute, per message/per minute, etc.) to the cost primitives developed in the various technology modules in order to determine the cost for usage services (e.g., local, toll, access). The CostMod System continues to evolve into a world-class costing tool and is widely used in the cost study process by GTE Telephone Operations.

GTE TELEPHONE OPERATIONS

COSTMOD System (including SCIS)

LOOP TECHNOLOGY MODULE

The **CostMod System "Loop Technology Module"** (Loop Model) is an engineering process model that is used to develop the incremental costs associated with loop facilities. The Loop Model replicates the processes and adheres to the same standards that an engineer would follow in designing and provisioning loops. It employs forward looking technology and includes only those technologies that are currently being installed or those planned for future use. The Loop Model is a flexible costing tool that allows the user to develop costs for either an all copper loop or a copper loop with fiber feeder (i.e., pair gain). Originally designed as a research tool to study loop costs, the model permits the user to easily examine how loop costs vary with length, distribution of plant, and central office size. It is applicable for all switched services as well as for non-switched services (e.g., DDS, voice, or data private lines) that require a loop.

The Loop Model employs GTE standard engineering designs that reflect the configurations and technologies currently being provisioned in the loop. These engineering designs indicate that there are two basic technologies in widespread use. The first technology employs copper cable for both feeder plant and distribution plant. Here, the terms "feeder" and "distribution" are used loosely -- there is no universally acceptable technical definition of the demarcation point between feeder and distribution facilities, particularly in the case where all copper facilities are used. It is generally accepted that feeder cables are larger in size and are engineered to an objective fill level (e.g., 85%) for a specific time frame (e.g., 5 years). Distribution cables, on the other hand, are usually smaller in size and are engineered to their ultimate capacity (i.e., total demand or output for a subdivision).

The second technology is fiber feeder cable to a remote pair gain device with copper cable used for the distribution to the customer. This technology is used for longer loops and to serve pockets of subscribers or remote areas from a centrally located serving wire center. This is one of the few instances where there is a clear demarcation point between feeder and distribution. For switched services, pair gain devices can be either "integrated" (i.e., interface directly with a digital switch at the 1.544 Mb/s level) or "non-integrated" (i.e., interface the switch through a Central Office Terminal - COT). For non-switched (e.g., for Private Line Services) the pair gain device must terminate on a COT.

The Loop Model determines the equipment units and their respective cost as well as the associated engineering and installation labor. The total investment is then divided

by the unit capacity to determine the unit cost. For example, a 1,200 pair cable with a unit cost of $10.00 per foot plus engineering labor of $1.00 per foot and installation labor of $2.00 per foot results in a $13.00 per foot total cost. Dividing this by the capacity (i.e., 1,200 pair) yields a cost per pair foot of $.011. The typical loop requires investments for the following items:

1. Cable - copper and/or fiber (depending on design) including aerial, underground, and buried.

2. Customer premise connections - the equipment which terminates the loop at the customer location (e.g., Drop Cable & Protector).

3. Central Office connectors - the equipment which terminates the loop at the central office (e.g., Main Distribution Frame and Protector).

4. Other equipment - including channel banks, repeaters, cross-connects, multiplexers, pair gain, or any specialized equipment required by the service.

Cable costs are developed based on GTE standard material costs and labor hours, along with jurisdictional specific financial factors. An effort was made to ensure that all significant components, both singularly and in the aggregate, were included in the loop cost. GTE standard labor hours, developed by labor group categories, are multiplied by the appropriate labor rates for the jurisdiction under review to develop a labor cost. The actual mix of cable type and size can be developed in two ways. In one case, the user inputs the loop length, central office size, and the aerial, buried, and underground fraction of plant. From this information, a default loop make-up would be generated, consisting of cable segments by size, type, and length. In the other case, the user directly inputs the loop make-up to be analyzed.

Support equipment such as load coils, conduit, poles, and VF repeaters are added to the loop based upon GTE standard engineering guidelines for the type of plant. Loop length and plant mix are typically developed based upon a sample of loops currently providing the service under study, as an estimate of a prospective loop makeup. For example, if residential lines are being studied, a sample of residential lines would be taken to determine average loop length. This information can then be entered into the model.

Adjustments for capacity utilization (i.e., fill factors) are left to the discretion of the user. The model generates an outside plant network of sufficient size to meet the demand parameters input by the user. Loop Model outputs reflect investment by 6-digit USOA plant account.

COSTMOD VS MODEL
(AGCS GTD-5 EAX Switching Technology/Application Modules)

The CostMod VS model was designed specifically to assist GTE Telephone Operations pricing personnel in the cost development process for the various special features or "vertical services" available with the AGCS GTD-5 EAX digital stored program control (SPC) switching technology under System Version Release (SVR) 1.7.1.1. This cost model is derived from the **"GTD-5 EAX Switching Technology Module" of the CostMod System**, which develops the resource costs (i.e., cost primitives) for each "functionally significant" switching resource category, and the **"GTD-5 EAX Switching Application Module" of the CostMod System**, which applies the cost primitives to user-input feature-specific traffic data in order to develop the investment associated with individual vertical service features. It is similar to the Bellcore-developed "Switching Cost Information System" (SCIS), which develops switching costs for several alternative switching technologies, including the AT&T 5ESS and Northern Telecom DMS-100F. The CostMod VS model is a PC-based, interactive cost development tool that develops the long-run incremental costs (LRIC) for digital SPC switching in a GTD-5 EAX base unit (BU) or remote switching unit (RSU).

Economic theory defines a "production function" as a mathematical representation of a machine or process that uses inherent "economic resources" (e.g., land, labor, material, capital) to produce one or multiple products and/or services. A costing methodology that 1) determines the unit cost of each defined "economic resource," 2) determines what amount of these economic resources are consumed in providing the service, and 3) multiplies these consumed resource units by their respective unit cost to arrive at an extended resource cost is appropriate in the case of special switch features that have been traditionally termed "vertical services." It is appropriate because such a methodology is capable of discretely identifying the costs uniquely attributable to these vertical services.

A GTD-5 EAX digital SPC switching system can be viewed as a specialized computer that provides a variety of telecommunications services by utilizing specific "technical

functionalities" that are inherently provided by its hardware and software. These "technical functionalities" may be broadly defined as "service resources" (and the associated unit costs as "cost primitives"), in that each service resource provides a particular functionality, and that groupings of these service resources form the framework for a given network product or service.

Any switched telecommunications service that is provided from a GTD-5 EAX must necessarily be "provisioned" by assigning the appropriate amount of each available service resource. The investment cost function (CF) for such services can be expressed with a single algebraic equation, with variables (X) for each available service resource cost category, as follows:

$$CF(i) = X_1(i) + X_2(i) + X_3(i) + X_4(i) + X_5(i) + \ldots + X_n(i)$$

where $X_n(i) = K_{i,n} * X_n$

= service resource cost
for category (n)
for service (i)

and X_n = service resource unit cost
variable for category (n)

and $K_{i,n}$ = coefficient
for service (i)
and service resource unit cost
variable for category (n)

Given that each variable (X_n) will have a unique coefficient ($K_{i,n}$), and that each feature (i) will have a unique set of coefficient values, this equation may be re-written as:

$$CF(i) = A_i * X_1 + B_i * X_2 + C_i * X_3 + D_i * X_4 + E_i * X_5 + \ldots + Z_i * X_n$$

where $A_i = K_{i,1}$

= coefficient
for service (i)
and service resource unit cost
variable for category (1)

and $B_i = K_{i,2}$
and $C_i = K_{i,3}$

and $D_i = K_{i,4}$

...

and $Z_i = K_{i,n}$

Thus, we have a single cost function (CF) and (i) sets (A_i, B_i, etc.) of feature-specific resource coefficients. This fundamental concept was central to the creation of the feature-specific "coefficient data records" that are employed in the CostMod VS model.

The approach used in the CostMod VS model is two-fold. In the **"GTD-5 EAX Switching Technology Module,"** the GTD-5 EAX base unit and remote switching unit equipment is "partitioned" or "classified" into one of several "resource categories" and is then sized based on user-input central office data (e.g., lines, trunks, busy hour traffic). Investment is derived by multiplying the resultant sized equipment quantities by the manufacturer's (AG Communication Systems Corporation) price, by component. Finally, the investment cost is divided by the appropriate quantity of each resource to arrive at a unit resource cost (i.e., cost primitive) for each of the major cost categories, including line terminations, network path CCS, and processor milliseconds.

This process applies to both hardware and software, and is tailored specifically to reflect the mix of traffic (i.e., POTS and vertical services) switched within the particular central office(s) under study. It is important to note that the "composite" office may reflect either an actual central office location, or some hypothetical "representative" example.

Having developed the cost primitives for each service resource via the **"GTD-5 EAX Switching Technology Module,"** the next step is to determine what amounts of the service resource units are necessary to provide a given feature. In the **"GTD-5 EAX Switching Application Module,"** user-input feature-specific central office data (e.g., lines, traffic) are used to determine the amount of switching resources required to provide the feature selected for cost development.

For example, the "Call Forwarding - Fixed" feature cost includes the central processor (TPC) time, in milliseconds, required to execute the series of binary software instructions associated with completing a call forwarding attempt. This "real time" is developed by the manufacturer and is provided to GTE Telephone Operations under strict nondisclosure guidelines as part of various support agreements for the GTD-5 EAX digital SPC switching technology. Assuming that the time for this special feature "event" is 65 milliseconds, assuming that the unit cost for this service resource

(developed in and passed from the **"GTD-5 EAX Switching Technology Module"**) is $0.15 per millisecond, and also assuming that the feature-specific traffic data input by the user is 1.00 busy hour call attempt per feature line, then (for illustrative purposes) the cost for this "event" is given by 1.00 * 65 * $0.15 = $9.75. Similarly, the remaining service resource units (e.g., line terminations, line path CCS, trunk path CCS, TCU/RCU milliseconds, Right-To-Use (RTU) fees, memory words, special hardware, etc.) are determined and multiplied by their respective unit costs.

With certain exceptions (noted in the feature-specific documentation), all costs that are output from the **"GTD-5 EAX Switching Application Module"** are "per feature line" costs. All feature-specific "getting-started" Right-To-Use fees are reported at the bottom of the **"GTD-5 EAX Switching Application Module"** output screen as "excluded" from the cost analysis. This allows the user to decide the appropriateness, application, and cost recovery of these software costs. Release 1.4 of the CostMod VS model includes 380 special features and services available with the GTD-5 EAX digital SPC switching technology under SVR 1.7.1.1. Due to its modular design, the model is easily expanded as new features are developed by the manufacturer and released in future SVRs.

The **"GTD-5 EAX Switching Technology Module"** of the CostMod System has been benchmarked against the manufacturer's CASE-5 ("Computer-Aided Systems Engineering for the GTD-5 EAX") program used by GTE Telephone Operations engineering personnel to size and order GTD-5 EAX switching equipment. Using a variety of central office configurations, identical input parameters were passed through both models. During the development process the engineering equations were refined until the **"GTD-5 EAX Switching Technology Module"** matched the manufacturer's model within a plus or minus two percent variance for total investment. In most cases, this variance was less than one percent. Furthermore, the CostMod VS methodology was presented to and reviewed by the manufacturer. AGCS Technical Standards & Support personnel found that "the methodology reflected in the CostMod VS model represents a reasonable and relatively accurate approach to GTD-5 EAX special features costing."

The CostMod VS model is an effective cost development tool that affords the user flexibility and ease-of-use. It follows generally accepted telecommunications industry costing methods, and determines the costs for a wide variety of GTD-5 EAX switched services and special features. The model has been reconciled with the manufacturer's engineering model, and has met all targeted acceptable tolerances. It is anticipated

that the CostMod VS model, along with the Bellcore SCIS model, will be widely used to support future GTE Telephone Operations tariff filings and regulatory requirements.

GTE TELEPHONE OPERATIONS

COSTMOD System (including SCIS)

BELLCORE SCIS MODEL
(NTI DMS-10 Switching Technology/Application Modules)
(NTI DMS-100F Switching Technology/Application Modules)
(AT&T 5ESS Switching Technology/Application Modules)

The Bell Communications Research (Bellcore) "Switching Cost Information System" (SCIS) was designed specifically to assist telephone company personnel in the cost development process for switched network services available with several popular switching technologies. It may also be employed in the cost development process for basic usage and switched access services. The model reflects the cost of digital, stored program control (SPC) switching facilities (e.g., AT&T 5ESS, NTI DMS-10, and NTI DMS-100F) that are employed by GTE to provide growth in central office based, switched network services. The model is typically used to develop the long-run incremental costs for such GTE tariffed services as CentraNet® and Smart Call® features, in addition to local, toll, and switched access services.

SCIS is a PC-based, interactive cost development tool that develops the long-run incremental costs for digital switching equipment manufactured and sold by various vendors, including AT&T Network Systems and Northern Telecom. The model determines the required equipment combination (e.g., mounting frames, line cards, central processors, memory and interface cards, etc.) and associated investment for producing at a given level of output, assuming that the engineered capacity is provided to accommodate demand in the busy hour. Each then divides this investment by its associated units to determine unit LRIC. This cost model comprises the **"DMS-10 Switching Technology Module," the "DMS-100F Switching Technology Module," and the "5ESS Switching Technology Module" of the CostMod System**, which develop the resource costs (i.e., cost primitives) for each "functionally significant" switching resource category, and the **"DMS-10 Switching Application Module," the "DMS-100F Switching Application Module," and the "5ESS Switching Application Module," of the CostMod System**, which apply the cost primitives to user-input feature-specific traffic data in order to develop the investment associated with individual vertical service features.

Economic theory typically defines a "production function" as a mathematical representation of a machine or process that uses its inherent "economic resources" (i.e., land, labor, material, and capital) to produce one or multiple products and/or services. A costing methodology that: 1) determines the unit cost of each defined economic resource, 2) determines what amount of these economic resources are

consumed in providing the service, and 3) multiplies these consumed economic resource units by their respective unit cost to arrive at an extended resource cost is appropriate in the case of central office based, switched network services and special switched features that have been traditionally termed "vertical services." It is appropriate because such a methodology is capable of discretely identifying the costs uniquely attributable to such services, which is a necessary attribute of a valid incremental cost study. This allows the proper application of cost causation principles in the study.

A digital SPC switching system can be viewed as a specialized computer that provides a variety of telecommunications services by utilizing specific "production units" or "cost primitives" that are inherently provided by its hardware and software. These "cost primitives" may be viewed as "economic resources," in that each cost primitive provides a particular functionality, and that groups of these cost primitives form the framework for the functionality of a particular service. With this concept in mind, it follows that any switched telecommunications service that is provided from a digital SPC switch must necessarily be "provisioned" by assigning the appropriate amount of each available cost primitive. The cost for such services can be expressed with a single equation, with variables for each cost primitive category, representing the amount of switch resources consumed by a given switched service or feature.

The costing approach employed in SCIS is two-fold. The first step in the process is to develop the appropriate unit costs in the "Model Office" (i.e., **"DMS-10 Switching Technology Module," "DMS-100F Switching Technology Module,"** or **"5ESS Switching Technology Module"**). Inputs to this module (i.e., "SCIS/MO") include lines and trunks, their associated traffic information, and standard central office parameters. Outputs from this module include the unit cost for lines and trunks, network path centum call seconds (CCS), processor milliseconds, memory words, SS7 octets, and Automatic Message Accounting (AMA) records. Once these unit costs are developed, the second step in the process is to integrate them with feature-specific information in the "Features Module" (i.e., **"DMS-10 Switching Application Module," "DMS-100F Switching Application Module,"** or **"5ESS Switching Application Module"**). This module (i.e., "SCIS/IN") has been given additional functionality in order to reflect the new features associated with the SS7 "intelligent network," hence the name. Inputs to SCIS/IN include feature lines, their associated traffic information, and standard feature parameters, in addition to SCIS Model Office outputs and costs associated with the external SS7 network (e.g., STPs, signaling links, etc.). Outputs from SCIS/IN include the cost of the switch resources used by the feature, plus any

feature-specific hardware or software. This resultant output illustrates the cost (i.e., busy hour investment) for the given feature. The same approach is used to determine the cost for basic usage and switched access services, albeit not necessarily within SCIS/IN.

The Bellcore Switching Cost Information System (SCIS/MO and SCIS/IN) is an effective cost development tool that affords the user flexibility and ease-of-use. Furthermore, it follows generally accepted telecommunications industry incremental costing methods, and determines long-run incremental costs for a wide variety of digital SPC switched services and special features. The model has been reconciled with the vendor's engineering model (e.g., 5-DOPS for the 5ESS, and NT-ACCESS for the DMS-100F), and has (favorably) exceeded all targeted acceptable tolerances. It is anticipated that SCIS will continue to be widely used in support of GTE Telephone Operations management studies, tariff filings, and regulatory requirements.

GTE TELEPHONE OPERATIONS

COSTMOD System (including SCIS)

FIBER OPTIC TECHNOLOGY MODULE

The **CostMod System "Fiber Optic Technology Module"** (FO Model) is an engineering process model that can be used to develop the investment required to provide digital fiber optic transport facilities between central offices or from a customer to a central office. The model replicates the processes and standards that an engineer would follow to provide fiber optic service between two points. GTE standards for protection, fiber cable, fiber terminals, and engineering and installation hours along with GTE net material costs are used by the model to develop the investments on a DS-3/STS-1 (672 channels), DS-1 (24 channels), or DS-0 (individual channel) level. The investment provided by the FO Model includes the cost of fiber cable, fiber optic terminals, fiber distribution panels, DSX-3 or STS-1 cross-connects, regenerators, and DSX-1 and M1-3/STS-1 multiplexing when required. The GTE standard protection arrangement for all fiber systems is 1 for 1 (i.e., one stand-by DS-3 for each working DS-3 and stand-by transmit and receive fibers). The FO Model provides costs for standard DS-2 and DS-3 transmission systems as well as Synchronous Optical Network (SONET) technologies. The user may select fiber cables that range in size from four fibers to ninety-six fibers and system sizes (i.e., terminal bandwidth) that range from 6.3 M/bs to 1.13 G/bs.

Jurisdictional specific labor rates, material loading factors, utilization factors, outside plant support factor, facility distance, and the route-to-air mile factor must be provided by the user.

The output reports from the FO Model display the costs for the total system (i.e., fiber plus electronics on both ends); the cost expressed on a per DS-3 basis, the costs on a per DS-1 basis, and the cost per DS-0. If the interoffice transport option is selected, the model will provide a summary report in FCC Tariff format at the DS-1 and DS-0 level.

GTE TELEPHONE OPERATIONS

COSTMOD System (including SCIS)

SIGNALING SYSTEM 7 (SS7) TECHNOLOGY MODULE

The **CostMod System "SS7 Technology Module"** (SS7 Model) is used to determine the investments and expenses associated with busy hour usage on GTE's SS7 Network. The SS7 Model is an engineering process model that replicates GTE's SS7 Network for the area under study. The model develops the hardware investments and software expenses for Signal Transfer Points (STP) and Signal Control Points (SCP). The STP and SCP investments and expenses are expressed on a per octet basis so that they may be applied to any service that uses the SS7 network. Additionally, the SS7 Model converts the expenses associated with the leasing of facilities that carry the SS7 signaling links to a per octet basis.

The basic methodology employed by the SS7 Model is to determine the respective STP and SCP busy hour investments and expenses and to convert them into a cost per octet. This is accomplished by determining the network configuration for the area under study and then developing the costs associated with the Local and/or Regional STP. The SCP investment and expenses are developed in the same manner.

The only input variables required for the model are the expenses associated with the SS7 signaling links and appropriate utilization factors for SCP storage and SS7 signaling links.

Outputs from the SS7 Module include the busy hour investments and expenses expressed on a per octet basis for the local and/or region STP and SCP. The SS7 signaling link busy hour expenses are also expressed on a per octet basis.

GTE TELEPHONE OPERATIONS

COSTMOD System (including SCIS)

USAGE SERVICES APPLICATION MODULE

The **CostMod System "Usage Services Application Module"** (USAM) is used to convert the investments associated with busy hour usage in digital stored-program control (SPC) switching equipment and digital fiber optic transmission facilities into a cost per call and per minute of use by time of day, by distance, for usage and access services. The USAM is applicable for the AT&T 5ESS, NTI DMS-10, NTI DMS-100F, and AGCS GTD-5 EAX digital SPC switching technologies.

The basic methodology employed by the USAM is to convert the various switching technology module developed cost primitives expressed as busy hour hardware and software investments into investments per call attempt and per minute of use. The annual cost factors for the appropriate USOA accounts are then applied to the hardware and software investments to convert them to a cost per call or minute of use.

The USAM input variables for the DMS-10, DMS-100F, and 5ESS switching investments include the cost primitives (e.g., cost per millisecond, cost per line CCS, cost per trunk CCS, etc.) developed by the Bellcore "Switching Cost Information System" (SCIS) Model Office Studies (i.e., **"DMS-10 Switching Technology Module," "DMS-100F Switching Technology Module,"** and **"5ESS Switching Technology Module"** of the CostMod System). The input variables for the GTD-5 EAX switching investments are the equivalent cost primitives developed by the CostMod System **"GTD-5 EAX Switching Technology Module"** Composite Office Study.

The interoffice transport investment inputs include the cost primitives (e.g., cost per DS-1 mile, cost per DS-1 termination, etc.) developed by the CostMod System **"Fiber Optic Technology Module"** (i.e., FO Model). The investments from the FO Model and the CCS per trunk that was used in the respective switching cost technology module, are used by the USAM to determine the interoffice transport costs.

The USAM inputs for Signaling System 7 (SS7) investments are developed by the CostMod System **"SS7 Technology Module"** and the appropriate switching cost technology module.

The USAM outputs for basic usage services (e.g., for local, toll, EAS and Switched Access services) are expressed as a cost per call type (e.g., intraoffice, incoming, outgoing, or tandem) and per minute of use. If required, Automatic Message Accounting (AMA) costs for both access and basic services are expressed on a per call basis.

The costs for interoffice transport are expressed on a per end (termination) per minute of use, per mile, and per mile per minute of use basis. SS7 costs are expressed as a cost per interoffice call.

GTE TELEPHONE OPERATIONS

BASIC NETWORK FUNCTION (BNF) DEFINITIONS

A. **Network Access (NA) Channel** - The subcategory of BNFs that provides the bandwidth specific transmission path between the point of interface at the customer's location and the main distribution frame or equivalent (i.e., DSX-1, DSX-3) at the customer's serving central office.

1. NA Channel Basic Level: A 2-wire transmission path that provides a maximum of 64 kilobits per second digital capacity. This includes 300 to 3,000 Hz analog voice service, which is the basic channel for most voice grade services such as basic residence and business main line service, PBX trunks, Centrex type access lines and voice grade private line service.[1]

   Each BNF consists of a Basic Level 2-Wire NA Channel for a particular NA Channel distance, for a particular office size and for a particular NA Channel density.

2. NA Channel DS-1 Level: A transmission path that has 1.544 Mbps digital capability. A high capacity transmission facility that operates in a full duplex, time division (digital) multiplexing mode. This is the first level (primary rate) within the "T" Carrier system. DS-1 service provides transmission of 193 bit frames at a rate of 8,000 frames per second to yield 1.544 Mbps.

   Each BNF consists of a NA Channel DS-1 Level for a particular system size, for a particular distance.

3. NA Channel DS-3 Level: A transmission path that has 45 Mbps digital capability. A high capacity transmission facility that operates in a full duplex, time division (digital) multiplexing mode. This is the third level within the "T" Carrier system. A DS-3 provides the equivalent of 28 DS-1s or 672 basic channels.

   Each BNF consists of a NA Channel DS-3 Level for a particular system size, for a particular distance.

[1] Additional BNF costs are addressed under "NA Channel Connection - Performance and Other Features and Functions."

GTE TELEPHONE OPERATIONS

BASIC NETWORK FUNCTION (BNF) DEFINITIONS

B. **NA Channel Connection** - The subcategory of BNFs that provide the interface between the NA Channel, the central office switching equipment, another NA Channel or a Dedicated Transport interoffice transmission path.

1. NA Channel Connection Basic Level: This is the interface between a NA Channel Basic Level and, (a) any other NA Channel Basic Level, (b) a basic analog transport path or, (c) a NA Channel Connection Basic Analog Level - Switch Interface (line) to the switch architecture.[2]

2. NA Channel Connection DS-1 Level: This is the interface between a NA Channel DS-1 Level and, (a) any other NA Channel DS-1 Level, (b) a DS-1 transport path or, (c) a NA Channel Connection DS-1 Level - Switch Interface to the switch architecture.

3. NA Channel Connection DS-3 Level: This is the interface between a NA Channel DS-3 Level and, (a) any other NA Channel DS-3 Level or, (b) a DS-3 transport path.

4. NA Channel Connection Basic Analog Level - Switch Interface: This is the analog interface to the switch architecture. The Standard line interface supports most services (e.g., residence, business, CentraNet®).

C. **NA Channel Connection - Performance and Other Features and Functions**[3] The subcategory of BNFs that provide the necessary multiplexing required for interoffice transport from one digital Network Access Channel to another.

1. Voice Grade to/from DS-1 Multiplexing: This BNF allows the combining of 24 individual voice grade or equivalent channels into a single DS-1 (1.544 Mbps) signal or the provision of 24 individual voice grade or equivalent channels from a single DS-1 (1.544 Mbps) signal.

2. DS-1 to/from DS-3 Multiplexing: This BNF allows the combining of 28 discreet DS-1 (1.544 Mbps) signals into a single DS-3 (45 Mbps) signal or the provision of 28 discreet DS-1 (1.544 Mbps) signals from a single DS-3 (45 Mbps) signal.

---

[2] (e.g., ISDN, Special Access, Private Line)

[3] This BNF subcategory also addresses equipment components which are used in conjunction with a NA Channel Basic Level to meet the quality or utility of specific private line or special access services. These unique service-specific, engineering requirements are typically addressed in conjunction with private line service cost studies.

GTE TELEPHONE OPERATIONS

BASIC NETWORK FUNCTION (BNF) DEFINITIONS

D. **Interoffice Switching** - The establishment of a temporary path through the switch architecture for outgoing, incoming or tandem switching.

(a) Interoffice Switching - Outgoing: The establishment of a temporary transmission path between a NA Channel Connection Switch (line) Interface and a Switched Transport path (i.e., a line-to-trunk call or minute).

Each BNF consists of an: (a) outgoing switching call setup, by time-of-day (TOD), and (b) outgoing switching minutes-of-use (MOU), by TOD.

2. Interoffice Switching - Incoming: The establishment of a temporary transmission path between a Switched Transport path and a NA Channel Connection Switch (line) Interface (i.e., a trunk-to-line call or minute).

Each BNF consists of an: (a) incoming switching call setup, by TOD and (b) incoming switching MOU, by TOD.

3. Interoffice Switching - Tandem: The establishment of a temporary transmission path between two Switched Transport paths (i.e., a trunk-to-trunk call or minute).

Each BNF consists of a: (a) tandem call setup, by TOD, and (b) tandem MOU, by TOD.

E. **Intraoffice Switching** - The establishment of a temporary transmission path through the switch architecture between two NA Channel Connection Switch (line) Interfaces (i.e., a line-to-line call or minute).

Each BNF consists of an: (a) intraoffice call setup, by TOD and (b) intraoffice MOU, by TOD.

F. **Switch Features** - The category of BNFs that provides additional switched functionality to other BNFs or finished services (e.g. custom calling).

GTE TELEPHONE OPERATIONS

BASIC NETWORK FUNCTION (BNF) DEFINITIONS

G. **Dedicated Transport -** A full period bandwidth specific interoffice transmission path between switching offices and/or serving wire centers.

1. Dedicated Transport Basic Level: A full period Basic Level interoffice transmission path between switching offices and/or serving wire centers.

   Each BNF consists of a basic level interoffice transmission path, for a particular distance (e.g., 1, 2, ... miles), for a particular system size Termination and facility costs are separately identified.

2. Dedicated Transport DS-1 Level: A full period DS-1 interoffice transmission path between switching offices and/or serving wire centers.

   Each BNF consists of a DS-1 interoffice transmission path, for a particular distance (e.g., 1, 2, ... miles), for a particular system size. Termination and facility costs are separately identified.

3. Dedicated Transport DS-3 Level: A full period DS-3 interoffice transmission path between switching offices and/or serving wire centers.

   Each BNF consists of a DS-3 interoffice transmission path, for a particular distance (e.g., 1, 2, ... miles), for a particular system size. Termination and facility costs are separately identified.

H. **Switched Transport -** A temporary duration sensitive interoffice transmission path between switching offices.

Each BNF consists of a basic level interoffice transmission path, for call setup and MOU by time-of-day, for a particular distance (e.g., 1, 2, ... miles), for a particular system size. Termination and facility costs are separately identified.

I. **Network Interface Device (NID)** - The subcategory of BNFs that provide a termination for a single line or circuit. This device provides the point of separation between the end-user customer and the provider's network. The NID includes connection points for the provider and the end-user customer, and also provides a protective ground connection. The connection points are capable of terminating cables such as twisted pair cable.

Each BNF consists of a device for one or more two-wire connection points.

GTE TELEPHONE OPERATIONS

BASIC NETWORK FUNCTION (BNF) DEFINITIONS

J. The **Signaling System Seven (SS7)** network is the subcategory of BNFs that provides an internationally standard-purpose Common Channel Signaling (CCS) system. The SS7 network is a dedicated digital network used for telephone call setup and control. Each signaling point is uniquely identified by a numeric point code. Point codes are carried in signaling messages exchanged between signaling points to identify the source and destination of each message. The signaling point uses a routing table to select the appropriate signaling path for each message.

There are three kinds of signaling points, and three data links in the SS7 network:

1 Service Switching Points (SSPs) are stored program controlled switches that originate, terminate or tandem calls.

SSP BNFs are included in the switching BNFs for interoffice calls.

2. Signal Transfer Points (STPs) route network traffic between signaling points. An STP routes each incoming message to an outgoing signaling link based on routing information contained in the SS7 message.

STP BNFs consist of the STP Ports which are the interface to the SS7 network.

3. Service Control Point (SCP) are database repositories which provide routing information.

SCP BNFs consist of a Standard Query or Octet.

4. Data Links are 56 Kbps connections between STPs and between an SSP and an STP.

Each BNF consists of a four-wire loop supported by 56 Kbps circuit equipment.

GTE TELEPHONE OPERATIONS

BASIC NETWORK FUNCTION (BNF) DEFINITIONS

APPENDIX 2.6 TO PREFACE 1

PART IX

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF DENNIS B. TRIMBLE

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND TITLE.

A. My name is Dennis B. Trimble. My business address is 600 Hidden Ridge Drive, Irving, Texas, 75015. I am employed by GTE Telephone Operations as Assistant Vice President - Marketing Services and am representing GTE or "the Company" in this arbitration proceeding with Sprint.

Q. WILL YOU PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE?

A. I received a B.A. in Business in 1970 and an M.B.A. in 1973, both from Washington State University. In 1972, I became an Assistant Professor at the University of Idaho, where I taught undergraduate courses in statistics, operations research and decision theory. From 1973 through 1976, I completed course work towards a Ph.D. degree in Business at the University of Washington, majoring in quantitative methods with minors in computer science, research methods, and economics. I began my career with GTE in 1976 as an Administrator - Pricing Research with General Telephone Company of the Northwest ("GTENW"). Through 1985, I held various jobs with GTENW and GTE Service Corporation, almost all related to demand analysis, market research, and/or strategic planning. In 1985, I was

named Director - Market Planning for GTE Florida, Incorporated ("GTEFL") and in 1987, I became GTEFL's Director - Network Services Management. During most of 1988 and early 1989, I was also Acting Vice President - Marketing for GTEFL. From 1989 through most of 1994, I was employed by GTE Telephone Operations as Director - Demand Analysis and Forecasting. In October of 1994, I became Director - Pricing and Tariffs for GTE Telephone Operations and assumed the additional responsibilities of the Assistant Vice President - Marketing Services position in August, 1995.

Q. HAVE YOU PREVIOUSLY TESTIFIED ON BEHALF OF GTE?

A. Yes. I have presented testimony on behalf of GTE before the California Public Utilities Commission, the Florida Public Service Commission and the Hawaii Public Utilities Commission.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THE DOCKET?

A. In response to Sprint's request for arbitration filed with this Commission, I will address GTE's proposed pricing for: (1) unbundled network elements and associated ordering/provisioning non-recurring charges ("NRC's"), (2) local interconnection elements, (3) collocation elements, and (4) service provider number portability ("SPNP"). [SPNP is also know in the industry as interim number portability ("INP").]. The economic rationale supporting the pricing policies employed by GTE in the development of its proposed rates for

unbundled network elements is the subject of the Economic Presentation in this proceeding. In addition, GTE's costing procedures are addressed by the direct testimony of GTE witness Bert Steele. I will also address the estimation and magnitude of the Company's "common costs" as well as the inappropriateness of any pricing proposals resembling the Federal Communications Commission's ("FCC") proxy rates (which a U.S. appeals court has stayed) for unbundled network elements.

PRICING PRINCIPLES FOR UNBUNDLED NETWORK ELEMENTS

Q. WHAT OVERRIDING PRINCIPLES DID GTE FOLLOW IN THE DEVELOPMENT OF ITS UNBUNDLED NETWORK ELEMENT PRICES?

A. As discussed in GTE's Economic Presentation, one of the principles employed by GTE was to base rates for unbundled network elements on their Total Element Long-Run Incremental Cost ("TELRIC") plus a reasonable contribution to the Company's "common costs." TELRIC is a term coined by the FCC. See the FCC's First Report and Order issued in CC Docket No. 96-98 on August 8, 1996; hereinafter referred to as the FCC's "First Report." The other major principle discussed in GTE's Economic Presentation is to incorporate competitive market assumptions into GTE's ratemaking process that limit rates to be less than or equal to the Stand-Alone-Cost ("SAC") of that network element

Q. PLEASE DESCRIBE THE MAJOR UNBUNDLED ELEMENTS GTE PROPOSES AND HOW THEY CAN BE USEFULLY COMBINED WITH THE ALTERNATIVE LOCAL EXCHANGE CARRIERS' ("ALEC"S) SELF-PROVISIONED NETWORKS AND SERVICES TO DELIVER COMPETITIVE LOCAL EXCHANGE SERVICE.

A. GTE's major proposed unbundled services are:

- Unbundled Loops. The unbundled loop provides a voice-grade path between an end user and a GTE wire center. An ALEC may obtain this loop from GTE and connect it to a cross connect available at the end office through a collocation arrangement. The ALEC could self-provision the transport facilities from GTE's end office to the ALEC's own switching center. In such an arrangement the ALEC would provide, through its own switch, all related switching services such as local usage, custom calling services, switched access service (both originating and terminating), and toll services. Today, most of these are high-margin services which provide GTE with significant contributions (revenues minus costs) to cover its common costs and overheads, thus enabling GTE to support the level of investment infrastructure necessary to operate as a carrier of last resort ("COLR") and achieve the Commission's public policy objectives (e.g., universal service).

  GTE is also offering loop conditioning services for unbundled loops that assure that desired loops have the technical

capability to handle enhanced end user services (e.g., ISDN, switch data).

- Unbundled Port / Local Switching. The unbundled port provides access to switching services from a GTE switch to be used with an ALEC-provided loop. This element would apply in areas where ALECs have loop facilities but do not have a local switching center in service. In this situation, the ALEC will cross connect its loop with GTE's switch through a collocation arrangement. Through the port, the ALEC can obtain access to both the local switching capability of GTE's switch (e.g., local calling, switch features) and the capability to route calls from the trunk side of the switch (e.g., switched access, toll service, E-911 service, directory service, etc.). The local switching functionality of the switch (e.g., local calling, switch features) will be purchased from GTE under one of two alternative scenarios which I will discuss later.

- Collocation. GTE filed a physical collocation tariff on October 2, 1996 with an expected implementation date of November 16, 1996. GTE proposes to use the rates, terms and conditions in this tariff for all collocation elements. The cross connections contained in that tariff are used to facilitate the physical delivery of a loop from GTE's main distribution frame to the ALEC's collocated facilities.

- SS7 Interconnection. SS7 interconnection allows an ALEC to connect to GTE's SS7 network at a Signal Transfer Point ("STP"). This connection enables ALECs to exchange SS7 messages without providing the underlying SS7 network. It also provides access to database services (e.g., Database 800 Carrier Selection Service and Line Information Database ("LIDB")). This interconnection will also support efficient call setup and delivery of SmartCall™ services without first connecting to a GTE switch. Because there is such a vast array of possible services provided with SS7 interconnection, the Company proposes that interconnection arrangements be provided subject to negotiated contracts. With negotiated contracts, agreements can be customized to meet the specific SS7 requirements of each ALEC. These contracts would reference the signal links and STP ports currently tariffed in the GTOC Tariff FCC No. 1.

COMMON COSTS

Q. DO GTE'S TSLRIC OR TELRIC STUDIES INCORPORATE JOINT AND COMMON COSTS?

A. The methodology GTE currently employs to develop its TELRIC estimates does not incorporate common costs. (Throughout this testimony, Total Service Long-Run Incremental Cost ("TSLRIC") will be used as synonymous with TELRIC.) These costs must be recovered through the pricing of services.

Q. WHAT TYPE OF EXPENSES MAKE UP GTE'S COMMON COSTS?

A. GTE's current TELRIC methodology for services and unbundled elements includes the following expenses: (a) depreciation, (b) return on investment, (c) income taxes, (d) plant-specific maintenance and repair, (e) central office land and buildings, (f) customer operations (e.g., sales), and (g) miscellaneous fees and taxes (e.g., ad valorem tax, gross receipts tax). GTE's TELRIC methodology does not include the following expense items (and they are the ones considered to be common expenses of the Company): (a) plant specific expenses (e.g., network support, general support, and general purpose computers), (b) plant non-specific expenses (e.g., network planning, engineering), (c) general support assets (e.g., furniture, office support equipment, company communications equipment, and general purpose computers), (d) land and buildings (other than central offices), (e) indirect labor, (f) corporate expenses, and (g) other taxes and fees, such as local franchise taxes, federal superfund taxes, local and state business license and occupation taxes). It is not unusual for the magnitude of these expense categories to be from 40% to 60% of the Company's total direct costs (i.e., sum of TSLRICs). Exhibit No. DBT-1 contains a depiction of GTE's estimate of total "forward-looking" common costs for this state

Q. GTE'S BASIC PRICING PHILOSOPHY FOR A NETWORK ELEMENT IS BASED ON TELRIC PLUS A REASONABLE SHARE OF COMMON COSTS. BUT, VARIOUS PARTIES TO THE

ARBITRATION PROCESS HAVE ASSERTED THAT GTE'S "COMMON COSTS" ARE EITHER NONEXISTENT OR DE MINIMIS. DO YOU AGREE?

A. No. GTE, as with most full-service local exchange companies, exhibits significant levels of common costs. As shown in Exhibit No DBT-1, the annual common costs for GTE's operations in this state exceed $455 million, which translates to about 36% of GTE's total revenues. These "common costs" should not be arbitrarily allocated to the various TELRICs for aggregate network elements (loops, switching, transport, etc.); such an allocation would be a step backward to "Fully Distributed Costing" procedures. Recovery of these forward-looking costs must be addressed in the development of the prices at issue in this arbitration proceeding. GTE is not asking the ALECs to pay for all of GTE's "common costs," but is only asking that they contribute their "fair share" towards coverage of the Company's "common costs." The Company's "common costs" are integral to the efficient operation of GTE and do support the offering of all the network elements requested by ALECs.

Q. **VARIOUS ALECS HAVE ARGUED THAT THEY SHOULD NOT BE REQUIRED TO CONTRIBUTE TO THE RECOVERY OF GTE'S "COMMON COSTS" BECAUSE THEY HAVE THEIR OWN COMMON COSTS TO RECOVER. WOULD YOU PLEASE COMMENT ON THIS POSITION?**

A. GTE's proposed rates include only a "fair share" amount of contribution. GTE's common cost structure supports those elements that the ALECs purchase from GTE and GTE must be allowed to set network element prices that include a reasonable allocation of the Company's forward-looking common costs. In fact, this was properly recognized by the FCC in its First Report (see paragraph 682 and Sections 51.503 and 51.505).

Q. HOW WERE GTE'S ESTIMATES OF ITS TOTAL FORWARD-LOOKING "COMMON COSTS" DEVELOPED?

A. As described in GTE's Economic Presentation, GTE computed its forward-looking "common costs" as the difference between its 1995 revenues and the sum of its total directly attributable forward-looking costs (i.e., TELRIC and TSLRIC). This computation was performed using the data presented in Exhibit No. DBT-1 and resulted in a fixed allocator of 47%. If the prices for all of GTE's network elements and services were to include a level of contribution equal to this "fixed allocator," then GTE's prices would exactly recover its total forward-looking costs. GTE does not support this method of price development in all cases, as it is likely that this methodology does not introduce rational market considerations into the development of price sets.

Q. WHY ARE THE COMMON COSTS YOU DEFINED ABOVE EXCLUDED FROM GTE'S TELRIC METHODOLOGY?

A. The total amounts in these common cost categories are appropriately excluded from GTE's TELRIC studies because GTE's Universal System of Accounts ("USOA")-based accounting system records do not contain sufficient information to directly attribute (if appropriate) any of these expenses to specific network elements, and/or there is not a cost-causative method to associate these to specific elements of the network. The USOA-driven accounts, which GTE has identified as representing common costs, might include many items that are in reality, service (or element) specific. However, as I have previously stated, those costs cannot be separately identified because the USOA-based accounting system does not contain a level of detail sufficient to allow direct attribution of those costs to their appropriate service (or network element). Thus, the USOA-based accounting processes limit GTE from identifying any remaining costs that may belong in the FCC's definition of TELRIC. However, even if GTE possessed an elaborate (and expensive) managerial accounting system that facilitated the direct assignment (when appropriate) of these common costs to specific network elements, this capability would result in only a minor change in the level of GTE's "total" common costs. The USOA accounts that GTE currently incorporates in its TELRIC studies represent a vast majority of all directly assignable costs.

Q. TO WHAT PRODUCT CATEGORIES HAS GTE ALLOCATED ITS COMMON COSTS?

A. GTE's TELRIC studies do not attempt to perform this allocation of common costs. (Paragraph 694 of the First Report states: "Certain common costs are incurred in the provision of network elements. As discussed above, some of these costs are common to only a subset of the elements or services provided by the incumbent LEC's. Such costs shall be allocated to that subset, and should then be allocated among the individual elements of services in that subset, to the greatest possible extent." (Emphasis added).) Allocation of these common costs to specific products for recovery is accomplished through GTE's pricing activities, not through GTE's incremental costing activities. Thus, GTE's TELRIC methodologies (as currently employed) will lead to incremental cost estimates that will assuredly be substantially below what the FCC intended to be incorporated in the development of TELRICs.

Q. DID GTE USE ANY OTHER METHODOLOGY TO EXAMINE WHETHER ITS COMMON COSTS ARE NOT DE MINIMIS?

A. Yes. GTE also reviewed its USOA data for 1995 as an independent analysis to be used as a validation (or not) of the magnitude of its "common costs." Page 2 of Exhibit No. DBT-1 presents GTE's analysis and illustrates the type of costs GTE considers to be "common" to all network elements as well as GTE's network services. It should be apparent to all that the work activities depicted in Exhibit No. DBT-1 are integral to the operation of an efficient telecommunications network.

Q. DO THE TWO METHODOLOGIES THAT GTE EMPLOYED TO ESTIMATE ITS FORWARD-LOOKING "COMMON COSTS" RESULT IN THE SAME ESTIMATES?

A. No, the real issue is not whether the resulting percentages are identical but whether they are reasonably close and also whether they are significantly different from zero; which they are. The FCC seemed to believe that many of these "common costs" should be allocated to the Company's TELRICs. But that arbitrary allocation process would just result in higher TELRIC estimates (and thus artificially lower the level of common costs). GTE believes that the implied allocation of common costs should not be done during the TELRIC-costing exercise, but is only appropriately done during the development of element-specific pricing.

Q. WHICH OF THE TWO COMMON COST FIGURES DID YOU EMPLOY IN YOUR PRICING DEVELOPMENT?

A. To be conservative, in those instances where the Company has employed the average contribution to "common costs" in the development of its proposed prices, GTE has elected to use the lower percentage presented in Exhibit No. DBT-1.

PRICING

NON-RECURRING CHARGES

Q. BASED ON GTE'S ANALYSIS OF NON-RECURRING COSTS, WHAT WHOLESALE NRCS ARE YOU PROPOSING?

A. In general, charges have been designed to recover separately the costs of service ordering and installation activities, recognizing to the extent possible any like functions required for various types of Local Service Request ("LSR") activity. By structuring the NRCs in this way, common charges are established that apply to all types of ordering activities, simplifying administrative processes for both the Company and the ALECs.

The proposed NRC structure reflects the remaining differences in anticipated costs for various types of ordering activities, and enables a reasonable relationship between the service connection charges and the incurred costs of associated work functions on an order-by-order basis.

Service ordering and installation charges are proposed both for unbundled services and resale services.

Q. HOW WERE THE SERVICE ORDERING CHARGES FOR UNBUNDLED SERVICES DESIGNED?

A. These NRCs were designed to recover the costs of work functions performed by GTE's National Open Market Center ("NOMC") on a per-order basis. The Initial Service Order charge is based on the costs for the install, summary bill master, disconnect and all other ordering functions, plus system processing.

Separate charges are proposed for a Transfer of Service and for a Customer Service Record Search. The Transfer of Service charge will be administered as required by the type of LSR; a transfer of service charge is required on any change in service from GTE to a ALEC where GTE must continue end user billing on the account, for CPE or directory advertising, for example.

Customer service record research is performed at the request of the ALEC to obtain a summary of the services subscribed to by the end user. The Customer Service Record Research charge will be administered whenever account information is requested.

The Subsequent Service Order charge will be applied on LSRs requesting a service change on an existing account, and is designed to recover the costs of work functions performed by the National Open Market Center on a per-order basis for all service change requests.

Q. HOW WERE THE INSTALLATION CHARGES FOR UNBUNDLED SERVICES DESIGNED?

A. Installation NRCs were designed to recover the costs of work functions performed by facility assignment, dispatch assignment and customer zone technician personnel. A separate Loop Facility Charge for outside facilities work by customer zone technicians will be administered when such work is required to complete LSRs for

unbundled loop services. The balance of the installation costs are recovered through installation charges on a per-line or per-port basis.

Q. WOULD YOU PLEASE EXPLAIN THE CIRCUMSTANCES WHICH WOULD CALL FOR APPLICATION OF THE PROPOSED RESALE NRCS?

A. Yes. There are two resale scenarios, which I will refer to as "new" and "conversion". A "new" resale service is one for an end user who establishes service within a GTE local service area, but chooses a ALEC reseller for local service. A "conversion" represents the loss of an existing GTE retail end user to a ALEC reseller.

Since the anticipated GTE ordering activities required to complete the associated LSRs are the same, and since the installation charges will be applied only when the installation work is required (e.g., for "new" services) there was no need to distinguish between these two cases

Q. WHAT NRC RATES IS GTE PROPOSING TO THE ALECS FOR SERVICE ACTIVITIES?

A. GTE's proposed rate structure and rate levels for NRCs are presented in Exhibit No. DBT-2. These rates are, in most cases, being proposed at the direct cost of the specific NRC activity.

UNBUNDLED NETWORK ELEMENTS

Q. WHAT ARE THE COMPANY'S PROPOSED RATES FOR UNBUNDLED NETWORK ELEMENTS?

A. Exhibit Nos. DBT-3A and DBT-3B present GTE's proposed rates for the various unbundled elements. Although the elements identified in Exhibit Nos. DBT-3A and DBT-3B are priced as though they are unbundled elements, GTE does not believe that all the elements in Exhibit Nos. DBT-3A and DBT-3B are "network elements" under the Telecommunications Act of 1996 ("Act"). Two attachments are necessary since GTE is proposing two alternative rate structures for unbundled ports / local switching. These specific scenarios will be discussed later in this testimony.

Q. WHAT IS THE BASIS UPON WHICH THESE UNBUNDLED NETWORK ELEMENT RATES WERE DEVELOPED?

A. The procedure employed by the Company along with the economic (and practical) rationale supporting the procedure are the topic of Company's Economic Presentation in this proceeding. Based on the procedures prescribed in the Economic Presentation, the development of the specific rates for each element presented above will be described in the following testimony.

1. Unbundled Loops

The basic unbundled loop was priced at GTE's estimate of its Stand Alone Cost ("SAC"). This $33.08 estimate was not only supported by GTE's Cost Study Submission but also by GTE's

analysis of the Benchmark Cost Model - Version II ("BCM II") [The following companies have taken an active role in sponsoring BCM: Sprint, MCI, US West, and NYNEX. See "Benchmark Cost Model," submitted to the FCC, CC Docket No. 80-286, September 12, 1995. BCM II development has been led by Sprint and US West.] which provided another independent estimate of GTE's TELRIC for unbundled loops. The unbundled loop cost estimates resulting from the use of BCM II are presented in Tab 21 of GTE's Cost Study Submission and supported by Company witness Mr. Bert Steele.

2. Unbundled Ports / Local Switching

GTE is proposing two alternative rate structures for local switching elements. ALECs may choose from either alternative based on their evaluation of which structure best fits their specific needs. Under both scenarios, basic ports were priced at GTE's estimates of the TELRIC for the element plus an appropriate level of contribution to the Company's common costs. The main difference between each scenario is their proposed structure for purchase of switching (local minutes of use) and switch features. I will discuss GTE's specific local switching proposals later in this testimony.

3. Collocation

These elements were priced at GTE's proposed Interstate Tariffed rates.

4. Transport (Dedicated and Common), Multiplexing and SS-7 Services

All of these network elements were priced at existing Facility for Interstate Access Tariff rates.

Q. WHAT WOULD BE THE COST IMPLICATION OF ALLOWING ALECS TO COMBINE UNBUNDLED NETWORK ELEMENTS OR REQUIRING GTE TO OFFER A "COMBINATION" OF NETWORK ELEMENTS?

A. The concern arises when ALECs wish to obtain multiple unbundled elements from GTE that resemble GTE's network only by combining network elements. Absent valid and complete rate rebalancing, such a proposal would render meaningless the Act's clear and intentional distinction between unbundled network elements, which are priced according to cost plus reasonable profit, and resale of retail services, which are priced at a wholesale discount.

A. UNBUNDLED LOOPS

Q. HOW HAVE YOU EVALUATED THE REASONABLENESS OF THE COMMON COSTS RECOVERED IN YOUR PROPOSED UNBUNDLED LOOP RATES?

A. In addition to the pricing rules described in GTE's Economic Presentation, I utilized three basic criteria to assure myself of the overall reasonableness of GTE's proposed unbundled loop rates. These are: (1) an evaluation of the relationship of GTE's unbundled loop TELRICs to their respective Interstate special access (special access is a "functionally" equivalent service to an unbundled loop) rates; (2) the overall (looking at all services, both wholesale and retail) GTE average percentage contribution levels, above direct cost (I am defining direct cost here as TELRIC and/or TSLRIC), required to achieve full recovery of the Company's forward-looking common costs; and (3) the "upper bound" loop price presented in the Economic Presentation.

Q. PLEASE EXPLAIN YOUR APPLICATION OF THE ECONOMIC PRESENTATION'S "UPPER BOUND" LOOP PRICE.

A. The "upper bound" loop price can be considered an assumed price level that would preserve GTE's overall levels of contribution to common costs. If GTE were to propose an unbundled loop price above the "upper bound," it would potentially be making more revenue contributions (and maybe net income), than it does without the introduction of unbundled loops. Thus, GTE's pricing proposals for unbundled loops have a constrained ceiling, even if the "upper bound" price is below GTE's estimate of entrants' "Stand Alone Costs" for unbundled loops.

Q. WHY DID YOU RELY ON AN EVALUATION OF THE INTERSTATE SPECIAL ACCESS RATES IN DETERMINING THE REASONABLENESS OF THE COMMON COSTS RECOVERED IN YOUR UNBUNDLED LOOP RATES?

A. Special access elements (i.e., two-wire and four-wire special access/entrance facilities) are functionally equivalent to basic unbundled loops. In addition, the FCC stated at paragraph 821 of its First Report that it believes interstate special access rates to be at or close to their economic cost levels. Thus, I reviewed GTE's interstate rates to determine their appropriateness as a benchmark for GTE's unbundled loop rates. When this evaluation indicated that the interstate rate for a 2-wire facility was reasonable (above its TELRIC with some contribution to common costs and also below the estimate of "upper-bound" ceiling price), the current two-wire Interstate Entrance Facility rate was proposed for the two-wire unbundled loop.

Q. IN THOSE CASES WHERE THE TELRIC EXCEEDED THE CURRENT INTERSTATE ENTRANCE FACILITY RATE, HOW DID YOU DETERMINE THE REASONABLENESS OF THE COMMON COSTS RECOVERED IN YOUR UNBUNDLED LOOP RATES?

A. When the current Interstate Entrance Facility rate was not a good indicator of the economic costs of an unbundled loop (i.e., below TELRIC), the company relied on the TELRIC as a price floor and the "upper-bound" price as a ceiling for the unbundled loop rate. That is, if the TELRIC was above the current Interstate Entrance Facility rate,

then this rate could not be a good indicator of the economic costs of the unbundled loop element. In those cases, the Company determined a mark-up to provide a reasonable contribution to common costs. The proposed rate in this instance provides minimal contribution when compared to the rate required to recover an equal percentage mark-up. Again, in no case do I propose a rate for an unbundled loop that I consider to be above the SAC of an unbundled loop.

Q. PLEASE EXPLAIN WHY YOU COMPARED GTE'S PROPOSED UNBUNDLED LOOP RATES TO A RATE DERIVED FROM AN "EQUAL PERCENTAGE MARK-UP" CALCULATION

A. The FCC in its First Report at paragraph 696 concluded that "... one reasonable allocation method would be to allocate common costs using a fixed allocator, such as a percentage markup over the directly attributable forward looking cost." Although GTE disagrees with this methodology, we wanted to check our results against the FCC's proposal.

Q. IF THE COMPANY WOULD HAVE EMPLOYED AN EQUAL PERCENTAGE (FIXED ALLOCATOR) MARK-UP RATE AS ADVOCATED BY THE FCC, HOW WOULD THOSE RESULTS COMPARE WITH THE COMPANY'S METHODOLOGY?

A. The comparative results of this evaluation are presented in Exhibit No. DBT-3A. As can be seen in Exhibit No. DBT-3A, GTE's proposed

2-wire unbundled loop rate generates less contribution to the Company's "common costs" than would result from the FCC's fixed allocator procedure. But even though the FCC's methodology would result in higher rates for GTE than GTE's methodology, GTE does not advocate adoption of the FCC's methodology.

Q. WHAT PERCENT MARGIN CONTRIBUTION WILL GTE BE MAKING FROM ITS PROPOSED RATES FOR UNBUNDLED LOOPS?

A. Based on an average unbundled loop cost of $23.26, GTE will achieve an approximate 42% margin above cost with its proposed $33.08 unbundled loop rate. We believe this is a reasonable contribution to the Company's common costs, since on the average, across all product offerings GTE must achieve an average 47% margin above all TELRICs (directly attributable forward looking costs) to fully recover its "forward-looking" common costs.

Q. COULD GTE'S PROPOSED RATES FOR UNBUNDLED LOOPS BE CONSIDERED "MAKE-WHOLE" RATES?

A. Absolutely not. The major contributor to this "not-make-whole" situation is GTE's proposed unbundled 2-wire loop price of $33.08. As presented in GTE's Economic Presentation material, the upper bound price (contribution preserving price) for an average business unbundled loop would be $64.56. The difference between the $64.56

and GTE's proposed rate of $33.08 represents a permanent loss of contributions to the Company; $31.48 "on the average" will be lost for every unbundled loop provisioned to an ALEC's business customers. If ALECs target business customers with above average usage characteristics, the losses in contributions that the Company will experience will greatly exceed $31.48 per unbundled loop. As can be seen from Exhibit No. DBT-4, this loss of contributions results from the loss of high margin services (toll, switched access, and vertical services) that will certainly be lost when an ALEC provides a GTE unbundled loop to a business customer. Exhibit No. DBT-4 presents similar data for GTE's average residential customers and presents the computed rates that GTE would be required to charge if it were to be made whole ($64.56 for business, $29.47 for residence, or $38.49 for an "average" unbundled loop), ignoring market realities. GTE's proposed unbundled loop rate of $33.08 is substantially lower than any make-whole rate.

It should be noted that the "upper bound" loop rate of $64.56 is the result of many decades of pricing services based on their perceived "value of service" along with the complementary outcome that revenue contributions from business customers should be used to keep residential rates low. GTE's current rate structure, as mandated by regulation, continues to provide incentives for the inefficient entry of competitors whose major objective will be to capture the above-market contributions that are used by the Company to support public

policy objectives. ALECs will use these captured contributions to finance their entry into the local market.

Q. ASSUMING THE COMMISSION ACCEPTS GTE'S PROPOSED UNBUNDLED LOOP RATE, WILL SUCH A RATE PROVIDE REVENUE AND CONTRIBUTION OPPORTUNITIES FOR ALECS TO EFFECTIVELY COMPETE WITH GTE?

A. Yes, and the ALECs do not have to be as efficient as GTE for this to occur. Equally efficient entrants would be just incented to enter the marketplace if GTE's unbundled loop rate were proposed at its "upper bound" loop price; but market conditions preclude this rate from being proposed. As illustrated in Exhibit No. DBT-4, the financial opportunities available to ALECs, in terms of their ability to earn additional contributions to their common costs and overheads, would equal the difference between any revenues GTE would have received from the end users (assuming the ALECs match GTE's retail rates) less the rate of GTE's unbundled loop and any self-provisioned elements.

At a $33.08 unbundled loop rate, ALECs should be highly motivated to attract GTE's business customers, whose revenue streams exceed $69.00. For illustrative purposes let's assume that the ALEC obtains 10 percent of GTE's end user customers through the use of GTE's unbundled loop. Under this scenario, the annual revenue contributions available to the ALEC, assuming its price and cost

structures mirror GTE's, would be nearly $4.7 million per year as shown in Exhibit No. DBT-4.

To look at it another way, GTE (on the average for combined business and residence lines) obtains approximately $15.23 contribution per month (Source: The total contribution levels are presented in Exhibit No. DBT-4); which provides for recovery of the Company's forward-looking common costs. From Exhibit No. DBT-4, one can compute that an equally-efficient ALEC (which we will assume the ALEC is) should be able to generate approximately $28.31 in contribution from an average business customer. Actual contribution levels for ALECs should be larger since they are not likely to be targeting an average business customer, but more likely will be targeting high-volume business customers. In addition, by purchasing GTE's unbundled loop, ALECs will most likely not have any of the common costs that result from the provision of loops, thus it is likely that their level of common costs will be significantly below GTE's average per line amount ($15.23). Of course the ALECs' contribution gains are also GTE's contribution losses.

B. UNBUNDLED PORTS / LOCAL SWITCHING

Q. MR. TRIMBLE, PLEASE SUMMARIZE GTE'S PROPOSAL FOR LOCAL SWITCHING ELEMENTS.

A. GTE is presenting two alternative proposals for the pricing of local switching elements. The first proposal (which I will call Proposal A)

has access to all local switching elements (minutes of use switching, vertical services, etc.) being accomplished through the ALEC's purchase of GTE's unbundled "line-side" port element. Minutes-of-use switched and vertical services would then be resold to the ALEC (i.e., rates would be found in GTE's discounted resale tariff).

Q. IS GTE'S "PORT AND RESALE SERVICES" OFFERING A REASONABLE METHOD FOR PRICING UNBUNDLED LOCAL SWITCHING?

A. Yes. Many ALECs may find this proposed pricing structure to be quite satisfactory. But to be as responsive as possible to the varying positions taken by ALECs, GTE has developed a second pricing scenario which ALECs can elect for unbundled local switching.

Q. PLEASE DESCRIBE YOUR ALTERNATIVE RATE STRUCTURE FOR UNBUNDLED LOCAL SWITCHING.

A. Similar to GTE's "port and resale switching" proposal, this alternative proposal (which I will call Proposal B) includes monthly and any appropriate non-recurring charges for the unbundled port, and unbundled switch features, and a local per-minute-of-use switching charge.

Q. WHAT RATE LEVEL IS GTE PROPOSING FOR EACH RATE ELEMENT CONTAINED IN PROPOSAL B?

A. GTE is proposing a monthly rate for the basic unbundled port at $6.60. In addition, GTE is proposing a usage charge of $0.004938 for each minute of use traversing the unbundled switching element. Proposed switch "feature" rates are presented in Exhibit No. DBT-3B.

Q. WHAT IS THE BASIS UPON WHICH YOU DEVELOPED THE RATES FOR PROPOSAL B'S UNBUNDLED SWITCHING ELEMENTS?

A. GTE's Proposal B contains a monthly recurring port rate based on TELRIC plus a 47% contribution to the Company's common cost. Similarly, GTE's proposed usage rate per minute is based on TELRIC times 1.47, and available features are also priced at their TELRIC times 1.47, with a minimum twenty-five cent ($.25) rate. In addition, for minutes of use which traverse the port, GTE will apply the applicable carrier common line charge and 100% of the applicable residual interconnection charges, similar to the procedure discussed by the FCC in Part 51.515(b) and (c).

Q. HOW DID YOU EVALUATE THE REASONABLENESS OF THE COMMON COSTS RECOVERED IN YOUR LOCAL SWITCHING RATES?

A. Proposal B's switching elements were priced to provide an average percentage recovery of the Company's common costs. An average level of contribution can only be considered reasonable.

Q. DO YOU HAVE ANY OTHER COMMENTS REGARDING YOUR PRICING PROPOSAL?

A. Yes. The prices presented therein are interdependent and must be considered as such. If the Commission changes relationships within the structure, such as the balance between loops, usage and features, all rates elements must be simultaneously adjusted to provide for appropriate cost recovery.

C. APPLICATION OF ACCESS CHARGES

Q. WHAT ACCESS CHARGES, IF ANY, SHOULD BE COLLECTED ON A TRANSITIONAL BASIS FROM CARRIERS WHO PURCHASE GTE'S UNBUNDLED LOCAL SWITCHING ELEMENT?

A. GTE will assess a per minute charge to the ALEC for all traffic switched by GTE (local, intraLATA toll, and interLATA toll - both intra- and interstate). For calls that "traverse" an unbundled local switching element (i.e., port) that was purchased by the ALEC and would incur access charges in today's environment, GTE will assess the local switching rate plus the Carrier Common Line Charge (CCLC) and the residual interconnection charge (RIC). These charges should not be referred to as "access charges," rather they are local switching charges that provide continued contributions in lieu of access charges. They do not alter the ALEC's right/obligation to assess access charges. The ALEC will be responsible for assessing access charges on the IXC. Note that for calls that do not traverse an unbundled port, full switched access rates will apply.

The FCC notes that application of these elements is intended to provide continued contribution to universal service and local service rate support objectives. Therefore, application of the rates should continue at their currently tariffed levels and not at the diminished levels contained in the FCC's First Report. To do so would be ratemaking in an arbitrary and capricious manner, as no justification has been provided for applying only 75% of the RIC. In addition, GTE has not been provided an opportunity to rebalance those rate structures that are currently supported by the contributions from the RIC and CCLC rate elements.

Q. HOW LONG SHOULD ANY TRANSITIONAL PERIOD LAST?

A. Application of these rate elements should continue until a "reassignment" of revenues associated with these elements to appropriate rate elements is fully addressed. This is likely to occur through access reform, universal service and some form of rate rebalancing. GTE fully supports efforts to rationalize all rates, including local and access. It is our belief that only when rates have been fully rationalized can the magnitude of the funding issues associated with public policy choices be identified and dealt with. Further, GTE believes that funding of these public policy choices must be accomplished in a competitively neutral manner.

LOCAL INTERCONNECTION

Q. WHAT RATE LEVEL DOES GTE PROPOSE FOR THE TERMINATION OF LOCAL TRAFFIC?

A. Compensation for termination of local traffic should be based on cost plus a reasonable contribution. GTE is willing initially to accept a bill-and-keep arrangement in the interest of expediting the initiation of the competitive process. However, as soon as traffic becomes out of balance by plus-or-minus 10% or more, GTE would require a mutual compensation provision. GTE proposes to charge its interstate switched access rates for all minutes terminated to GTE that exceed that 10% "threshold of balanced traffic."

Q. WHY DO YOU BELIEVE THAT GTE'S CURRENT TARIFF RATES FOR INTERSTATE SWITCHED ACCESS ARE REASONABLE RATE LEVELS FOR LOCAL INTERCONNECTION?

A. Interstate switched access rates are rates that represent our current wholesale offering to interexchange carriers ("IXC"). GTE has no desire to continually introduce new rate levels that vary by "class of wholesale customer" (e.g., ALEC versus IXC, etc). The current switched access rates have been blessed by the FCC as appropriate rates for wholesale switching elements, and with GTE's "bill-and-keep" proposal, these proposed rates would not be effective until traffic becomes "out-of-balance". The arbitration process must be cognizant of the impacts that the "arbitration decision" will have on GTE's entire non-ALEC product offerings (i.e., decisions in this

proceeding should not exacerbate nor accelerate the arbitrage of GTE's existing tariffs).

Q. DO MUTUAL COMPENSATION AGREEMENTS CREATE ANY ADDITIONAL RATEMAKING ISSUES?

A. Yes. Traditionally, in instances where GTE has paid other Local Exchange Carriers ("LEC"s) to terminate GTE-originated traffic, rate structures have been available that allowed GTE to recover those costs by levying charges to end users. Toll charges and Extended Area Service ("EAS") adders are examples of such rate structures. Historically, when GTE did not have a mechanism to levy charges to end users, GTE did not pay for the termination of its traffic. With mutual compensation, GTE's expenses will increase. Recovery of such costs will necessitate a rate structure that allows charges to end users (the "cost-causer") for originating such traffic. Incumbent LECs, as well as all other telecommunications providers, should have the option of implementing such end user charges. This may require charging all end users for all originating traffic (perhaps with a provision for the terminating customer to accept such charges).

<u>COLLOCATION</u>

Q. WHAT RATES ARE PROPOSED BY GTE FOR PHYSICAL COLLOCATION?

A. GTE's proposed rates for physical collocation can be found in Exhibit No. DBT-5. These rates were filed with the FCC on October 2, 1996

and are expected to be approved on November 16, 1996. In general, the proposed non-recurring rate levels are set at the direct cost of the specific element, while the monthly recurring rates provide a reasonable level of contribution toward the recovery of common costs.

SERVICE PROVIDER NUMBER PORTABILITY

Q. WHAT RATES ARE PROPOSED BY GTE FOR SPNP?

A. GTE's proposed rates for SPNP can be found in Exhibit No. DBT-3A. The rate structure proposed by GTE includes a price per number ported. If an end user desires additional simultaneous call paths, then an additional call path price applies to each requested simultaneous path. The prices for both of these rate elements were set at GTE's TELRIC estimates with an approximate 10% contribution to common cost.

FCC's PROXY RATES

Q. SHOULD THIS COMMISSION GIVE ANY CONSIDERATION TO THE FCC'S PROXY RATES?

A. No. This Commission should not give any consideration to using the default proxy rates proposed by the FCC in its First Report as amended by the FCC's September 27, 1996 announcement of reconsideration. First, those sections of the FCC's First Report that dealt with pricing rules, including proxy rates, were stayed by the U.S. Court of Appeals for the Eighth Circuit (pending final judicial

review) on October 15, 1996. The Court imposed the stay with a detailed opinion, pending its final judicial review of the merits of GTE's objections. This fact alone eliminates the proxy rates from consideration by this Commission. In addition, I will address two points that conclusively illustrate that the FCC's proxy rates are absolutely inappropriate: (a) The results of cost studies prepared by GTE using the FCC's prescribed methodology, when compared with the FCC's mandatory proxy price ceilings, show that GTE's TELRIC costs are not covered by the proxy rates. Consideration of GTE's common costs, as required by the Act, would exacerbate this situation; and (b) GTE would experience a severe, prejudicial revenue shortfall under the FCC's proxy rates, as demonstrated by comparing, on the one hand, the revenues that would be obtained using the FCC's proxy prices from an average customer in GTE's service area to, on the other hand, both the revenues generated from elements priced at GTE's TELRICs and to current average per line revenues.

Q. DESCRIBE THE RESULTS WHEN YOU COMPARE, AS YOU HAVE DESCRIBED, GTE'S TELRICS WITH THE FCC'S PROXY PRICE CEILINGS.

A. As Exhibit Nos. DBT-6 and DBT-7 demonstrate, when GTE applies the FCC's prescribed costing methodology, the costs that result are much higher than the FCC's proxy ceiling prices. Specifically, GTE's loop costs (without the NID) average at least 50 percent larger than

the FCC's ceiling price for unbundled loops, and GTE's unbundled end office switching costs average at least two times the FCC's price ceiling of $0.004 per minute plus $2.00 for a switch port, even when all possible switching features and functions are not included. Moreover, as Exhibit No. DBT-8 shows, when GTE compares the revenues that would be obtained from the FCC's proxy prices to either the revenues from elements priced at the TELRICs computed by GTE or to current revenues per line, it is clear that a large gap exists. It is also obvious that the effective discount from the equivalent retail service price using the FCC proxy prices is much larger than the discount ceiling established by the FCC for resold services (25 percent).

Q. PLEASE EXPLAIN HOW EXHIBIT NO. DBT-8 WAS DEVELOPED AND WHAT IT SHOWS.

A. GTE's TELRIC cost studies are based upon the methodology prescribed by the First Report (at para. 672-702). GTE first calculated the direct forward-looking cost of each network element. GTE then determined the common costs that could not be attributed to any particular element or sub-group of elements. These latter costs are to be allocated to all network elements during the pricing process.

The First Report specified (at ¶ 744) that the rate for unbundled local loops be a flat, per-month charge. Further, the FCC specified (at ¶

794, Appendix D) the statewide weighted average ceiling price that a state regulatory agency could adopt in an arbitration proceeding unless the state commission had completed its review of cost studies that comport to the FCC methodology. Exhibit No. DBT-6 shows the results of the GTE cost studies for loops in several states where GTE serves a large number of customers. The cost developed using a TELRIC methodology averages 50 percent larger than the FCC's statewide weighted average proxy ceiling price. This difference clearly supports my conclusion that the FCC's statewide weighted average loop proxy price is arbitrary and inappropriate (at least as it applies to GTE) because it is based upon a mixture of cost estimates for only the bare incremental cost of a loop, rather than being based upon a TELRIC methodology. Further, to assure a proper comparison, neither the proxy price nor the GTE TELRIC results described above include any allocation of common costs as the FCC's own cost methodology requires.

Q. WHAT ASSUMPTIONS DID YOU EMPLOY IN THE DEVELOPMENT OF YOUR LOCAL SWITCHING COMPARISON FOUND IN EXHIBIT NO. DBT-7, AND WHAT WERE THE RESULTS?

A. The First Report specified (at ¶ 412) that the unbundled local switching network element is to include not only line-to-line and line-to-trunk "basic switching," but also all of the features, functions, and capabilities, such as a telephone number, directory listing, dial tone, signaling, and access to 911, operator services and directory

assistance, all vertical features including custom calling and CLASS features, Centrex, and any technically feasible customized routing functions. The unbundled local switching rate structure was required to include "a combination of a flat-rated charge for line ports, which are dedicated to a single new entrant, and either a flat-rate or per-minute usage charge for the switching matrix and for trunk ports, which constitute shared facilities, best reflects the way costs for unbundled local switching are incurred." Id. at ¶ 810. Unless a state regulatory agency has completed its review of cost studies that comport with the FCC's costing methodology, it would have been required (Id. at ¶ 815) to set the rate for unbundled local switching "so that the sum of the flat-rated charge for line ports and the product of the projected minutes of use per port and the usage-sensitive charges for switching and trunk ports, all divided by the projected minutes of use, does not exceed 0.4 cents ($0.004) per minute of use and is not lower than 0.2 cents ($0.002) per minute of use." The FCC's September 27 order on reconsideration introduced an additional fixed-rate port charge in the range of $1.10 to $2.00 per month.

Exhibit No. DBT-7 compares the FCC's proxy price for unbundled local switching to the results of cost studies prepared by GTE using the FCC's TELRIC methodology. Shown are GTE's cost estimates for three end office switching cost elements for a number of states where GTE serves a large number of customers. Those elements are: (i) a per minute cost to switch a call; (ii) a per line per month cost for the

non-usage sensitive components of a switch (e.g., port); and (iii) a per line per month cost for a representative feature package. The cost element of a per line, per month cost for the feature package was chosen to comply with the FCC's mandate that a rate structure recover costs "in a manner that efficiently apportions costs among users." First Report at ¶ 755. It is very important to note that the feature package selected for illustrative purposes does not include all of the features, functions and capabilities that a switch may be capable of providing. The package selected includes many of the most commonly used features (e.g., Call Waiting, Speed Calling, Time of Day Routing). Also not included in any of the three cost estimates in Exhibit No. DBT-7 are the costs associated with a directory listing or the more esoteric switch features such as customized routing and Meet-Me Conference Bridging. For comparison purposes, the analysis was performed twice for two states, Indiana and Ohio, to show the potential cost impact resulting from the incorporation of additional or advanced features.

To provide a logical comparison, GTE converted the two per line, per month cost elements into an equivalent per minute cost by dividing by the average switched minutes of use per month, including minutes associated with both local and long distance calls. The result of this calculation is a composite TELRIC per minute cost that is three times the FCC's upper price ceiling (even ignoring the two instances that incorporated feature packages which include extraordinary features)

These results confirm my conclusion that the FCC's local switching proxy price was based upon information that estimated the incremental cost of line-to-line or line-to-trunk basic switching, but did not, as the FCC's own methodology requires, include either the costs related to other switch features and functions, or common costs. If GTE were to integrate all of the vertical features that its switches could provide into a "you get them all with switching" package, GTE's required price per minute of use would be astronomical. If each port came with a full complement of vertical services, the full TELRIC cost of the "free" vertical services could exceed $100 per month (see Tab 23 of GTE Cost Study Submission for the TELRICs of most vertical services), which could never be recovered with a $2.00 port charge and a $0.004 per minute of use switching charge. Even for a reasonable level of vertical services, prices for a local switching network element would have to be in the $0.03 to $0.05+ per minute range for the Company to recover its forward-looking costs.

Q. IF THE DEFAULT PROXY RATES WERE IMPLEMENTED, WOULD GTE EXPERIENCE A SUBSTANTIAL REVENUE SHORTFALL?

A. Exhibit No. DBT-8 compares the FCC's proxy price for a combination of unbundled local switching and an unbundled local loop (i.e., the reassembled equivalent of local service) to both the results of GTE's TELRIC study, and to GTE's current average revenues per line. To prepare this comparison, GTE derived the average monthly usage per line, including local and toll minutes of use, for an average of

residence and business lines. This average number of minutes was multiplied by the FCC's proxy price ceiling of $0.004 per minute, and that switched usage revenue amount was added to the flat rate components that would also be needed to comprise reassembled local service (i.e., a port at the FCC's $2.00 rate, a local loop and a Network Interface Device, or "NID"). GTE also derived the current revenues per line for an average of business lines, including flat rate local charges, local and toll usage charges, and vertical feature charges. When the unbundled network elements of switching (including the port), a loop and a NID are combined to replicate local service, the revenues from those elements when priced at the FCC's proxy rates are only fifty-seven percent of GTE's TELRIC for the combined service (Exhibit No. DBT-8, $21.30 compared to $37.31 per month). This comparison of price to cost understates the shortfall, because by definition TELRIC does not include an allocation of common costs. Further, the FCC's proxy prices would provide new entrants with approximately a 62 percent discount off GTE's current average business retail revenue per line (Exhibit No. DBT-8, $21.30 compared to $56.27 per month). Clearly neither the FCC proxy price nor the TELRIC methodology come anywhere close to providing revenues that cover GTE's cost of providing service.

Moreover, the 62 percent discount that results from the FCC proxy price cannot be squared with the FCC's interim wholesale rates. Section 51.611 of the FCC's rules required that resale discounts

should be "no more than 25 percent." Thus, the FCC's proposed requirements for its two pricing mechanisms (resale and unbundling) were totally inconsistent. The potential discount is significantly below the Company's costs and would result in GTE subsidizing competitive entry.

Based upon my and my staff's review of the FCC's First Report and FCC's subsequent September 27, 1996 reconsideration, I am convinced that the FCC's proxy price ceilings for unbundled loops and local switching are significantly understated.

Q. SHOULD THE FCC'S PROPOSED LOOP PROXY RATES, AS PUBLISHED IN ITS FIRST REPORT, PLAY ANY PART IN THE ARBITRATION PROCEEDING?

A. No. The FCC's proposed proxies have no relationship to reality. To begin with, they are subject to the Eighth Circuit's stay order. Further, for this state, the FCC's unbundled loop proxy price is $13.68. But GTE's 2-wire unbundled loop TELRIC is $23.26. A simple comparison of these two numbers summarily illustrates that the FCC's proxy rate is significantly understated. Similarly, the FCC's price is also significantly understated when compared with the BCM II produced TELRIC ($25.44).(See Tab 21 of GTE's Cost Study Submission.) This Commission must reject from consideration the FCC proxy rates and any other proposed rates that resemble the FCC's rates.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

FLORIDA
GTE

RECOVERY OF JOINT AND COMMON COSTS

		Revenue	TSLRIC (1)	Contribution
	Local			
1	Residence	$274,482,117	$420,151,824	($145,669,707)
2	Business	$250,180,256	$142,037,160	$108,143,096
3	Vertical Services	$50,874,520	$4,554,206	$46,320,314
4				
5	Total Local (2)	$575,536,893	$566,743,190	$8,793,703
6				
7	IntraLATA Toll	$53,792,000	$5,693,863	$48,098,137
8				
9	Switched Access	$320,896,000	$32,479,466	$288,416,534
10	2W & 4W Private & SAL (3)	$13,810,152	$12,764,952	$1,045,200
11				
12	Other	$305,000,955	$196,216,241	$108,784,714
13				
14	Total	$1,269,036,000	$813,897,712	$455,138,288

Note:

(1) *Total Service Long-Run Incremental Cost.*
(2) *Excludes other miscellaneous local services.*
(3) *Excludes transport and supplemental features.*

What's in GTE Florida's Common Costs

(a)	1995 Total Regulated Revenues	$1,269,036 K
(b)	Total Direct Costs	$813,898 K
(c)	Estimated Foward-Looking Common Costs (a-b)	$455,138 K
(d)	Estimated Common Costs as a % of Direct Costs (c/b)	56%

USOA Account	Common Cost Category	1995 Costs $K	Notes
21XX	**General Support Costs**		Capital Costs: Depreciation, Return, and taxes associated with the indicated capital account
2112	Motor Vehicle	$10,201	
2114	Special Purpose Vehicle	$0	
2115	Garage Work Equipment	$322	
2116	Other Work Equipment	$7,932	
2121	Building + Land	$41,661	(Non Central Office Only)
2122	Furniture	$1,797	
2123	Office Support Equipment	$2,113	
2123	Company Communications Equipment	$11,835	
2124	General Purpose Computers	$22,625	
	TOTAL 21XX	$98,486	
61XX	**Plant Specific Operations**		
611X	Network Support Expenses		
6112	Motor Vehicle Expense	$1,486	
6115	Garage Work Equipment Expense	$55	
6116	Other Work Equipment	$0	
612X	General Support Expenses		
6122	Furniture	$2,248	
6123	Office Equipment	$4,734	
6124	General Purpose Computers	$46,415	81% of Account (19% not Common)
	TOTAL 61XX	$54,938	
66XX	**Plant Non-Specific Operations**		
6612	Provisioning Expense	$2,385	
663X	Network Operations Expenses		
6532	Network Administration	$18,814	
6533	Testing	$22,283	
6534	Plant Operations Administration	$19,802	
6535	Engineering	$8,910	
	TOTAL 66XX	$71,974	
	Corporate Operations		
67XX 671X	Executive and Planning		
6711	Executive	$4,889	
6712	Planning	$3,045	
672X	General and Administrative		
6721	Accounting and Finance	$14,152	
6722	External Relations	$8,387	
6723	Human Resources	$11,009	
6724	Information Management	$56,873	87% of Account (13% not Common)
6725	Legal	$2,125	
6726	Procurement	$1,536	
6727	Research and Development	$4,515	
6728	Other G & A	$47,647	
	TOTAL 67XX	$153,138	
TOTAL COMMON COSTS		$378,536 K	
	Percent of Direct Costs (i.e., TELRIC) =	47%	

GTFL
GTE Florida

WHOLESALE SERVICE NRCs

UNBUNDLED SERVICES

Service Ordering (loop or port)	
Initial Service Order, per order	$47.25
Transfer of Service Charge, per order	$16.00
Subsequent Service Order, per order	$24.00
Customer Service Record Research, per request	$5.25
Installation	
Unbundled Loop, per loop	$10.50
Unbundled Port, per port	$10.50
Loop Facility Charge, per order (see Note 1)	$62.50

RESALE SERVICES

Service Ordering	
Initial Service Order, per order	$41.50
Subsequent Service Order, per order	$24.00
Installation, per line	$26.25
Outside Facility Connection Charge, per order (see Note 2)	Note 2

SERVICE PROVIDER NUMBER PORTABILITY

SPNP, per number ported	$10.50

Note 1: The Loop Facility Charge will apply when field work is required for establishment of a new unbundled loop service.

Note 2: The Outside Facility Connection Charge will apply when field work is required for establishment of a new resale service. The terms, conditions and rates that apply for this work are described in the Company's retail local service tariffs.

Docket No. 961173-TP
Direct Testimony of
Dennis B. Trimble
Exhibit No. DBT-3A
Page 1 of 7
FPSC Exhibit No. _____

Total Element Long Run Incremental Cost ("TELRIC")
Unbundled Network Elements
GTE - Florida
Proposal A - SPRINT

Unbundled Element	TELRIC (1) $/month	TELRIC (1) $/minute	Contract Rates	% Contribution	Weighted "Upper Bound"
(1) LOCAL LOOPS					
Local Loop					
2 Wire Loop	$23.26		$33.08	42.22%	$38.49
4 Wire Loop	$28.13		$52.83	88.18%	
Network Interface Device					
Basic NID	$1.32		$1.50	13.64%	
12x NID	$1.89		$2.10	11.11%	
(2) LOCAL SWITCHING (Must purchase a Port)					
Ports					
2 Wire Basic Port	$4.51		$5.00	10.86%	
DS-1 Port	$68.76		$75.80	9.95%	
Local Switching					
Originating MOU					
Setup		$0.0086666			
MOU		$0.0013707			
Average MOU		$0.0035592	Resale Tariff		
Terminating MOU					
Setup		$0.0070792			
MOU		$0.0013715			
Average MOU		$0.0031591	n/a		
Intrastate End Office Switching					
Originating MOU					
Setup		$0.0086666			
MOU		$0.0013707			
Average MOU		$0.0035592	$0.0086000		
Terminating MOU					
Setup		$0.0070792			
MOU		$0.0013715			
Average MOU		$0.0031591	$0.0086000		
Interconnection Charge					
Intrastate MOU			$0.0102494	State Tariff	
Carrier Common Line					
Intrastate					
-Originating			$0.0251000	State Tariff	
-Terminating			$0.0382000	State Tariff	
Interstate End Office Switching					
Originating MOU					
Setup		$0.0086666			
MOU		$0.0013707			
Average MOU		$0.0035592	$0.0107432	GTOC #1	
Terminating MOU					
Setup		$0.0070792			
MOU		$0.0013715			
Average MOU		$0.0031591	$0.0107432	GTOC #1	
Interconnection Charge					
Interstate MOU			$0.0020549	GTOC #1	
Carrier Common Line					
Interstate					
-Originating			$0.0100000	GTOC #1	
Terminating			$0.0226000	GTOC #1	
Features					
Various			Resale Tariff		
(3) LOCAL INTERCONNECTION					
A Bill and Keep +/- 10% Traffic			Bill and Keep		
B Out of Balance Terminating Traffic Average MOU		$0.0031591	$0.0107432	GTOC #1	

Note GTE's Fixed Allocator 47%

Total Element Long Run Incremental Cost ("TELRIC")
Unbundled Network Elements
GTE - Florida
Proposal A - SPRINT

Unbundled Element	TELRIC /1 $/month	TELRIC /1 $/minute	Contract Rates	% Contribution	Weighted Upper Bound
(4) DEDICATED TRANSMISSION LINKS (major elements only)					
Entrance Facility					
2 Wire Voice	$23.40		$33.08	GTOC #1	
4 Wire Voice	$26.34		$52.93	GTOC #1	
DS1 Standard 1st System	$114.60		$331.70	GTOC #1	
DS1 Standard Add'l System	$114.60		$130.00	GTOC #1	
DS3 Protected Electrical	$870.70		$1,350.00	GTOC #1	
DS1 to Voice Multiplexing	$184.68		$250.00	GTOC #1	
DS3 to DS1 Multiplexing	$277.90		$561.63	GTOC #1	
Direct Trunked Transport					
Voice Facility Per ALM	$2.34		$5.08	GTOC #1	
DS1 Facility Per ALM	$0.48		$5.00	GTOC #1	
DS1 Per Termination	$27.28		$30.00	GTOC #1	
DS3 Facility per ALM	$11.81		$70.00	GTOC #1	
DS3 Per Termination	$257.51		$500.00	GTOC #1	
(5) COMMON/SHARED TRANSMISSION FACILITIES					
Transport Termination					
Average MOU / Term		$0.0000907	$0.0001344	GTOC #1	
Transport Facility per Mile					
Average MOU / Mile		$0.0000014	$0.0000135	GTOC #1	
(6) TANDEM SWITCHING					
Tandem Switching					
Setup		$0.0011513			
MOU		$0.0008736			
Average MOU		$0.0009143	$0.0007500	GTOC #1	
(7) DATABASES AND SIGNALING SYSTEMS					
Signaling Links and STP					
56 Kbps Links	$72.22		$92.88	GTOC #1	
DS-1 Link	$114.60		$360.00	GTOC #1	
Signal Transfer Point (STP) Port Term	$316.27		$369.00	GTOC #1	
Call Related Database					
Line Information Database (ABS-Queries)	$0.035		$0.035	GTOC #1	
Line Information Database Transport (ABS-Queries)	N/A				
Toll Free Calling Database (DB800 Queries)	$0.008917		$0.008038	GTOC #1	
(8) SERVICE PROVIDER NUMBER PORTABILITY					
Service Provider Number Portability per number ported	$4.65		$5.10		
Simultaneous Call Capability - Additional	$2.78		$3.10		
(9) OTHER NETWORK ELEMENTS					
Operator Services		/2			
Directory Assistance		/2			
Subscriber Numbers		/2			

/1 Includes volume sensitive and average volume insensitive costs
/2 Under study

Total Element Long Run Incremental Cost ("TELRIC")
Unbundled Network Elements
GTE - Florida
Proposal B - SPRINT

Unbundled Element	TELRIC // $/Month	TELRIC // $/minute	Contract Rates	% Contribution	Weighted "Upper Bound"
(1) LOCAL LOOPS					
Local Loop					
2 Wire Loop	$23.26		$33.08	42.22%	$38.49
4 Wire Loop	$28.13		$52.93	84.18%	
Network Interface Device					
Basic NID	$1.32		$1.50	13.64%	
12x NID	$1.89		$2.10	11.11%	
(2) LOCAL SWITCHING (Must purchase Port)					
Ports					
2 Wire Basic Port	$4.51		$6.60	46.34%	
DS-1 Port	$68.78		$101.10	47.03%	
Local Switching					
Originating MOU					
Setup		$0.0086956			
MOU		$0.0013707			
Average MOU		$0.0035592	$0.0049380		
Terminating MOU					
Setup		$0.0070792			
MOU		$0.0013715			
Average MOU		$0.0031591	$0.0049380		
Interstate End Office Switching					
Originating MOU					
Setup		$0.0086956			
MOU		$0.0013707			
Average MOU		$0.0035592	$0.0049380		
Terminating MOU					
Setup		$0.0070792			
MOU		$0.0013715			
Average MOU		$0.0031591	$0.0049380		
Interconnection Charge					
Intrastate MOU			$0.0102484	State Tariff	
Carrier Common Line					
Intrastate					
-Originating			$0.0251000	State Tariff	
-Terminating			$0.0382000	State Tariff	
Interstate End Office Switching					
Originating MOU					
Setup		$0.0086956			
MOU		$0.0013707			
Average MOU		$0.0035592	$0.0049380		
Terminating MOU					
Setup		$0.0070792			
MOU		$0.0013715			
Average MOU		$0.0031591	$0.0049380		
Interconnection Charge					
Interstate MOU			$0.0020549	GTOC #1	
Carrier Common Line					
Interstate					
-Originating			$0.0100000	GTOC #1	
-Terminating			$0.0220000	GTOC #1	
Features					
Various			See Attached		
(3) LOCAL INTERCONNECTION					
A Bill and Keep +/- 10% Traffic			Bill and Keep		
B Out of Balance Terminating Traffic Average MOU		$0.0031591	$0.0107432	GTOC #1	

Note: GTE's Fixed Allocator 47%

Total Element Long Run Incremental Cost ("TELRIC")
Unbundled Network Elements
GTE - Florida
Proposal B - SPRINT

Unbundled Element	TELRIC 1/ $/month	TELRIC 1/ $/minute	Contract Rates	% Contribution	Weighted "Upper Bound"
(4) DEDICATED TRANSMISSION LINKS (major elements only)					
Interoffice Facility					
2 Wire Voice	$23.40		$33.08	GTOC #1	
4 Wire Voice	$28.34		$52.93	GTOC #1	
DS1 Standard 1st System	$114.80		$331.70	GTOC #1	
DS1 Standard Add'l System	$114.80		$130.00	GTOC #1	
DS3 Protected Electrical	$870.70		$1,359.69	GTOC #1	
DS1 to Voice Multiplexing	$184.88		$250.00	GTOC #1	
DS3 to DS1 Multiplexing	$277.90		$581.83	GTOC #1	
Direct Trunked Transport					
Voice Facility Per ALM	$2.34		$5.08	GTOC #1	
DS1 Facility Per ALM	$0.48		$5.00	GTOC #1	
DS1 Per Termination	$27.28		$30.00	GTOC #1	
DS3 Facility per ALM	$11.61		$70.00	GTOC #1	
DS3 Per Termination	$257.51		$500.00	GTOC #1	
(5) COMMON/SHARED TRANSMISSION FACILITIES					
Transport Termination					
Average MOU / Term		$0.0000807	$0.0001657	GTOC #1	
Transport Facility per Mile					
Average MOU / Mile		$0.0000014	$0.0000172	GTOC #1	
(6) TANDEM SWITCHING					
Tandem Switching					
Setup		$0.0011513			
MOU		$0.0008736			
Average MOU		$0.0009143	$0.0009512	GTOC #1	
(7) DATABASES AND SIGNALING SYSTEMS					
Signaling Links and STP					
56 Kbps Links	$72.22		$82.88	GTOC #1	
DS-1 Link	$114.80		$380.00	GTOC #1	
Signal Transfer Point (STP) Port Term	$318.27		$588.00	GTOC #1	
Call Related Databases					
Line Information Database (ABS-Queries)	$0.035		$0.035	GTOC #1	
Line Information Database Transport (ABS-Queries)	N/A				
Toll Free Calling Database (DB800 Queries)	$0.038917		$0.038036	GTOC #1	
(8) SERVICE PROVIDER NUMBER PORTABILITY					
Service Provider Number Portability per number ported	$4.85		$5.10		
Simultaneous Call Capability - Additional	$2.78		$3.10		
(9) OTHER NETWORK ELEMENTS					
Operator Services		2/			
Directory Assistance		2/			
Subscriber Numbers		2/			

1/ Includes volume sensitive and average volume insensitive costs
2/ Under study

GTE - FLORIDA

	FEATURE NAME	GTE PROPOSED RATE
1	Speed Call 8 (Changeable)	$0.25
2	Speed Call 30 (Changeable)	$0.25
3	Cancel Call Waiting	$0.25
4	Call Forward Variable	$0.25
5	Call Waiting	$0.25
6	Dual Tone Multifrequency (DTMF)	$0.25
7	Three-Way Calling	$0.75
8	Account Codes For AFR	$0.25
9	Add On - Consultation Hold - Incoming Only	$0.25
10	Attendant BL Verification	$1.00
11	Attendant camp-on (NonDL Console)	$0.25
12	Attendant Conference	$4.25
13	Attendant Position Busy	$4.25
14	Attendant Recall from Satellite	$2.00
15	Authorization Codes for AFR	$0.50
16	Basic Business Group	$1.00
17	Dual Tone Multifrequency (DTMF)	$0.25
18	Station-to-Station Dialing (Intercom)	$3.00
19	Business Group Automatic Callback (BGAC)	$0.25
20	Call Forwarding Variable	$0.25
21	Business Group - Speed Call - 8	$0.25
22	Business Group - Speed Call - 30	$0.25
23	Business Group - Three Way Calling (TWC)	$0.75
24	Business Set Access To Paging	$2.25
25	Business Set Call Grp Intercom	$192.00
26	Code Calling	$0.25
27	Call Forward Busy Line	$0.25
28	Call Forward Don't Answer	$0.25
29	Call Forward Fixed	$0.25
30	Call Forwarding - Incoming Only	$0.25
31	Call Flip/Flop	$0.25
32	Call Forwarding - Within Group	$0.25
33	Call Hold	$0.25
34	Circular Hunting	$0.25
35	Control of Facilities	$0.25
36	Conference Calling 6 way	$3.75
37	Call Park	$0.25
38	Call Pick-Up	$0.25
39	Code Restriction and Diversion	$1.75
40	Call Transfer Individual - All Calls	$0.25
41	Call Waiting Originating	$0.25
42	Call Waiting Terminating	$0.25
43	Direct Connect	$0.25

GTE - FLORIDA

	FEATURE NAME	GTE PROPOSED RATE
44	Directed Call Pickup W/BI	$0.25
45	Directed Call Pickup WO/BI	$0.25
46	Dial Call Waiting	$0.25
47	Remote Access to (Business Group) Features	$0.25
48	Distinctive Ringing	$0.25
49	Executive Busy Override	$0.25
50	Fixed Night Service - Call Fwd	$0.25
51	Fixed Night Service - Key	$1.25
52	Fully Restricted (Orig/Term)	$0.50
53	Facility Restriction Level	$1.75
54	Foreign Exchange Facilities	$0.50
55	Last Number Redial	$0.25
56	Loud Speaker Paging	$0.50
57	Make Busy Key	$1.25
58	Music on Hold	$0.25
59	Off-Hook Queuing	$0.25
60	On-Hook Queuing	$0.25
61	Preferential Multiline Hunting	$0.25
62	Queuing	$7.25
63	Recorded Telephone Dictation	$0.50
64	Speed Calling Individual 1 Digit	$0.25
65	Speed Calling Individual 2 Digit	$0.25
66	Stop Hunt Key	$1.25
67	Special Intercept Announcements	$7.25
68	SMDR To Customer Premise	$22.00
69	Station Message Detail Recording - RAO	$1.25
70	Station Restricted (Orig/Term)	$0.50
71	Time of Day Routing Control	$0.50
72	Toll Restricted Service	$1.50
73	Two-way Splitting	$0.25
74	Uniform Call Distribution (UCD) Hunting	$0.25
75	Auto Alt Rt	$1.25
76	Auto Rt Sel	$0.75
77	Meet Me Conf	$51.00
78	Auto Call Bk	$0.25
79	Anon Call Rej	$0.25
80	Auto Recall	$0.25
81	Call Num Deliver	$0.25
82	Call Num DeliverBlk	$0.25
83	Cust Ord Trace	$0.25
84	Dist Ring/VIP	$0.25
85	Select Call Accept	$0.25
86	Select Call Frwd	$0.25

GTE - FLORIDA

	FEATURE NAME	GTE PROPOSED RATE
87	Select Call Reject	$0.25
88	Select Call Wait	$0.25
	Total	$332.25

GTE
Sprint

Table 1

NUMERICAL EXAMPLE: UNBUNDLED LOOP RATE
CALCULATION BASED ON AVERAGE BUSINESS CUSTOMER
(DOLLARS PER LINE PER MONTH)

	Revenue	TSLRIC (1)	Contribution
Basic Retail Service	$37 49	$24 60	$12 89
End-User Line Charge	$5 84	$0 00	$5 84
Local Toll	$3 32	$0 45	$2 87
Vertical Services	$1 33	$0 63	$0 70
Switched Access			
Interstate			
CCLC (2)	$6 69	$0 00	$6 69
Other	$6 49	$1 70	$4 79
Intrastate	$8 05	$0 53	$7 52
Total	$69 21	$27 91	$41 30

Notes
(1) *Total Service Long-Run Incremental Cost*
(2) *Carrier Common Line Charge*

"UPPER BOUND" LOOP PRICE

Unbundled Loop TSLRIC (1)	$23 26
Plus	
Incremental Marketing Costs	n/a
Plus	
Opportunity Costs (Forgone Contribution)	$41 30
Total	$64 56

Note:
(1) *Total Service Long-Run Incremental Cost*

Table 2

NUMERICAL EXAMPLE: UNBUNDLED LOOP RATE
CALCULATION BASED ON AVERAGE RESIDENTIAL CUSTOMER
(DOLLARS PER LINE PER MONTH)

GTE
Sprint

	Revenue	TSLRIC (1)	Contribution
Retail Rate	$12 42	$24 36	($11 94)
End-User Line Charge	$3 50	$0 00	$3 50
Local Toll	$2 01	$0 18	$1 83
Vertical Services	$2 50	$0 05	$2 45
Switched Access			
Interstate			
CCLC (2)	$3 13	$0 00	$3 13
Other	$3 04	$0 79	$2 25
Intrastate	$5 33	$0 34	$4 99
Total	$31 93	$25 72	$6 21

Notes
(1) *Total Service Long-Run Incremental Cost*
(2) *Carrier Common Line Charge*

"UPPER BOUND" LOOP PRICE

Unbundled Loop TSLRIC (1)	$23 26
Plus	
Incremental Marketing Costs	n/a
Plus	
Opportunity Costs (Forgone Contribution)	$6 21
Total	$29 47

Note
(1) *Total Service Long-Run Incremental Cost*

Table 3

Contribution Preserving Loop Rates
(Upper Bound Ceiling Price)

GTE
Sprint

	Unbundled Loop Cost	Lost Contribution to Margin	Total (Rate)
Business	$23.26	$41.30	$64.56
Residence	$23.26	$6.21	$29.47
WTD Bus/Res	$23.26	$15.23	$38.49

Table 4

Margin Opportunities for CLC's

	Market Share (10%) (a)	CLC's Retail Revenue (b)	CLC's Expense (c)	Annual Margin (d = a * (b-c) * 12)
Business	49,704	$69.21	$40.90	$16,885,443
Residence	143,730	$31.93	$38.95	($12,107,815)
WTD Bus/Res				$4,777,628

Total Element Long Run Incremental Cost ("TELRIC")
Unbundled Network Elements
GTE - FLORIDA

Collocation Elements	Rating Element	TELRIC /1 Costs	Proposed Rates /2
(1) Nonrecurring Costs			
Physical Engineering Fee	Per Request	$ 6,946.00	$ 6,948.00
Building Modifications	Per Central Office		
Simple		$ 13,484.00	$ 13,490.00
Moderate		$ 18,448.00	$ 18,450.00
Complex		$ 23,514.00	$ 23,520.00
DC Power	Per 40 Amps	$ 2,900.00	$ 2,900.00
Cable Pull	Per 12 Fibers	$ 1,213.00	$ 1,206.00
Cage Enclosure	Per Cage	$ 4,559.00	$ 4,558.00
(2) Monthly Recurring			
Partitioned Space	Per Sq. Ft	$ 1.59	$ 2.38
DC Power	Per 40 Amps	$ 368.24	$ 443.91
Cable Space	Per 12 Fibers	$ 12.60	$ 14.00
(3) Monthly Recurring for EIS			
DS0 level connection		$ 1.43	$ 2.36
DS1 level connection		$ 3.59	$ 5.93
DS3 level connection		$ 27.81	$ 45.91

1/ Includes volume sensitive and average volume insensitive costs.
2/ Filed in GTOC #1 10/02/96, to be effective 11/16/96

LOOPS

STATE	FCC LOOP PROXY CEILING PRICE (a)	TELRIC UNBUNDLED LOOP (b)	PROXY PRICE TO TELRIC DIFFERENCE (c = b / a)
GTE California	$11.10	$23.09	208.02%
Contel California	$11.10	$34.98	315.14%
GTE California West Coast	$11.10	$37.78	340.36%
GTE Florida	$13.68	$21.94	160.38%
GTE Hawaii	$15.27	$18.66	122.20%
GTE Indiana	$13.29	$19.72	148.38%
Contel Indiana	$13.29	$22.48	169.15%
Alltel Indiana	$13.29	$24.43	183.82%
GTE Kentucky	$16.70	$26.91	161.14%
GTE Michigan	$15.27	$19.54	127.96%
Alltel Michigan	$15.27	$21.59	141.39%
GTE Minnesota	$14.81	$31.61	213.44%
GTE Missouri	$18.32	$31.52	172.05%
GTE North Carolina	$16.71	$26.00	155.60%
Contel North Carolina	$16.71	$30.16	180.49%
GTE Ohio	$15.73	$20.28	128.93%
GTE Oregon	$15.44	$21.49	139.18%
GTE Pennsylvania	$12.30	$19.04	154.80%
Contel Pennsylvania	$12.30	$20.18	164.07%
GTE Texas	$15.49	$22.46	145.00%
Contel Texas	$15.49	$35.08	226.47%
GTE Virginia	$14.13	$32.16	227.60%
Contel Virginia	$14.13	$26.63	188.46%
GTE Washington	$13.37	$22.20	166.04%

Docket No. 961173-TP
Direct Testimony of
Dennis B. Trimble
Exhibit No. DBT-6
Page 1 of 1
FPSC Exhibit No. ____

END OFFICE SWITCHING

STATE		TELRIC PER MINUTE (a)	TELRIC PER PORT (b)	TELRIC FEATURE PACKAGE (c)	COMPOSITE TELRIC PER MINUTE (d = a + ((b + c) / MOU))	FCC PROXY PER MOU (e)	FCC PROXY PER PORT (f)	COMPOSITE FCC PROXY PER MOU (g = e + (f / MOU))	RATIO TELRIC TO FCC UPPER BOUND (h=d/g)
GTE California		0 0034840	$4 63	$2 61	$0 0107	$0 0040	$2 00	$0 0080	1 79
Contel California		0 0049379	$4 52	$2 61	$0 0122	$0 0040	$2 00	$0 0080	2 02
GTE California West Coast		0 0042122	$4 69	$2 61	$0 0131	$0 0040	$2 00	$0 0064	2 04
GTE Florida		0 0033592	$4 51	$6 90	$0 0179	$0 0040	$2 00	$0 0065	2 73
GTE Hawaii		0 0073568	$5 22	$6 69	$0 0244	$0 0040	$2 00	$0 0069	3 56
GTE Indiana	*	0 0030568	$4 06	$15 67	$0 0256	$0 0040	$2 00	$0 0063	4 07
GTE Indiana (Feature Pak 1000)		0 0030568	$4 06	$6 97	$0 0156	$0 0040	$2 00	$0 0063	2 49
Contel Indiana	*	0 0038611	$4 06	$15 67	$0 0269	$0 0040	$2 00	$0 0063	4 25
Contel Indiana (Feature Pak 1000)		0 0038611	$4 06	$6 97	$0 0167	$0 0040	$2 00	$0 0063	2 65
Alltel Indiana	*	0 0027508	$4 46	$15 67	$0 0239	$0 0040	$2 00	$0 0061	3 91
Alltel Indiana (Feature Pak 1000)		0 0027508	$4 46	$6 97	$0 0147	$0 0040	$2 00	$0 0061	2 42
GTE Kentucky		0 0031122	$3 85	$3 01	$0 0115	$0 0040	$2 00	$0 0065	1 77
GTE Michigan		0 0031419	$3 83	$4 08	$0 0119	$0 0040	$2 00	$0 0063	1 90
Alltel Michigan		0 0054617	$3 95	$4 08	$0 0138	$0 0040	$2 00	$0 0061	2 27
GTE Minnesota		0 0039068	$2 55	$0 87	$0 0081	$0 0040	$2 00	$0 0064	1 25
GTE Missouri		0 0025809	$3 04	$2 85	$0 0080	$0 0040	$2 00	$0 0062	1 44
GTE North Carolina		0 0020931	$3 85	$4 46	$0 0108	$0 0040	$2 00	$0 0061	1 76
Contel North Carolina		0 0026639	$3 85	$4 46	$0 0133	$0 0040	$2 00	$0 0066	2 01
GTE Ohio		0 0030980	$4 46	$15 29	$0 0262	$0 0040	$2 00	$0 0063	4 13
GTE Ohio (Feature Pak 1000)	*	0 0030980	$4 46	$4 24	$0 0133	$0 0040	$2 00	$0 0063	2 09
GTE Oregon		0 0040910	$3 97	$5 87	$0 0166	$0 0040	$2 00	$0 0065	2 55
GTE Pennsylvania		0 0027488	$4 79	$2 39	$0 0120	$0 0040	$2 00	$0 0066	1 82
Contel Pennsylvania		0 0039634	$4 79	$2 45	$0 0123	$0 0040	$2 00	$0 0063	1 95
GTE Texas		0 0035126	$4 39	$4 90	$0 0147	$0 0040	$2 00	$0 0064	2 29
Contel Texas		0 0066937	$4 09	$4 88	$0 0176	$0 0040	$2 00	$0 0065	2 75
GTE Virginia		0 0034657	$2 35	$2 10	$0 0086	$0 0040	$2 00	$0 0063	1 37
Contel Virginia		0 0030602	$2 42	$2 10	$0 0077	$0 0040	$2 00	$0 0060	1 27
GTE Washington		0 0034332	$3 15	$2 08	$0 0096	$0 0040	$2 00	$0 0064	1 51
								Average	2 36
								Average w/standard feature package	2 07

* Nonstandard feature packages

Docket No. 961173-TP
Direct Testimony of
Dennis B. Trimble
Exhibit No. DBT- 7
Page 1 of 1
FPSC Exhibit No. ____

COMPARISON OF PROXY PRICES
WITH
GTE FLORIDA TELRIC AND REVENUES

	TELRIC	FCC Proxy Prices	Current GTE Avg Bus Rev per Line per Month	
Local Loop	$21.94	$13.68	Local Service Price	$38 90
Network Interface Device	$1.32	$1.32	Switched Access	$7 08
Switching with Port	$14.05	$5.15	100% TIC	$1 22
75% TIC	n/a	$1.15	Local Switching	$4 43
			Vertical Services	$1 33
			IntraLATA Toll	$3.32
Per Line	$37.31	$21.30	Total Revenues	$56 27

Notes: Switched access transport excluded from costs & revenues above.
Carrier Common Line revenues excluded from all calculations
Subscnber Line Charge revenues included in average rate per switched access line.
TIC = Transport Interconnection Charge

Docket No. 961173-TP
Direct Testimony of
Dennis B. Trimble
Exhibit No. DBT-8
Page 1 of 1
FPSC Exhibit No. ____

PART X

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF MIKE DREW

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME AND YOUR BUSINESS ADDRESS.

A. My name is Mike Drew. My business address is 600 Hidden Ridge, Irving, TX 75038.

Q. BY WHOM ARE YOU EMPLOYED, AND WHAT IS YOUR POSITION?

A. I am employed by GTE Telephone Operations as a Group Product Manager-Interconnection. I am currently responsible for the continued compliance with the FCC and State PUC ONA Orders as well as the planning and implementation of the FCC's Operations Support System access requirements of the Interconnection Order in Docket 96-98. In addition, I am the GTE representative in various industry ONA forums such as the Information Industry Liaison Committee ("IILC"). As such, I am very familiar with the FCC's previous OSS access requirements under the ONA Orders and the issues worked at the IILC regarding access to OSS functionality for enhanced service providers.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATION AND WORK EXPERIENCE.

A. I graduated from Harding University with a Bachelor of Science

degree in Business Administration in 1972. I was employed by General Telephone Company of Illinois as part time student help in the Outside Plant Engineering, Traffic Engineering, and Market Forecasting departments for three summers while I was completing my undergraduate degree. Upon completion of my undergraduate degree, I joined General Telephone Company of Illinois in the Market Forecasting department where I was responsible for central office equipment and outside plant facility forecasts for an assigned geographical area While in the capacity of Market Forecaster, I was relocated from Kewanee, Illinois to a remote office in Streator, Illinois in October, 1974 and another remote office in Belvidere, Illinois in October, 1976 with consolidation of my old and new geographical areas of responsibility.

In March, 1981, I was promoted to Senior Market Forecaster and relocated to Bloomington, Illinois where I was responsible for training new forecasting personnel, econometric modeling, computer programming, and central office equipment and outside plant facility forecasts for the Bloomington metropolitan area. In January, 1984, I was promoted to Administrator - Business Assessment at GTE's Midwestern Telephone Operations Headquarters in Westfield, Indiana which involved the assessment of potential business opportunities within the ten state telephone operating area

In October, 1986, I was promoted to Product Development Manager - Telecommunication Services for GTE Service Corporation in Carmel, Indiana where I was responsible for the development of new telecommunication and information services to be implemented by the seven telephone companies of GTE. In October, 1987, I was promoted to Product Manager - Information Services and relocated to Irving, Texas In this capacity, I was responsible for the development and life cycle management of new information services to be offered within the seven telephone companies of GTE.

In November, 1988, I was named Group Product Manager - Advanced Intermediary Services for the new consolidated GTE Telephone Operations. In this capacity I was responsible for supervising a group that performed life cycle management of new advanced network services, which also incorporated the information services products of my previous position.

In October, 1989, I was appointed to the position of Group Product Manager - ONA Implementation. In this capacity I was responsible for supervising a group that supported the planning and implementation of GTE's ONA requirements of the FCC and State Public Utility Commissions in the states in which GTE operates

In August, 1993, I was appointed to my current position of Group Product Manager - Network Interconnection.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony focuses on how GTE will provide operations support systems to Sprint and its affiliates ("Sprint"). GTE has many arbitration proceedings underway at this time and GTE requests that it be permitted, if necessary, to substitute a witness for my testimony.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. My testimony is presented in the following sections. Section A provides a general overview of operations support systems; Section B sets out the relevant requirements of the Act and FCC's Order; Section C provides a listing of the disputed issues presented for arbitration and a summary of the parties' respective positions; Section D presents GTE's position in detail; and Section E presents a brief summary.

SECTION A: OPERATIONS SUPPORT SYSTEMS - AN OVERVIEW

Q. WHAT ARE OPERATIONS SUPPORT SYSTEMS?

A. Overall, there are approximately 40 different operations support systems related to ordering, provisioning, usage, billing and repair for GTE's local exchange service. While it is not practical or necessary to discuss each one here, a number of the more important ones will be referenced in the following discussion to illustrate the technical complexity of both the various systems and their integration.

Q. HAS SPRINT REQUESTED ACCESS TO GTE'S OPERATIONS SUPPORT SYSTEMS AS ONE OF THE UNBUNDLED ELEMENTS IT SEEKS FROM GTE?

A. Yes. Sprint is seeking access to GTE's Operations Support Systems, including all systems used in preordering, ordering, provisioning, maintenance and repair, billing, telephone number assignment, service interval information, and maintenance history, including any gateway system Access to OSS via an electronic gateway is intended to be deployed once industry standards are developed.

Q. HOW WILL GTE'S OPERATIONS SUPPORT SYSTEMS BE USED FOR SPRINT?

A. Generally, GTE will process Sprint orders for these items using the same systems GTE uses for its own local services. Thus, for example, the ordering and provisioning of resold services as well as billing and maintenance will be provisioned using GTE's data centers and the many operations support systems GTE uses for its own service. It is not technically feasible at this time to provide the variety of electronic interfaces or interconnection points that Sprint requests. GTE is willing to explore the possibility for future development of specific types of multi-level "electronic bonding" to its systems functions that may become technically feasible. However, any necessary electronic bonding can be accomplished only if the costs associated with such interfaces are properly recovered from the Competing Local Exchange Carriers ("CLECs") and if the operation

and security of the system and data within it, especially GTE's proprietary customer data, is not compromised.

Q. HOW WILL GTE PROVIDE OPERATIONS SUPPORT TO SPRINT FOR SERVICE ORDERING, PROVISIONING AND BILLING SYSTEMS?

A. There appears to be no significant controversy between the parties regarding whether GTE's operations support systems functions will be used for Sprint on a nondiscriminatory basis and as they are used for GTE. These systems are the same operations support systems GTE uses to provide its own local services. GTE's use of these operations support systems for Sprint's resold services and unbundled elements will be the same as for GTE's services.

The discussion which follows will describe the operations support systems that GTE will use and the related functions that are available in the short term to Sprint under GTE's contract for service ordering, service provisioning and billing. Trunk-side interconnection support systems will be discussed first, followed by a review of support systems for line-side interconnection. The various GTE systems discussed below are depicted in the attached Exhibit No. MD-1 to my testimony.

Q. WHAT GTE SYSTEMS WILL SUPPORT SPRINT'S ORDERS FOR TRUNK-SIDE INTERCONNECTION?

A. Sprint will be able to order trunk-side interconnection services from GTE through a direct electronic interface over the GTE Network Data Mover ("NDM") in a nondiscriminatory manner just as it does today for access services. In fact, the systems that GTE will use to process trunk-side interconnection orders are the same systems that Sprint and other IXCs use today for the purchase of access services from GTE. Requests for switched and special access are processed routinely today and the parties are very familiar with the process. The system has proved to be operationally sound over the years. Orders for trunk-side interconnection will be initiated by an Access Service Request ("ASR") sent electronically by Sprint over the NDM. Again, this is the same data delivery vehicle that Sprint currently uses to order access services. ASRs for trunk-side interconnection will be entered electronically into GTE's Customer Access Management System ("CAMS") to validate the request, identify any errors, and resolve any errors back to Sprint. CAMS is a family of GTE systems comprised of EXACT/TUF, SOG/SOP, and CABS. See Exhibit No. MD-1.

The use of CAMS to support Sprint's requests for trunk-side interconnection will operate in the following manner. GTE will route the ASR through its data center to one of two National Access Ordering Centers ("NAOC"). The ASR order will be entered electronically into the EXACT/TUF system for validation and correction of errors. Errors will be referred back to Sprint. Sprint then

will correct any errors that GTE has identified and resubmit the request to GTE electronically through a supplemental ASR. GTE then will translate the ASR into a service order for provisioning and billing. In order to convert the ASR into a service order, GTE personnel must apply the necessary elements to provision the service and include the billable elements necessary for GTE to bill Sprint for the services provided. This application also requires a determination of the access tandem to end office relationships with the service requested.

At the next system level, translated service orders will be distributed electronically through the SOG/SOP systems to several destinations. The SOG/SOP system will begin the actual provisioning of the service for Sprint. Other GTE provisioning systems are CNAS and ACES. The GTE Database Administrative group ("DBA") and the Special Services Control Center ("SSCC") will be the two most important destinations at this level. The DBA location will identify codes for the appropriate GTE switch in order to provide the functions required by the ASR. The SSCC will provide the engineering for the facilities over which the services will be handled. Information from these two groups (and others) then will be transmitted electronically to GTE's field service personnel (Customer Zone Technicians or "CZTs") who will establish the trunks and facilities, thus connecting the GTE facilities to a connecting company, if one is required, and to Sprint. GTE's CZTs also will contact Sprint directly to perform testing, and

upon acceptance by Sprint, will make the necessary entries into the GTE system to complete the order. The competed orders then will pass to GTE's Carrier Access Billing System ("CABS") which will generate the bill to Sprint. The billing process under CABS requires coordination with several other systems.

Billing cannot be accomplished without call records from GTE's central office switches. Records of usage will be generated at GTE's end office switches or the access tandems. Call usage records will be transmitted electronically from GTE's switches through GTE's Billing Intermediate Processor ("BIP"). This system will collect the call records, perform limited manipulations to the record and transfer them to a centralized data center where they will be processed through the Universal Measurement System ("UMS") to determine the validity and accuracy of the records. UMS also will sort the records and send them to the CABS billing system, from which GTE will produce a bill and send it to Sprint.

Q. WHAT GTE SYSTEMS WILL SUPPORT SPRINT'S ORDERS FOR LINE-SIDE INTERCONNECTION?

A. Sprint will also be able to order line-side services directly from GTE through an electronic interface. Line-side services include resale, unbundled loop, unbundled port and interim number portability. To initiate an order for these services, Sprint will submit a Local Service Request ("LSR") from its data center to GTE's Data Center using the

same electronic NDM interface used for trunk-side interconnection. Thus, the same transport process and existing physical interconnections between the carriers can be used. For new entrants that elect not to interface electronically, GTE will accommodate submission of LSR orders by facsimile, E-mail, internet or a dial NDM arrangement. An LSR is very similar to an ASR, except that it will be used exclusively for line-side interconnection requests. GTE will transfer LSRs to GTE's NOMC centralized service order processing center electronically. For CLECs who decide not to use an electronic interface to reach GTE's data center, or who do not have data centers similar to Sprint's, GTE will accept requests for service through other forms or media directly to the NOMC.

Most LSRs will be used either to transfer an existing GTE customer to Sprint or to request service for a new customer who is not an existing GTE customer. Depending on the situation, different information will be required on the LSR. LSRs for a conversion of a GTE local customer to Sprint must include information relating to all existing, new and disconnected services for that customer, including the customer's name, type of service desired, location of service and features or options the customer desires.

While Sprint would have its own customer information and the SAG/GTE products on tape from GTE, Sprint would not have the due date or new telephone number for new customers since that

information is contained in GTE's systems. Therefore, a process is required to provide this information to Sprint. GTE itself does not have uniform access to this information electronically. Until there is agreement on electronic interfaces, Sprint has agreed that an 800 number is the method that will be used. The 800 telephone number will connect Sprint directly to GTE's NOMC service representatives. When Sprint receives a request for service from a new local service customer, Sprint will call GTE's NOMC through the 800 number, and, while the new customer is on hold, GTE will provide the due date for service and the new telephone number for that customer. At the same time, Sprint will give GTE the new customer's name, service address and type of requested service (e.g., R1, B1, etc.). GTE will enter that information into its SORCES or SOLAR service ordering systems to be held in suspense until Sprint sends the confirming LSR. Sprint will then return to its customer on hold and provide the due date and new telephone number.

After concluding the telephone call with the new customer, Sprint will complete a confirming LSR for the new service and send it electronically to GTE's data center for processing. Upon receipt, GTE will match the LSR with the service order suspended in GTE's system, and if there is a match, GTE will process the LSR. After the LSR is processed, GTE will transmit confirmation electronically to Sprint through the NDM that the LSR has been processed, providing a record of the telephone number and due date. Of course, GTE

cannot hold the LSR in suspension forever. Thus, Sprint will be required to submit the confirming LSR by 12:00 p.m. each day local time, as defined by the location of the service address. If Sprint fails to submit the LSR in a timely manner, the suspended LSR will be considered in jeopardy, at which time GTE will assign a new due date upon receipt of the delayed LSR for such customer requests and notify Sprint of the change.

Number assignments and due date schedules for services other than single line service will be assigned using the standard Firm Order Confirmation ("FOC") report sent electronically to Sprint over the NDM, thereby providing a record of the newly established due date. An exception would be a multi-line hunt group, for which the pilot number first will be provided by the 800 number. The other numbers then will be provided through the normal electronic confirmation process.

The processing of specifically requested telephone numbers (called "vanity numbers") also has been discussed. If a number solution can be established expeditiously, it will be done while the customer is still on the line. If extensive time will be required to find a solution, GTE service representatives will work with Sprint representatives off line as GTE would for its own customers. For all of this, of course, the basic tariff guidelines for providing telephone numbers will be followed.

Once the order for line-side interconnection service is established, it is moved for provisioning to the next system level. Here, GTE will validate and process the LSR to establish an account for Sprint and, if GTE continues to provide some residual services to the customer, GTE will maintain a GTE account. In GTE's system, GTE's account is called the Residual Account and Sprint's account is referred to as the CLEC Account. If any engineering for the service is necessary, the account would be distributed to the SSCC. Otherwise, it will be distributed for facility assignment.

With the account established and any engineering and facility assignment complete, GTE then will transmit electronically a record to GTE's CZT field personnel if physical interconnection or similar activity is required. The CZTs will provision the service and then electronically confirm such provision in the SOLAR/SORCES system when completed. The accounts then will be transmitted to GTE's Customer Billing Services System ("CBSS"). Call records for actual service provided to Sprint's customers on GTE facilities will be transmitted from GTE's switches through some usage rating systems (BIP, UMS), screened and eventually delivered to CBSS for the generation of bills.

CBSS is a different system than CABS, and it is the one that GTE will utilize to produce the required bills for line-side interconnection services. GTE is working to enhance CABS to handle both trunk-side

and line-side billing. For now, CBSS will create a bill to Sprint for resold services and unbundled elements along with a summary bill master. Daily unrated records on Sprint's accounts also will be generated and transmitted electronically to Sprint. CBSS is the same system that generates GTE's own end-user bill for GTE local and residual services so that Sprint will have system use parity with GTE. GTE residual services are those services GTE continues to provide to Sprint or other CLEC local service customers that are not subject to resale.

In addition to the LSR delivery process, Sprint will distribute directory assistance and directory listing information (together sometimes referred to hereafter as "DA/DL information") to GTE's Data Center over the NDM. GTE will sort the data containing this information and process it to GTE's directory publication company and its directory assistance bureaus.

Q. WHAT GTE SYSTEMS WILL SUPPORT THE MAINTENANCE OF SPRINT'S RESOLD GTE SERVICE?

A. The maintenance operations support systems and procedures discussed below are depicted in the attached Exhibit No. MD-2.

There is no dispute that Sprint requests for repair will have access to GTE's service maintenance support systems functions. Again, the maintenance operations support systems which GTE will use for

Sprint are essentially the same as those GTE uses to provide its own local repair service. If Sprint requires maintenance for its local service customers, Sprint will initiate a request for repair (sometimes referred to as a "trouble report") by calling GTE's Customer Care Repair Center. If a Sprint end-user contacts GTE's repair center directly, GTE will provide a telephone number and refer the customer to Sprint for origination of the repair report. Sprint would do the same for GTE customers. During this call, GTE service representatives will verify that the end-user is a Sprint customer and will then obtain the necessary information from Sprint to process the trouble report. While the Sprint representatives are still on the line, GTE personnel will perform an initial analysis of the problem and remote line testing for resale services. If engineered services are involved, the call will be made to the GTE SSCC for handling. If no engineering is required and the line testing reveals that the trouble can be repaired remotely, GTE personnel will correct the problem and close the trouble report while Sprint representatives are still on the line. If on-line resolution is not possible, GTE personnel will provide Sprint representatives a commitment time for repair and a trouble ticket number, and the GTE personnel then will enter the trouble ticket into the GTE service dispatch queue. Sprint's repair service commitment times will be within the same intervals as GTE provides to its own end-users.

Repair calls to the SSCC for engineered services will be processed in essentially the same manner as those by the GTE Customer Care

Center. GTE personnel will analyze the problem, provide the Sprint representative with a commitment time while they are still on the line, and then place the trouble ticket in the dispatch queue.

GTE then will process all Sprint trouble reports in the dispatch queue along with GTE trouble reports in the order they were filed (first in, first out), with priority given to out-of-service conditions. If, at any time, GTE would determine that a commitment time given to Sprint becomes in jeopardy, GTE service representatives will contact Sprint by telephone to advise of the jeopardy condition and provide a new commitment time.

Trouble reports in the dispatch queue will be transmitted electronically to GTE CZT service technicians who will repair the service problems and clear the trouble reports. For cleared Sprint trouble reports, GTE service technicians will make a telephone call to Sprint directly to clear the trouble ticket. GTE service technicians will make the confirmation call to the telephone number provided by Sprint. If Sprint is unable to process the call or places the GTE technician on hold, the call will be terminated. To avoid disconnect, Sprint may develop an answering system, such as voice mail, to handle the confirmation calls expeditiously.

Sprint has also requested on-line access to GTE's maintenance support systems to "status" a trouble ticket and close it. An electronic

interface would need to be developed for this which would take years to create at significant cost.

GTE will resolve repair requests by or for Sprint local service customers using GTE's existing repair system in parity with repair requests by GTE customers. GTE will respond to service requests for Sprint using the same time parameters and procedures that GTE uses. The only difference is that, until electronic interfaces between GTE and Sprint can be developed, GTE customers would call the GTE Customer Care Center directly, while Sprint customers would be required to call Sprint. Sprint then would call GTE's Customer Care Center or SSCC while the customers were on hold. This difference, however, is not material and would be transparent to the customer.

SECTION B: OS SYSTEMS AND THE "ACT"

Q. WHAT ACCESS TO GTE'S OPERATIONS SUPPORT SYSTEMS IS REQUIRED BY THE ACT?

A. The Act imposes a number of obligations upon Incumbent Local Exchange Carriers ("ILECs"). Section 251 prescribes duties of interconnection, resale, number portability, dialing parity, access to right-of-way, reciprocal compensation, negotiation, unbundled access, notice of changes, and collocation. However, the duty of "operation system creation" is not listed. Section 251(c)(2) requires GTE to interconnect with the equipment and facilities of Sprint, and

Section 251(c)(3) of the Act requires GTE to provide certain unbundled network elements to Sprint. Although the FCC has required ILECs to complete such "modifications" as are necessary to accommodate CLEC access, Order (¶ 524), GTE is not required to create Sprint's equipment and facilities. Nor must GTE develop new systems or enhancements to its own systems (other than access capabilities) merely because Sprint may desire it. This is not to say that a telecommunications carrier could not contract with GTE to develop various operational systems. Such an agreement, however, would be beyond the scope of any requirements of the Act.

The Act imposes a duty upon ILECs to interconnect their networks to the equipment and facilities of requesting new local market entrants. Section 251(c)(2) of the Act provides:

> (2) INTERCONNECTION.-The duty to provide, for the facilities and equipment of any requesting telecommunications carrier, interconnection with the local exchange carrier's network -
>
> (A) for the transmission and routing of telephone exchange service and exchange access;
>
> (B) at any technically feasible point within the carrier's network;

(C) that is a least equal in quality to that provided by the local exchange carrier to itself or to any subsidiary, affiliate, or any other party to which the carrier provides interconnection; and

(D) on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, in accordance with the terms and conditions of the agreement and the requirements of this section and section 252.

47 U.S.C. § 251 (c)(2)(A)-(D) (1996) (emphasis added).

In addition, Section 251(c)(3) of the Act requires ILECs to provide nondiscriminatory access to network elements. "Network Element" is defined in the Act as a "facility or equipment used in the provision of a telecommunications service. This term also includes features, functions, and capabilities that are provided by means of such facility or equipment, including subscriber numbers, databases, signaling systems, and information sufficient for billing and collection or used in the transmission, routing, or other provision of a telecommunications service." 47 U.S.C. § 153(29) (1996). FCC regulations identify operations support systems and information as one of seven network elements. Order, ¶ 504. Section 251(c)(3) provides, in relevant part:

UNBUNDLED ACCESS - The duty to provide, to any requesting telecommunications carrier for

the provision of a telecommunications service, nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory in accordance with the terms and conditions of the agreement and the requirements of this section and section 252.

47 U.S.C. § 251(c)(3) (1996).

Section 251(b)(1) of the Act imposes a duty on ILECs not to impose unreasonable and discriminatory conditions or limitations on the resale of telecommunications services.

Q. DID THE FCC ADDRESS ACCESS TO OPERATIONS SUPPORT SYSTEMS?

A. The recent FCC interconnection order issuing regulations for the Act further explained these statutory requirements. In its decision, the FCC stated that "operational support systems and the information they contain fall squarely within the definitions of 'network element' and must be unbundled upon request under 251(c)(3) . . ." Order, ¶ 265. It also concluded that "competing carriers must be able to perform the functions of pre-ordering, ordering provisioning, maintenance and repair, and billing for network elements and resale

services in substantially the same time and manner that an incumbent can for itself." Id. ¶ 266 (emphasis added). Thus, the FCC concluded that ILECs must provide nondiscriminatory access to their operations support system functions, including the ILEC electronic interfaces it has created for its own access to these systems. According to the FCC, this access "includes access to the functionality of any internal gateway systems the incumbent employs in performing the above functions for its own customers." Id. ¶ 269.

Under the proposed Order, Sprint may develop and create its own operational systems, or it may acquire access to GTE's operational support systems functions. Such access, however, need not be provided at each and every point that Sprint requests. It need only be nondiscriminatory access and only at technically feasible points. Further, the access is to a single package of GTE's operations support systems, not to various sub-element versions or parts of such GTE systems. Equally important, such access is not free. It is to be provided on rates, terms and conditions that are just, reasonable and nondiscriminatory and that ensure full cost recovery for GTE.

In summary, GTE's obligation is to provide Sprint nondiscriminatory access to its operations support systems functions for pre-ordering, ordering, provisioning, maintenance and repair, and billing. To the extent Sprint requests use of GTE's operational systems functions instead of Sprint's own, GTE will provide Sprint such access as

required by the Act. If technically feasible, GTE does not oppose the creation of additional real time electronic interfaces to its system at other points on rates, terms and conditions that are just, reasonable and nondiscriminatory However, GTE does oppose creating such systems if not properly compensated.

SECTION C: UNRESOLVED ISSUES

Q. WHAT ARE THE UNRESOLVED ISSUES BETWEEN GTE AND SPRINT RELATED TO OPERATIONS SUPPORT SYSTEMS?

A. There is generally no dispute that Sprint will have access to GTE's operations support systems functions for its competing local telephone service Sprint as co-chair of the OBF ad hoc committee charged with OSS standard development to which GTE also belongs, should be very aware of the complexity of OSS issues.

These unresolved issues are:

(1) *Should GTE's operations support systems be accessed as an unbundled element?*

Sprint Position: Yes. GTE should unbundle the operations support systems as identified in the FCC order.

GTE Position: GTE contends that operation support systems are not an unbundled element. If the Commission determines that

Operations Support Systems should be provided as an unbundled element then the new entrant must pay the costs associated with the unbundling.

(2) *Should Sprint have nondiscriminatory access to GTE's operations support systems?*

Sprint's Position: Electronic Interfaces should be established to provide access to GTE's systems with read/write or real time availability.

GTE's Position: GTE will provide nondiscriminatory access to GTE's operations support systems functions available to GTE, but it should not be required to provide "on-line" access to such GTE systems themselves. Any on-line access should at least wait until national standards are developed, tested and implemented.

(3) *Should GTE have dedicated service centers available for ALECS?*

Sprint Position: GTE should work toward dedicated service centers available 7 days a week, 24 hours a day, and in the interim, GTE must handle Sprint calls in a nondiscriminatory manner.

GTE's Position: GTE will not dedicate centers to a particular ALEC. GTE will treat Sprint calls in a nondiscriminatory manner and the Repair Centers are open on a 7x24 basis.

SECTION D. GTE'S POSITION

Q. DOES GTE BELIEVE THAT OPERATIONS SUPPORT SYSTEMS ARE AN UNBUNDLED ELEMENT?

A. GTE contends that operations support systems are not an unbundled element and that Sprint is required to pay for access to their functions. If it is determined that they are an unbundled element, Sprint must still pay for access to their functions. If GTE is required to create electronic interfaces for Sprint, then Sprint should be required to pay the development and operational costs. Any schedule for such new systems must relate to tasks and time necessary to build them. GTE is not required under the Act to create electronic interfaces that are superior to GTE's own access to its systems or that are not otherwise necessary under the Act. Some interfaces may not be technically feasible, and GTE reserves the right to maintain that the FCC's definition of "technically feasible" as applied to operations support systems electronic interfaces is incorrect.

Q. HAVE THE NEGOTIATIONS BETWEEN SPRINT AND GTE ADDRESSED OPERATIONS SUPPORT SYSTEMS?

A. Negotiations to provide Sprint nondiscriminatory access to GTE's operations support systems have generated a number of disputed issues that the parties have not yet resolved. These issues center on the extent to which GTE must develop entirely new operations

support systems for Sprint. Sprint is requesting that it be provided access to GTE's systems in many different ways and at different points, a number of which are neither available nor technically feasible today. GTE contends that Sprint's proposal for access to GTE's operational support systems goes beyond the Act's requirements to permit access to these functions of GTE's systems.

Assuming that GTE were willing or required to provide any or all of the new systems and capabilities sought by Sprint, the parties also have not reached agreement on who must pay for the cost of such enhancements or systems. As the FCC recently confirmed, CLECs such as Sprint must pay all costs associated with the provision of access to unbundled elements that they request. Related issues which likewise must be addressed in such circumstances are (1) the timing of the availability of any new systems or enhancements, (2) the establishment of mechanisms to ensure the security and integrity of GTE's systems and network, and (3) the confidentiality of GTE's and its customers' proprietary and other information.

In brief, GTE will not cede control of its operational systems to Sprint, and the Act does not require it. GTE will interconnect its equipment and facilities to those of Sprint and to other competing local carriers on a nondiscriminatory basis. GTE will give Sprint access to GTE operations support systems functions necessary to process Sprint's orders for resold local service and unbundled network elements.

Q. WILL GTE'S OPERATIONS SUPPORT SYSTEMS PROCESS SPRINT'S LOCAL SERVICE IN A NONDISCRIMINATORY MANNER?

A. The access to GTE's ordering, service provisioning and billing systems functions described above allows in a nondiscriminatory manner use of GTE's local service support systems functions by Sprint. However, Sprint wants more than this. Sprint requests unlimited real time access to GTE's operating systems themselves through electronic bonding at various levels. Sprint requests, for example, that GTE develop new systems that would allow Sprint to interface GTE's various operations support systems that track service availability, dispatch GTE service technicians, manage GTE facility capacity, track service completion, track service order status, track trouble reports, monitor GTE's network, and provide remote testing of the service for Sprint's customers. The parties have agreed, and Sprint has acknowledged in its petition, that the creation of such new systems is not technically feasible in the near future.

GTE will provide Sprint access to GTE's operations support systems functions required by the Act, but not to the systems themselves. Access directly to GTE's systems is not required by the Act. GTE's operational support systems were designed for a single ILEC environment. Thus, they have no partitioning capability to protect proprietary data. Without partitioning, every CLEC that accesses the GTE systems could manipulate the systems making them impossible

to manage. Further, such manipulation would compromise the integrity of the systems. The result would be electronic anarchy. Without the ability to partition or "firewall" the data elements within GTE's systems, GTE, Sprint and any other CLEC would be able to access each other's data, thereby compromising the privacy rights of all end users. More importantly, the Act and the FCC's Order require access only as to system functions and not as to the systems themselves.

The system function access GTE provides Sprint to process and provision its service with GTE's operations support systems does provide system usage parity with GTE. This process described above gives Sprint the ability to interface with GTE systems and for GTE to provision Sprint service orders in parity with GTE.

Q. WILL GTE PROVIDE SPRINT NONDISCRIMINATORY ACCESS TO GTE'S OPERATIONS SUPPORT SYSTEMS FUNCTIONS?

A. GTE does not oppose providing Sprint access to GTE operations support systems functions in substantially the same time and manner GTE does for itself, and on terms that are just, reasonable, and nondiscriminatory according to the Act. GTE does not agree, however, nor is it required by the Act, to provide its operations support systems functions to Sprint at different terms and manner than it does for itself.

For example, assume that an CLEC requests that GTE provide customer usage data electronically for the CLECs local exchange customers on a daily basis. The CLEC may seek information such as call record detail, number of attempts customers have made to place a call, statistics on call completions, call termination points, high usage and similar customer call detail information. GTE does not generally collect all this type of information for its own local service. Thus, the CLEC is not seeking the same information GTE uses in order to be at parity with GTE. Rather the CLEC wants more information than GTE collects for itself. This is not required under the Act. GTE will provide the type of customer call detail information that the CLEC seeks to the extent any such information is collected and used by GTE to bill its own customers. GTE also will explore possible enhancements to its existing operations support systems that would generate the information the CLEC seeks if the CLEC commits to pay the associated costs. However, none of this can be accomplished overnight. In the interim, the CLEC must accept the call detail information which GTE collects for its own customers.

Sprint seeks an electronic access to telephone numbers and due dates for preparation of LSRs. GTE itself does not maintain a pool of numbers from one data base. The same is true for due date management. GTE itself does not have electronic access uniformly to this information. Thus, the electronic interfaces Sprint seeks for this would be superior to GTE's own access to this information.

GTE is willing to explore electronic bonding for such administrative functions as due date scheduling, number administration, identification of line options, street address verification, service dispatch, rejection orders, and installation appointment scheduling. Certainly, the determination of who will pay for the costs to develop the new systems that Sprint wants, as well as the development of a way to partition the systems to prevent unrestricted access to propriety information or manipulation of data, first must be resolved satisfactorily. The cost will be substantial.

The FCC recognizes that industry standards are required for the development and operation of electronic interfaces. Without them, GTE will likely be facing multiple, redundant interfaces to accommodate the standards of the various CLECs. Thus, standards must be implemented. However, the Commission should not require GTE to create unique electronic interfaces especially for Sprint within the next few months and then create additional industry standard electronic interfaces later. The interfaces should be created once and incorporate the industry standards.

Q. WHEN SHOULD THE ADDITIONAL ELECTRONIC INTERFACES TO GTE'S SYSTEMS BE SCHEDULED?

A. A significant amount of work is required to develop the electronic interfaces that Sprint requests. GTE's operations support systems are complex and integrated. GTE has begun the initial analysis to

determine exactly which systems will be affected and what work must be accomplished to accomplish electronic bonding. At the present time, however, it is unclear what detailed requirements must be met to create the various interfaces. However, GTE has been able to determine that, at minimum, numerous systems will be affected and a significant amount of work must be accomplished before the interfaces can be created.

For example, to partition access to GTE accounts which are not resold or provided to individual CLECs will require the establishment of CLEC identification codes and the creation of front end processors to the various GTE systems in order to exchange information, convert protocol, edit input/output, reject transactions, etc. Further, the process and procedures involving GTE's systems are not uniform throughout the country. In some locations, GTE uses printed documents, desk top references, and general knowledge of personnel to perform such functions as due date assignment or telephone number assignment. The development of front-end processors in such cases actually would provide Sprint superior access to functions than GTE itself has today. Finally, security codes must be established to determine availability of read and/or write access to GTE's systems, as well as the level of access allowed. The creation and administration of vast numbers of security codes will be required.

GTE has analyzed at a high level the operations support systems which will be affected if they are to provide all of the required electronic bonding that Sprint requests. It appears that almost every system will be impacted in some way. For example, GTE's trouble analysis system ("TAS") likely will be accessed by Sprint through GTE's ACG/EB system. Updates and additional changes will be required to the systems. Several restrictions must be incorporated into the systems to accommodate the interface with Sprint. The systems must be modified to limit Sprint trouble ticket creation and trouble history information only to Sprint end users. The EB system, for example, must be modified to capture system usage for billing purposes that is time and access sensitive. At least another 20 or more systems likely will be impacted and will require modification. Before any schedule is set to accomplish the required electronic bonding that Sprint demands, it is only reasonable first to determine what work actually will be required.

GTE should not be required to create electronic interfaces not required by the Act that provide Sprint superior access to GTE's operations support systems. GTE should also not be required to develop electronic interfaces in a time frame that fails to consider the necessary work and the time period within which such work reasonably can be accomplished. Consideration should also be given to the industry standards that will be implemented for these interfaces. GTE should be allowed a reasonable time to determine

exactly what must be done to develop the electronic interfaces. Sprint should be aware the complexities involved in developing these interfaces due to their OBF responsibilities. Once this determination is made, GTE then should be permitted to present for approval a report of the necessary work, the cost and GTE's implementation plan.

Q. SHOULD SPRINT PAY FOR THE ELECTRONIC INTERFACES IT DEMANDS?

A. As discussed above, Sprint desires electronic interfaces to certain GTE operational systems that would provide "real time" access to these systems. GTE will offer to develop appropriate electronic interfaces to access necessary operations support systems functions when available. However, GTE will require that Sprint pay for them.

The Act does not require GTE to absorb the costs of electronic interface development. Such capital investment would be made at the request of Sprint. Such new systems would inure completely to the benefit of Sprint. There would be no benefit to GTE at all.

The electronic operations support systems interfaces that Sprint wants are requested only by Sprint. Unlike other unbundled elements that also have been used by GTE for its local service, GTE itself will have no use for the electronic interfaces. These development costs are nonrecurring costs and should be structured within the pricing of

the total operations system network element pricing (that would also include usage) so as to be recovered by GTE within three years.

Indeed, Sprint could evaluate and specify exactly what interfaces it can afford to purchase. While Sprint may wish to have many electronic interfaces, Sprint will have to revaluate its interface requirements once the cost for such development has been calculated. A cost/benefit analysis must be performed before the parties decide what interface systems should be developed and what the time frame for this development should be.

Q. SHOULD GTE BE REQUIRED TO PROVIDE SERVICES THAT EXCEED BOTH INDUSTRY AND COMMISSION STANDARDS OF QUALITY?

A. No. The FCC Order does not require that GTE provide services at a different quality than it provides for itself or its customers. GTE abides by the Commission's quality requirements and will provide the services in a nondiscriminatory manner.

Q. WILL GTE PROVIDE ACCESS TO THE SAME ORDERING PROCEDURES AND FUNCTIONS AS IT PROVIDES TO ITSELF?

A. Yes. As described in my testimony, GTE has established a dedicated National Open Market Center (NOMC) to place Sprint orders in to the same ordering and provisioning system that GTE uses for itself and its customers. For simple service orders, the NOMC representative

will provide Sprint the customer's telephone number and installation due date while Sprint is on-line with its customer. Service orders, using the standardized Local Service Request (LSR) form developed by the industry at the Ordering and Billing Forum (OBF), can be transmitted by Sprint to the NOMC via an electronic interface using Network Data Mover (NDM) protocol. The LSR information is entered into the ordering system and completed via current GTE processes.

For complex orders, the NOMC representative will provide the telephone number(s) and due date to Sprint via the firm order confirmation (FOC). This is the same process that GTE provides for itself and its customers for complex orders.

Q. SPRINT IMPLIES THAT REAL-TIME DIRECT ACCESS TO GTE'S SYSTEMS IS REQUIRED TO PERFORM THIS ORDERING FUNCTION. IS THAT TRUE?

A. No. The Sprint representative will interact with the Sprint customer in the same way a GTE customer interacts with the GTE customer representative. Direct access to GTE's systems is not required to take an order from a customer.

Q. WILL GTE PROVIDE EFFICIENT ORDERING AND PROVISIONING SYSTEMS IF IT DOES NOT PROVIDE REAL-TIME DIRECT ELECTRONIC INTERFACES TO ITS ORDERING AND PROVISIONING SYSTEMS?

A. Yes. The fact that Sprint is in a middle step in the process is not a serious threat to efficiency. There is a requirement for the Sprint representative to interact with the NOMC representative to establish the customer account, obtain a telephone number assignment, and due date assignment. Any time required for the Sprint representative to place the customer on hold while conversing with the NOMC representative will be insignificant to the Sprint customer. In fact, there are times that the GTE representative must place its own customer on hold when contacting facility assignment to obtain telephone number and due date assignment when systems cannot provide the information. The GTE representative will create an account for the Sprint customer's order in the system and will initiate provisioning once a valid Local Service Request (LSR) is received from Sprint.

Q. DOES GTE ALSO PLACE ITS CUSTOMERS ON HOLD WHEN DETERMINING TELEPHONE NUMBER ASSIGNMENT AND DUE DATE ASSIGNMENT?

A. Sometimes. These pre-ordering functions are not mechanized in all areas of GTE and GTE must place the customer on hold while these assignments are determined through manual processes. Also, in the areas where these pre-ordering functions are mechanized, at times there is a requirement to place the customer on hold and contact manual processes because the telephone number database is exhausted, the customer wants a "vanity" telephone number, or there

are unique circumstances that alter the automated due date assignment process.

Q. WHAT WOULD BE THE IMPACT OF AN ELECTRONIC INTERFACE ON THE DUE DATE ASSIGNMENT PROCESS?

A. There is no indication that Sprint will receive an earlier due date using an electronic interface. The availability of manpower to meet work load will continue to determine the next available due date.

Q. UNDER WHAT CONDITIONS WILL A CALL BACK BE REQUIRED TO PROVIDE A SPRINT CUSTOMER WITH A NEW TELEPHONE NUMBER ASSIGNMENT?

A. If a specific vanity number is requested, or if multiple searches are required to provide an acceptable telephone number, GTE will call back Sprint to provide the telephone number. This is the same process used currently for vanity number assignment.

Q. DOES GTE RESERVE BLOCKS OF TELEPHONE NUMBERS?

A. No. Telephone numbers are only reserved upon the entry of end user customer name and address information. Telephone numbers are held in reserve for 30 days pending receipt of the LSR at which time the number would be available for reassignment.

Q. WHAT WOULD THE IMPACT OF AN ELECTRONIC INTERFACE BE ON VANITY NUMBERS AND ASSIGNMENT OF BLOCKS OF TELEPHONE NUMBER ASSIGNMENT PROCESS?

A. Sprint would be required to provide end user name and address information to establish and reserve the telephone number. Sprint would have access to the next available number, and could not reserve blocks of numbers without entering end user information.

Q. WHAT IS GTE DOING TO ADDRESS IMPROVEMENTS IN EFFICIENCY FOR PRE-ORDERING?

A. GTE is currently investigating the expansion of its mechanized capabilities for telephone number assignment and due date assignment nationwide GTE is also investigating access to these mechanized capabilities by alternative local exchange carriers.

Q. WOULD THIS MECHANIZATION ELIMINATE THE NEED FOR A SPRINT REPRESENTATIVE TO SPEAK WITH A NOMC REPRESENTATIVE TO OBTAIN TELEPHONE NUMBER ASSIGNMENTS AND DUE DATE ASSIGNMENTS?

A. No. These mechanized processes are only effective for simple single-line services and will not work for complex services. For complex services, Sprint will be required to submit a valid LSR and customer (end-user) data sheet. GTE will provide telephone numbers and due date on the FOC.

Q. SPRINT IMPLIES THAT GTE SHOULD BE REQUIRED TO TRANSFER A GTE CUSTOMER'S ACCOUNT TO SPRINT "AS-IS". DOES GTE AGREE WITH THIS PROPOSAL?

A. No. GTE believes that the customer should be in control of their GTE account information and that Sprint should work with their new customer to determine the services they desire from Sprint. GTE will not compromise the customer's privacy and will only provide the customer's account information to Sprint upon written authorization from the customer.

Q. IS THE SWITCH OVER OF CUSTOMERS FOR LOCAL SERVICE AS SIMPLE AS THE SWITCH OF END USERS BETWEEN INTEREXCHANGE CARRIERS (I.E., PIC CHANGE)?

A. No. A PIC change is controlled through a separate operation support system than local services and only involves a change in the switch to route the customer's outgoing interexchange calls to the proper interexchange carrier's network and the billing information. The change of a customer's local exchange service is more complicated and involves several GTE operation support systems to assign local outside plant facilities, make multiple changes in the switching database, and changes in the billing system.

Q. WILL GTE ALLOW NON-GTE ACCESS TO ITS PROVISIONING SYSTEMS, PRIOR TO THE DEVELOPMENT OF A SYSTEM-TO-SYSTEM STANDARD GATEWAY?

A. No. The FCC Order did not relinquish control of the network to alternative local exchange carriers. GTE is responsible for the provision of its network facilities. GTE will not provide network control functionality through a system-to-system standard gateway, but may provide access to installation information if requested and paid for by Sprint.

Q. IS A NEW REPORTING REQUIREMENT NECESSARY TO PROVE NONDISCRIMINATION IN PROVISIONING?

A. No. GTE's provisioning processes for single-line services are highly automated with little opportunity for human intervention in the process. This automation precludes the opportunity for discriminatory activity and GTE should not be required to develop non-existing reports to prove non-discrimination. GTE does not process orders based on customer identity and GTE will process Sprint's orders in the same manner as it does for itself or its customers.

Q. WILL GTE ALLOW A NON-GTE COMPANY TO HAVE ACCESS TO ITS NETWORK VIA REPAIR SYSTEMS?

A. No. GTE cannot compromise the security of its network or its proprietary customer information by allowing access by companies other than GTE to the network via GTE's repair systems. The FCC Order did not relinquish control of the network to alternative local exchange carriers.

Q. WILL GTE ALLOW A NON-GTE COMPANY TO HAVE REAL-TIME DIRECT ACCESS TO ITS MAINTENANCE AND REPAIR SYSTEMS?

A. No. The FCC Order did not relinquish control of the network to alternative local exchange carriers. GTE is responsible for the repair of its network facilities. GTE will not provide repair control functionality through a system-to-system standard gateway, but may provide access to repair status information if requested and paid for by Sprint.

Q. IS A NEW GTE REPORTING REQUIREMENT NECESSARY TO PROVE NONDISCRIMINATION IN MAINTENANCE AND REPAIR?

A. No. GTE does not process repair tickets based on customer identity and GTE will process Sprint's tickets in the same manner as it does for itself or its customers. GTE's processes preclude the opportunity for discriminatory activity and GTE should not be required to develop non-existing reports to prove non-discrimination.

Q. WILL GTE USE A CABS-LIKE BILLING SYSTEM FOR CHANGES ORDERED BY SPRINT?

A. No. GTE will provide billing to Sprint via the CBSS system which is the same system used by GTE to bill its customers for local services. GTE will create a bill to Sprint for resold services and unbundled elements along with a summary bill master. GTE is working to

provide a CABS/CABS-like solution to handle both trunk-side and line-side billing.

Q. WILL GTE PROVIDE END USER BILLING INFORMATION IN A TIMELY MANNER AS REQUESTED BY SPRINT?

A. Yes. Daily file records on Sprint's accounts will be generated and transmitted electronically to Sprint.

Q. WILL GTE PROVIDE ITS SERVICES TO SPRINT CUSTOMERS ON A NONDISCRIMINATORY BASIS?

A. The Act does not mandate any particular service standards for ILECs with respect to resold services or interconnection generally. Section 251(c)(2) requires that an ILEC provide interconnection to a CLEC at the same quality standards applicable to the ILEC. Resold services must not impose unreasonable or discriminatory conditions or limitations. 47 U.S.C. § 251(c)(4)(B) (1996). GTE is not required to meet different standards for Sprint and every other competing local exchange carrier interconnecting with GTE. GTE will provide the services it is required to offer Sprint in a nondiscriminatory manner and at the same quality standards applicable to its own customers.

Q. SHOULD GTE'S BRAND APPLY TO ITS CUSTOMER CARE CENTERS AND TO ITS EMPLOYEES?

A. GTE will provide repair services for the interconnection services it provides Sprint. Such services will be the same in quality and

response time as those GTE provides for its own customers. GTE will continue to provide its own repair service from its Customer Care Centers. Such services are GTE services and are provided by GTE employees. It is unreasonable not to allow GTE to identify the Customer Care Centers as GTE offices. The Sprint representatives will interact with GTE's Customer Care centers, not Sprint's end-users, therefore branding should not be an issue.

GTE should be able to maintain repair centers that can be identified as GTE's own. Sprint will be able to have its own repair center along with its own discrete telephone number which can be identified as belonging to Sprint. While it is possible that Sprint customers could call GTE repair centers by mistake, such a possibility is no reason for GTE to stop using its brand for its Customer Care Centers (any more than it is reasonable for Sprint to cease using its brand because of the possibility that a GTE customer might call an Sprint repair center by mistake). GTE should be allowed to continue to use its brand for its own repair centers. Should an Sprint customer misdirect a call to GTE's Customer Care Center, GTE will provide that customer with the telephone number of Sprint's repair centers.

In a related matter, GTE service personnel providing repair service to Sprint customers are GTE employees. If GTE employees were required to carry Sprint branded material, GTE undoubtedly would be asked to do the same for other similarly situated CLECs. GTE

service personnel ultimately would be spending inordinate amounts of time trying to determine for whom they were working and coordinating the branding of their various competing carriers. Not only would this create an administrative nightmare, it would have a deleterious effect on productivity and service delivery. GTE is, however, willing to use an unbranded no access door-hanger when providing repair services to Sprint and other CLEC customers.

Q. SHOULD CUSTOMER AUTHORIZATION BE REQUIRED BEFORE GTE CUSTOMER ACCOUNT INFORMATION IS RELEASED TO A CLEC?

A. Yes. GTE obtains certain data from its customers when service is initiated with GTE. This data includes, for example, the customer name, address and telephone numbers and the services the customer ordered. This is the same information that Sprint will obtain directly from any new customer it might serve. Sprint proposes, however, that it not be required to obtain this information directly from its customer as GTE must do. It proposes that for any GTE customer that agrees to obtain some type of service from Sprint, GTE must automatically transfer that customer's entire local service account to Sprint.

Sprint does not specify the type of "Sprint service" request that would trigger the automatic transfer of GTE's entire local service account information. Sprint is also a toll service provider. Presumably, a request for toll service would not trigger the automatic transfer of

GTE's local service account to Sprint. The purchase of a B-1 line or one special circuit would not trigger a business account transfer. Clearly, transfers should not occur without customer approval. Customer consent must be clearly and unmistakenly obtained. "Slamming" has been a significant problem in the long distance business, and should not be permitted for local customers GTE will require a letter of authorization for all services they elect to transfer to a CLEC.

More importantly, Sprint does not need access to GTE for information for ordering, provisioning, billing or maintenance of its local service. All required information can be obtained directly from its customers or from GTE with customer authorization. Sprint claims electronic access to this information is required because of the time it takes to complete a service order. However, such electronic access to "on-line" would allow Sprint to track GTE customers and, based on their level of service with GTE, target them for marketing of its own local or toll services. GTE will not have similar access to Sprint's customer account information, which would give Sprint a competitive marketing advantage.

Unrestricted or unauthorized access to GTE's customer account information also raises the issue of customer proprietary information protection. Clearly, if Sprint were able to access directly all GTE customer accounts, the proprietary nature of the information

contained in the accounts would be compromised. Section 222 of the Act protects such "Customer Proprietary Network Information." GTE may not disclose this information without the customer's approval. While section 222(d) of the Act does allow all carriers to use such information for purposes related to serving their own customers, it does not permit release of the information to another carrier to serve that customer. Sprint cannot be given electronic access to GTE's customer accounts information. Additionally, there is an FCC NPRM in process (Docket CC 96-115) that will be used to determine the rules for sharing customer information in the local competition environment. It is premature for this Commission to finalize any rules that would compromise customer privacy.

Q. SHOULD GTE BE REQUIRED TO IMPLEMENT A PROCESS AND STANDARDS THAT WILL ENSURE THAT SPRINT RECEIVES SERVICES THAT ARE AT LEAST EQUAL IN QUALITY TO THAT WHICH GTE PROVIDES ITSELF?

A. GTE plans to provide service quality that is non-discriminatory and equal to that which GTE provides to itself and its affiliates. However, Sprint goes beyond that in wanting to set its own quality standards on an individualized basis for service they obtain from GTE. In response, GTE believes that it should not be required to adhere to different CLECs' service quality standards. This would be onerous, particularly when multiple CLECs begin to operate in this market. It is already difficult enough to address differing quality standards

among the 28 states given different approaches taken by the various commissions. To divide up that measurement process and standards levels further among various CLECs would be totally unworkable and impose a tremendous and useless burden on GTE. Further, it would not benefit the CLECs, for GTE already is committed to providing non-discriminatory treatment with respect to the quality standards set in the public interest by this Commission.

Q. WHO WILL BILL FOR THIRD-PARTY INFORMATION SERVICE CHARGES INCURRED BY SPRINT CUSTOMERS?

A. GTE may provide such third-party information service provider billing for Sprint if Sprint will provide its customer account information necessary to bill Sprint customers to GTE.

Q. SHOULD SPRINT BE PERMITTED ACCESS TO GTE'S CUSTOMER ACCOUNT INFORMATION WITHOUT AUTHORIZATION?

A. GTE customer account information is "Customer Proprietary Network Information" under the Act and cannot be disclosed without customer authorization.

SECTION E: SUMMARY

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. GTE is willing to provide access to its operations support systems

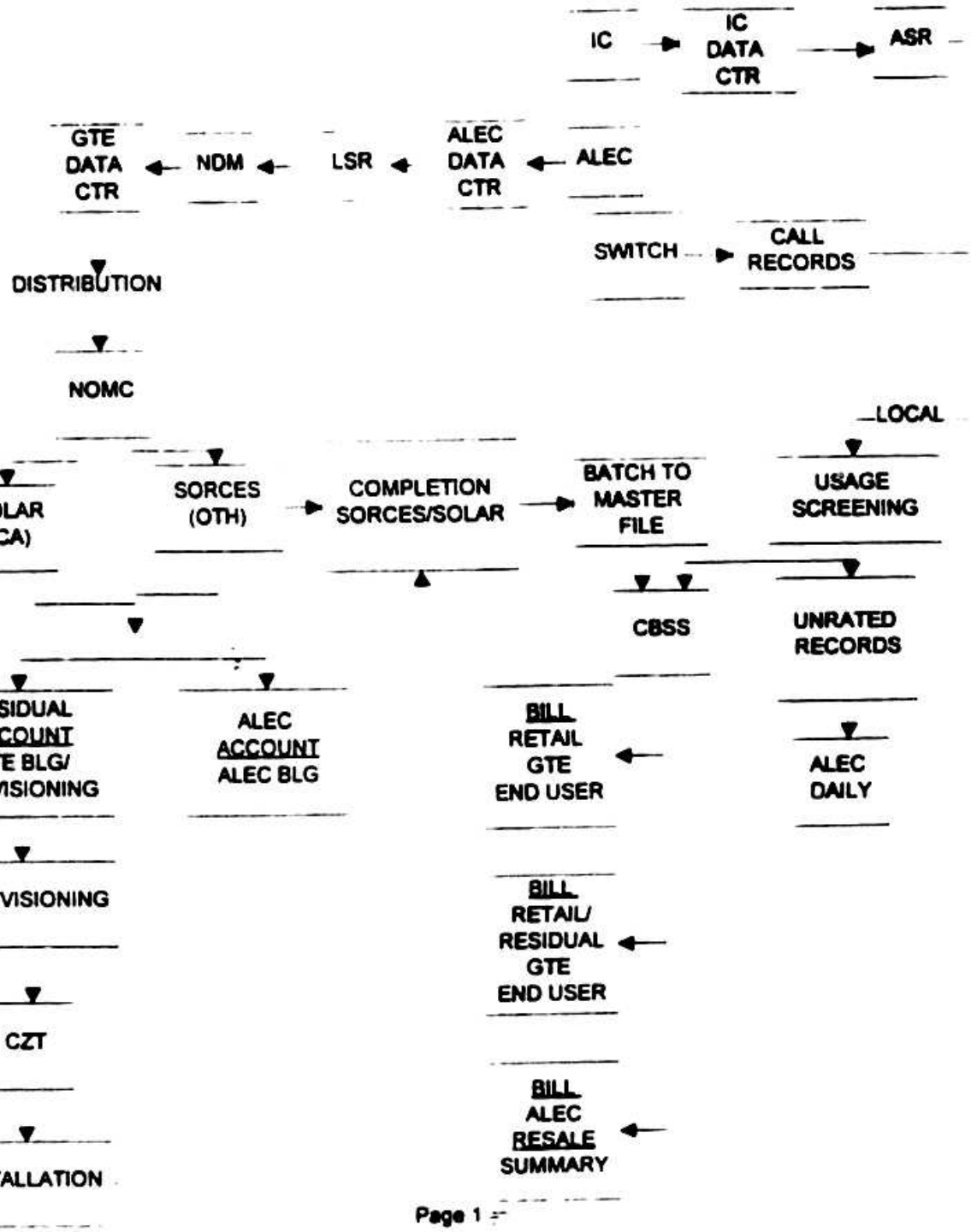
functions without discrimination as required by the Act. However, such access will require the creation of certain electronic interfaces. These interfaces can be created, but Sprint and the CLECS must pay for them. Further, ample time must be allowed for this development depending on the amount of work which will be required.

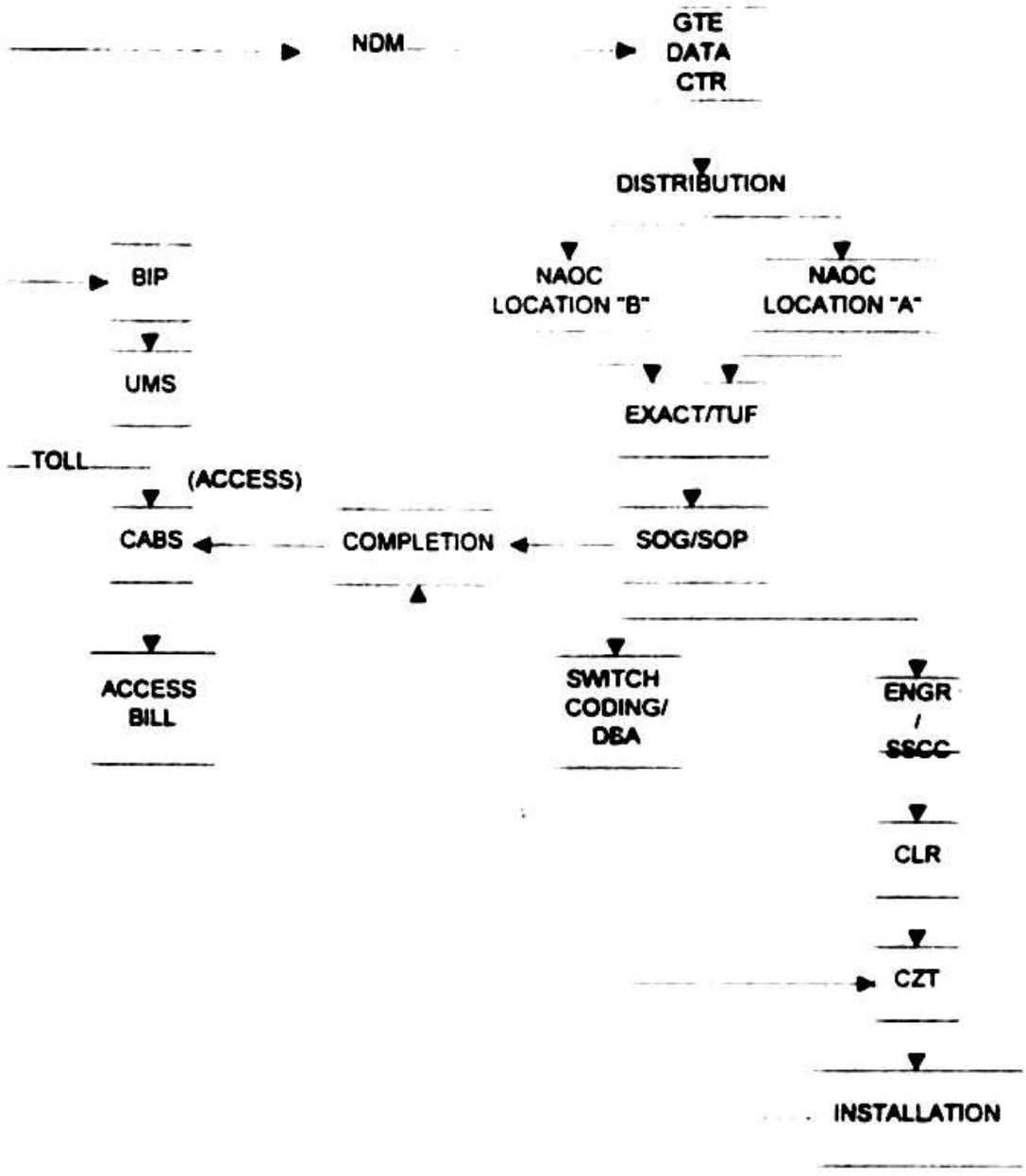
GTE should not be required to meet different standards for service quality, nor should it be required to remove its brand on its repair centers or for its repair employees. Sprint should be required to provide GTE the billing information for its customers if Sprint desires GTE to bill for the third-party information service calls made by Sprint's local customers. Finally, GTE's customer account information is proprietary under the Act, and should not be disclosed to Sprint without the proper authorization.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

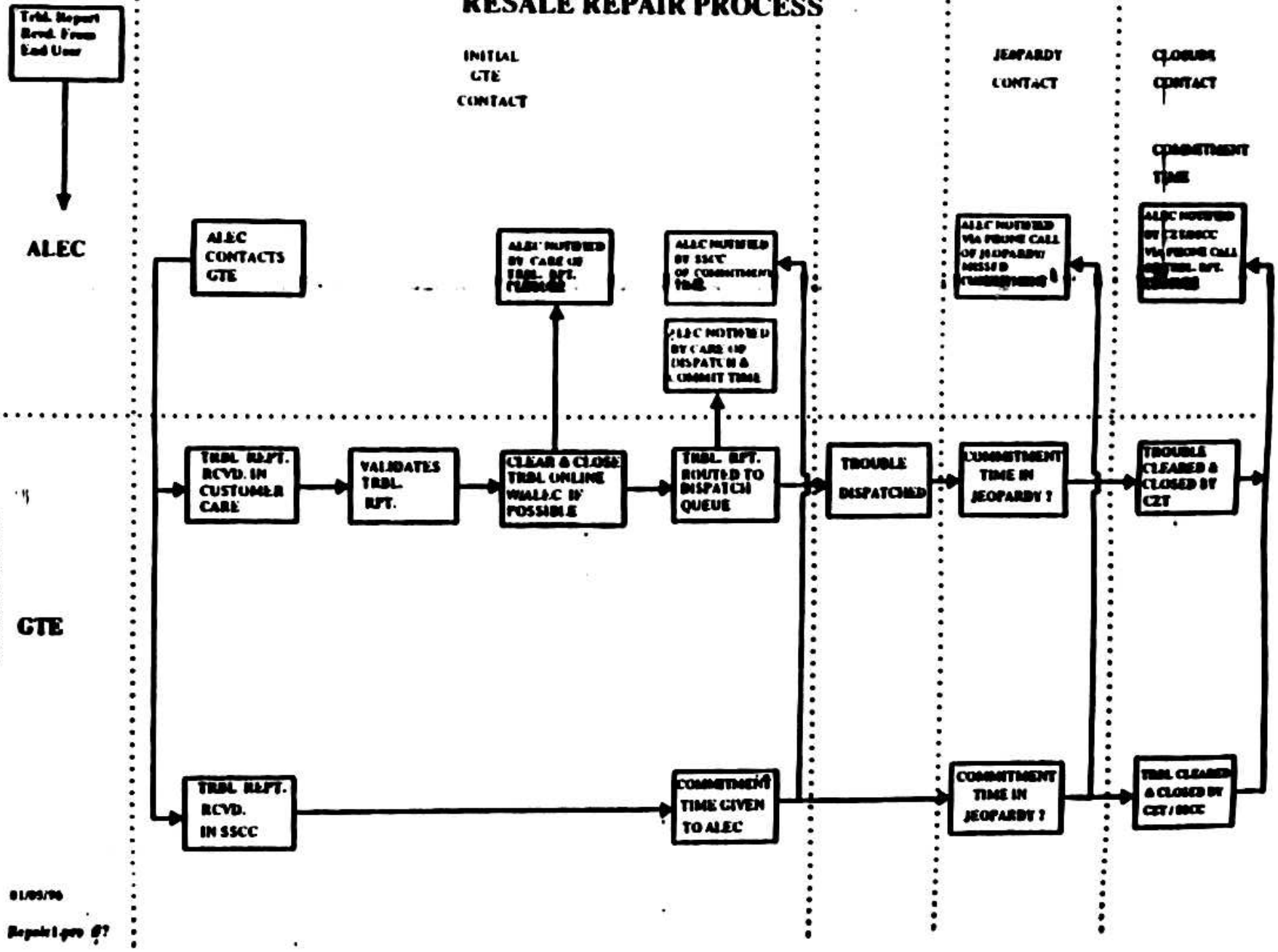
A. Yes.

LOCAL COMPLETION LINE-SIDE/TRUNK-SIDE PROCESS/SYSTEM FLOWS




NDM
GTE
DATA
CTR
DISTRIBUTION
BIP
NAOC
LOCATION "B"
NAOC
LOCATION "A"
UMS
EXACT/TUF
TOLL
(ACCESS)
CABS
COMPLETION
SOG/SOP
ACCESS
BILL
SWITCH
CODING/
DBA
ENGR
/
SSCC
CLR
CZT
INSTALLATION

ALEC/GTE INTERACTION
RESALE REPAIR PROCESS



Docket No. 961173-TP
Direct Testimony of Michael Drew
Exhibit No. MID-2
Page 1 of 1
FPSC Exhibit No. ____

01/05/96

Repair1.grp @7

PART XI

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF BEVERLY Y. MENARD

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION WITH GTE FLORIDA INCORPORATED (GTEFL).

A. My name is Beverly Y. Menard. My business address is One Tampa City Center, Tampa, Florida 33601-0110. My current position is Regional Director - Regulatory and Industry Affairs.

Q. WILL YOU BRIEFLY STATE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE?

A. I joined GTEFL in February 1969. I was employed in the Business Relations Department from 1969 to 1978, holding various positions of increasing responsibility, primarily in the area of cost separations studies. I graduated from the University of South Florida in June of 1973 receiving a Bachelor of Arts Degree in Business Administration with an Accounting Major. Subsequently, I received a Master of Accountancy Degree in December of 1977 from the University of South Florida. In March of 1978, I became Settlements Planning Administrator with GTE Service Corporation. In January of 1981, I was named Manager-Division of Revenues with GTE Service Corporation, where I was responsible for the administration of the GTE division of revenues procedures and the negotiation of settlement matters

with AT&T. In November of 1981, I became Business Relations Director with GTEFL. In that capacity, I was responsible for the preparation of separations studies and connecting company matters. Effective February 1987, I became Revenue Planning Director. In this capacity, I was responsible for revenue, capital recovery and regulatory issues. On October 1, 1988, I became Area Director - Regulatory and Industry Affairs. In that capacity, I was responsible for regulatory filings, positions and industry affairs in eight southern states plus Florida. In August 1991, I became Regional Director - Regulatory and Industry Affairs for Florida. I am responsible for regulatory filings, positions and industry affairs issues in Florida.

Q. HAVE YOU EVER TESTIFIED BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION?

A. Yes. I have testified before this Commission on numerous occasions.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to present the position of GTE regarding number portability. Included within my testimony is an identification of issues existing between GTE and Sprint and its affiliates ("Sprint") related to number portability.

Q. HAS THIS COMMISSION PREVIOUSLY CONSIDERED THE ISSUE OF INTERIM NUMBER PORTABILITY ("INP")?

A. Yes. In Docket No. 950737-TP, the Florida Public Service Commission approved the use of Remote Call Forwarding (RCF) for INP. GTEFL filed tariffs reflecting the Commission's decision effective January 1, 1996.

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF GTE'S POSITION CONCERNING NUMBER PORTABILITY.

A. The Telecommunications Act of 1996 (the "Act") requires all local exchange carriers to provide number portability to the extent "technically feasible" and "currently available". Until the implementation of long-term number portability, there are several methods available to provide interim number portability ("INP"), and GTE has negotiated with alternative local exchange carriers ("ALECs") over methods and pricing of INP. The FCC has already issued regulations relating to INP which broadly regulate its terms, conditions and rates. See In re Telephone Number Portability, First Report and Order and Further Notice of Proposed Rulemaking, CC Docket No. 95-116, FCC 96-286 (released July 2, 1996) (the "Number Portability Order"). GTE's position with regard to INP is consistent with these regulations and the additional requirements imposed on INP by various State commissions.

Q. HOW IS YOUR TESTIMONY STRUCTURED?

A. The remainder of my testimony is divided into four sections as follows: Section A sets forth what the Act and the FCC regulations require; Section B discusses open issues between the parties with regard to INP; Section C sets forth GTE's position on these issues and shows how this position is entirely consistent with the requirements of both the Act and the FCC's Number Portability Order; and Section D presents a summary of the testimony.

SECTION A: NUMBER PORTABILITY AND "THE ACT"

Q. DOES THE TELECOMMUNICATIONS ACT OF 1996 ADDRESS NUMBER PORTABILITY?

A. **Yes**. Section 251(b) of the Act requires all telecommunications carriers "to provide, to the extent technically feasible, number portability in accordance with requirements prescribed by the Commission." 47 U.S.C. § 251(b) (1996). Number portability is defined by the Act as "the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another." 47 U.S.C. § 153(30) (1996). With regard to pricing of number portability, the Act states that "[t]he cost of establishing . . . number portability shall be borne by all telecommunications carriers on a competitively neutral basis as determined by the [FCC]." 47 U.S.C. § 251(e)(2) (1996).

In July 1996, the FCC released its regulations regarding number portability. See Number Portability Order. The FCC regulations establish a schedule whereby telephone companies will be required to implement long-term number portability using database methods. See id. ¶¶ 77-81. With regard to INP, the Number Portability Order held that "currently RCF and DID are the only methods technically feasible," and thus required local exchange carriers "to offer number portability through RCF, DID and other comparable methods. . . ." Id. ¶ 110. These are the only criteria established by the FCC with regard to INP. The FCC established nine performance criteria for long-term number portability, but did so solely in that context. See Number Portability Order ¶ 48.

The FCC regulations also establish guidelines for State commissions to follow in setting the rates for INP. Alternatively, however, the State commission may require carriers to file a tariff, in which case the guidelines do not necessarily apply. Id. ¶ 127. With regard to the FCC's guidelines, the FCC defines the cost of providing INP as being the "incremental cost incurred by a LEC to transfer numbers initially and to subsequently forward calls to new service providers using existing RCF, DID, or other comparable measures." Id. ¶ 129. The FCC provided that any mechanism for the recovery of these costs must be "competitively neutral," meaning that it must meet two criteria. First, it "should not give one service provider an appreciable, incremental cost advantage over another service provider, when

competing for a specific subscriber." Id. ¶ 132. Second, it "should not have a disparate effect on the ability of competing service providers to earn normal returns on their investment." Id. ¶ 135. Furthermore, assuming that ILECs will win customers away from ALECs, just as ALECs will win customers from ILECs, the FCC held that competitive neutrality requires a "reciprocal compensation arrangement" with the rate paid by the ILEC to the ALEC equal to that paid by the ALEC to the ILEC. Id. ¶ 137.

Q. WHAT TYPE OF COSTS WILL BE INCURRED BY GTE RELATED TO PROVIDING INTERIM NUMBER PORTABILITY?

A. As discussed in the testimony of the GTE pricing witnesses, all INP methods impose costs on the service provider that is providing INP. These costs can be classified as follows:

- **Switching Costs**: These costs are incurred when the service provider reroutes the call (call forwarding and route indexing), changes the dialed digits (digit substitution) and adds digits (pseudo NPA code addition). Additional switching costs may be incurred where end offices exhaust their software capacity to provide these forwarding, indexing and digit manipulation functions.

- **Transport Costs**: Service providers offering INP will incur the cost of transporting all ported calls from switch to switch.

Many times, such transport may occur not only once but twice over the same trunks, potentially causing blockages and overuse of the network. To the extent trunking capacity is exhausted, this will impose an additional cost on the carrier. The trunks required for DID will also add to transport costs.

- **Opportunity Costs**: Whenever a service provider provides number portability for a customer it has, of course, lost that customer. Thus, one of the costs of providing INP is the lost opportunity of receiving revenues from that customer for other services that may have offset the costs of INP.

SECTION B: THE POSITIONS OF GTE AND SPRINT

Q. WHAT ARE THE DISPUTED ISSUES REGARDING NUMBER PORTABILITY?

A. Sprint has requested that GTE provide it with immediate INP, using RCF and DID, at a rate determined by calculating GTE's total element long run incremental cost ("TELRIC") for providing INP. GTE contends that Sprint's pricing methodology will result in GTE being unable to recover the costs of INP and will place GTE at a competitive disadvantage. The specific disputed number portability issues which must be resolved include:

(1) *What are GTE's costs for providing INP?*

Sprint's Position: GTE's costs should be determined by calculating GTE's TELRIC for providing the service assuming equipment deployed today, which would only include GTE's capital costs and certain costs of supporting the investment to provide INP, such as taxes, depreciation and maintenance.

GTE's Position: GTE's costs should be determined according to the forward-looking methodology allowed by the FCC's Number Portability Order. Thus, GTE's costs assume the network in place today, and allow for capital costs, transport and termination costs, opportunity costs and the costs of supporting the investment in INP.

(2) *Should GTE's rate for interim number portability reflect any reductions from cost?*

Sprint's Position: Sprint believes that the cost (TELRIC) be further discounted by 55% recognizing that interim number portability solutions degrade network performance to Sprint customers.

GTE's Position: The cost of INP should not be discounted since GTE would not recover its costs. All carriers should be allowed to recover their costs according to tariffed rates or,

alternatively, all carriers should be subject to a system that collects the cost of number portability from end users.

(3) *How should terminating access charges be handled?*

Sprint's Position: Sprint is entitled to the originating and terminating access charges.

GTE's Position: GTE is entitled to a portion of the access charges.

SECTION C: GTE's POSITION

Q. WHAT IS GTE'S POSITION CONCERNING THE DISPUTED ISSUES?

A. GTE is willing to offer direct inward dialing (DID), in addition to remote call forwarding (RCF), as a viable solution to the interim number portability issue which is in apparent agreement with Sprint. However, GTE believes that Sprint's positions concerning the following are incorrect. First, Sprint ignores certain costs borne by GTE to provide INP which can be charged to Sprint under the Act and the LCC's number portability order. Second, Sprint's interpretation of discounts is incorrect, and would result in GTE being at a competitive disadvantage.

Q. DOES THE ACT OR THE FCC NUMBER PORTABILITY ORDER RECOMMEND OR EVEN SUGGEST THAT THE COST OF INTERIM NUMBER PORTABILITY SOLUTIONS (RCF OR DID) BE REDUCED BY 55% TO RECOGNIZE THAT THESE SOLUTIONS DEGRADE NETWORK PERFORMANCE?

A. No, they do not. Sprint's proposal to reduce cost by 55% because INP solutions degrade network performance is totally erroneous in the context of number portability. They base the reduction on the fact that the FCC Access Charge Rules (47 C.F.R. 69105) required a set of access rate elements be established (less than premium) recognizing that customers of competing long distance carriers in a non-equal access office did not have dialing parity when making a long distance call. Typically, all of Sprint's customers could make a long distance interLATA call by dialing 1+ while customers of Sprint's competitors in that same office were required to dial a series of digits in order to access their carrier's network. This analogy does not fit when applied to interim number portability. All local carriers, including ILECs, competing in the same market will utilize the same number portability solution(s) and disparity in the applications will not exist.

Q. DOES GTE INCUR COST ASSOCIATED WITH LONG DISTANCE CALLS TERMINATING TO NUMBERS PORTED TO SPRINT?

A. Yes, we do. Essentially we do incur cost at the same as terminations

to hold-ported numbers. GTE also recognizes that Sprint incurs costs and GTE is willing to share access revenues.

Q. SINCE GTEFL ALREADY HAS TARIFFS IN PLACE FOR RCF, SHOULD ANY CHANGES BE CONSIDERED IN THE RATES FOR RCF IN THIS DOCKET?

A. No. As discussed previously, in the Number Portability Order, the FCC has stated the State commission may require carriers to file a tariff, in which case the guidelines do not necessarily apply. (Number Portability Order at ¶ 127.) In addition, since this issue affects all LECs and ALECs, hearings are already scheduled in Docket No. 950737-TP to address this issue on November 25, 1996. GTEFL has filed testimony in that proceeding addressing the issue of competitive neutrality with respect to the pricing for interim number portability.

SECTION D: SUMMARY

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. RCF and DID are currently available methods for providing number portability that will provide Sprint with the full benefit of INP, with the least amount of modification to GTE's current network. While both are subject to disadvantages that make them unfit for long-term portability, GTE believes that these disadvantages do not preclude the use of RCF or DID for INP. RCF and DID are currently available solutions. Even using RCF and DID, however, GTE will incur

significant costs that it is entitled to recover. Even if competitive neutrality is applicable to cost recovery for INP, GTE and all other carriers should be able to recover their tariffed rates to the extent such tariffs have already been filed or, alternatively, recover the costs of INP through a cost pooling system. In addition, this issue should be resolved in Docket No. 950737-TP.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A Yes, it does.

PART XII

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF JULIA ANN LAWRENCE

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Julia Ann Lawrence. My business address is 600 Hidden Ridge Drive, Irving, Texas 75038.

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

A. I am employed by GTE Telephone Operations as Product Manager - Operator Services. My responsibilities include providing marketing support in the form of new product roll out and life cycle management for operator services products.

Q. WOULD YOU PLEASE BRIEFLY OUTLINE YOUR EDUCATIONAL AND EXPERIENCE IN THE TELECOMMUNICATIONS INDUSTRY?

A. I graduated from Amber University in 1980 with a B.B.A. degree. I joined GTE in 1987 as a Staff Administrator - Equal Access and became Staff Administrator - Public Communications in 1989. In 1981, I was promoted to Product Manager - Public Communications. I have been Product Manager - Operator Services since 1994.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address the operator services (OS) and directory assistance (DA) issues raised by Sprint in its petition.

Q. SHOULD GTE BE REQUIRED TO ROUTE OS/DA TO ALEC'S OPERATORS IN A RESALE ENVIRONMENT?

A. No. The Act requires that GTE offer for resale telecommunications services that GTE provides at retail to subscribers who are not telecommunications carriers. GTE's basic residential and business service offerings include, as a total services package, OS/DA. The resale provisions of the Act do not require GTE to "unbundle" various components of its retail services. Put another way, GTE does not offer OS/DA routing to its retail customers as a separate retail offering, and therefore GTE is not required to do so for Sprint.

GTE's position is supported not only by the Act but also by paragraph 877 of the FCC's First Report and Order, which provides that "Section 251(c)(4) does not impose on incumbent LECs the obligation to disaggregate a retail service into more discrete retail services. The 1996 Act merely requires that any retail services offered to customers be made available for resale."

Q. IS IT TECHNICALLY FEASIBLE FOR GTE TO UNIQUELY BRAND ALEC'S OPERATOR SERVICES AND DIRECTORY ASSISTANCE SERVICES IN A RESALE OR UNBUNDLED ENVIRONMENT?

A. No. GTE is not currently capable of providing unique branding. Before branding can occur, the issue of customized routing must be resolved. As the unbundling witness for GTE testified, the requisite

vendor-endorsed solution to the customized routing problem does not yet exist.

Even if the routing issue is resolved, the branding process raises its own set of technical issues. There are two types of potential branding: pre- and post-branding.

Pre-branding occurs at the beginning of a call and requires sufficient identification capabilities and branding capacities at the operator service switch. A dedicated trunk group is required to properly identify the OS or DA call for appropriate pre-branding. Additionally, the quantity of Digital Random Access Memory (DRAM) packs (used to store and play the branding message) required for a particular OS network switch is dependent upon the total number of unique phrases requiring storage, total minutes of audio phrasing requiring storage, and the number of simultaneous channels required to meet the traffic load. Further, an extensive amount of table work is required of GTE data base management personnel within each OS network switch in setting up the unique trunk groups, routing tables and pointers to individual branding phrasing as may be requested by Sprint and other ALECs for their customers' OS services. Assuming all the technical problems are solved, GTE would, of course, need to recover from Sprint (or other requesting ALECs) all of the costs associated with the tasks required for pre-branding.

With regard to branding, GTE proposes the following:

1) GTE can provide total and complete unbranding of DA. Cost recovery would be required; or,

2) GTE can provide an offering with the option of unbranding or rebranding. This offering would require selective routing capability and, in the case of rebranding, branding hardware and software augmentation. Implementation costs must be recovered.

It is important to note that Option 1 and 2 above are "all or nothing" offerings. It is not technically feasible to offer both options. Only one option can be used for all ALECs, therefore, only one option should be implemented.

Q. IS POST-BRANDING ON OPERATOR SERVICES TECHNICALLY FEASIBLE?

A. Post-branding on OS is not, in practical terms, technically feasible. GTE's Interactive Voice Services (IVS) system can only be equipped to provide custom post-branding for a unique NPA/NXX. For resold lines and unbundled ports, ALECs will share many numbers within a single NPA/NXX.

Q. IS IT TECHNICALLY FEASIBLE FOR GTE TO QUOTE SPRINT RATES FOR OPERATOR SERVICES?

A. No. GTE's platform is designed to provide rates for only one service provider. To accommodate multiple users, customized routing issues would have to be resolved, the platform would have to be expanded and external rating systems would have to be added. GTE would have to recover from Sprint all costs associated with the modifications required to quote Sprint rates.

Furthermore, it is GTE's position that the Act does not require an ILEC to provide rating for multiple providers.

Q. SHOULD GTE BE REQUIRED TO PROVIDE ITS DIRECTORY ASSISTANCE LISTINGS?

A. No. GTE's position to not sell its listings is supported by Section 222(e) of the Act which requires the provision of subscriber list information only for the purpose of publishing directories: "a telecommunications carrier that provides telephone exchange service shall provide subscriber list information gathered in its capacity as a provider of such service on a timely and unbundled basis, under nondiscriminatory and reasonable rates, terms, and conditions, to any person upon request for the purpose of publishing directories in any format."

From a technical perspective, GTE may or may not be capable of providing access. For example, GTE is not currently capable of providing database access. Design modifications would be required to provide for data integrity and security. For information purposes, GTE has contacted its database vendors to investigate technical solutions necessary to provide for multiple users.

Clearly, DA listings are available today from numerous sources; therefore, GTE's decision at this time to not sell its listings is not a barrier to entry.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

PART XIII

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF DONALD W. MCLEOD

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Donald W. McLeod. My business address is 600 Hidden Ridge, Irving, Texas.

Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?

A. I am employed as Vice President - Local Competition/Interconnection Program Office for GTE Telephone Operations, which has telephone operations in 28 states.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL AND WORK EXPERIENCE.

A. I graduated from San Diego University in June 1966, receiving a Bachelor of Science degree in Business Administration with a Management major. Immediately upon graduation from college, I joined the Engineering Department of General Telephone Company of California, where I was involved in the preparation of Cost Separations Studies. In August 1969, I moved to General Telephone Company of the Northwest, as Settlements Administrator. In February 1971, I became Revenue Requirements Administrator with

GTE Service Corporation. In that capacity, I was involved in settlement matters affecting all GTE telephone operating companies.

In December 1972, I was appointed to the position of Business Relations Manager with General Telephone Company of Florida, where I was responsible for the supervision of Division of Revenue Studies. I was promoted to the position of Director of Business Relations in December 1979, with responsibility for the preparation of separations studies, various cost valuation studies, connecting company matters, and the functional coordination of rate case activity.

In October 1981, I returned to GTE Service Corporation. During the next five years, I held various positions pertaining to the areas of strategic revenue planning, access and cost allocation issues, rate cases and carrier relations. I subsequently transferred to GTE North in July 1986, accepting the position of Director-Revenue Planning, where I was responsible for strategic revenue planning, capital recovery state and federal regulatory filings, and policy recommendations on revenue matters. In October 1988, I was appointed Director-Revenue & Earnings Management-North Area. In June 1991, I was appointed Director-Revenue & Earnings (South) In December 1993, I was appointed Vice President-External Affairs (Florida) and was appointed Regulatory and Governmental Affairs

Vice President (East) in October 1994. In March 1996, I accepted my present position.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to: 1) discuss some general topics that may be applicable in the contract between GTE and Sprint, as well as (2) describe GTE's negotiations with Sprint, and (3) summarize GTE's Response to fundamental issues raised in Sprint's Petition. But first, I will briefly discuss the Telecommunications Act of 1996 and the FCC's implementing rules as they relate to GTE's pricing proposal.

The Telecommunications Act and the FCC's Rules

Q. PLEASE COMMENT ON THE TELECOMMUNICATIONS ACT OF 1996 (THE ACT) AND THE IMPLEMENTING RULES ADOPTED BY THE FEDERAL COMMUNICATIONS COMMISSION IN ITS FIRST REPORT AND ORDER.

A. The Act itself is unprecedented, and makes fundamental changes to the local telecommunications industry. Specifically, the Act is intended to encourage competition by requiring incumbent local exchange carriers (ILECs) such as GTE to provide interconnection and access to unbundled network elements at cost-based rates, and

to offer services for resale at wholesale rates based on an ILEC's avoided costs.

The FCC's rules, however, contradict the Act on several significant points. For example, Sprint requests interconnection, services, and unbundled elements under § 251(c) of the Act. The prices for these facilities and services are subject to the pricing standards set forth in § 252(d)(1)-(3). The Act expressly provides that the ***State Commissions*** have exclusive authority to establish and apply these standards. The FCC, however, has set out detailed rules and methodologies of its own for these pricing standards, precluding States from considering other methodologies. The FCC also purported to establish "default proxy rates" for wholesale services and unbundled elements that States may adopt as interim rates pending a hearing on the merits. These rules have been stayed by the recent decision of the Eighth Circuit Court of Appeals. Thus, they no longer have a legal effect in the current arbitrations.

One thing that was most troubling about the FCC's First Report is that it established "default proxy rates" for wholesale services and unbundled elements for potential adoption as interim rates pending a hearing on the merits. GTE is very concerned with such a proposal First, as now apparently confirmed by the Eighth Circuit, the FCC improperly assumed the State's rate-setting function and exceeded its statutory authority. Second, we believe the FCC's default rates

are erroneous. And while Sprint may disagree with us, we are entitled to a hearing on the merits as well as an opportunity to present our case *before* rates can be imposed upon GTE. In fact, when the FCC for its own part denied the Motion for Stay requests filed by GTE, SNET and U.S. West, even it acknowledged at ¶ 27 that the proxy prices must be replaced with cost studies when they become available and that the appropriate prices may exceed the proxy ceiling. Of course, the FCC's denial of the stay motion has now been reversed, and its proposed default proxy rates have no effect at this time.

A related concern is that the recombining of unbundled elements contemplated by the FCC Order would allow bypass of access charges and also allow avoidance of the appropriate resale pricing standards. The FCC's Order violates the intent of the Act; that is, not to change the level and application of carrier access charges. For example, the Order arbitrarily sets end office switching prices at the proxy range of 2 to 4 mils, and it arbitrarily reduces the residual interconnection charge (RIC) to three-quarters of its former level. As a further example, it established without hearing or cause a sunset period for application of carrier common line charges and the three-quarters of the RIC.

Along these same lines, I would like to note that in my experience, regulatory bodies have devoted more time to general rate

proceedings and other, more "common" regulatory matters than to this proceeding, where the Commission must resolve fundamental issues resulting from the reorganization of an entire industry. We recognize that the time lines are imposed by federal law, not State commissions, but we need to ensure that the fundamental issues -- such as those relating to pricing and costing -- receive the attention they deserve.

Q. SHOULD THE FCC'S PROXY RATES BE IMPOSED ON GTE ON AN INTERIM BASIS WHILE THESE ISSUES ARE BEING CONSIDERED?

A. The Court of Appeals' decision staying the FCC's rules mandates that the "proxy rates" default cannot be applied in this proceeding. Even absent this decision, the proxy rates should not be imposed on GTE on an interim basis. As demonstrated by other witnesses, the default rates are too low to cover GTE's costs. Were the FCC's default rates used even in the interim, there can be no mechanism fashioned to fix the problem after the fact. "Truing up" rates is not an adequate solution. If unbundled rates are set at levels below cost, new entrants will have the ability to attract more customers than they otherwise would be capable of attracting away from GTE. Once this excessive share loss occurs, it would be impossible for the State to correct for the problem from a customer perspective. In other words, while it is conceivable that the State could order retroactive treatment from a revenue perspective, the market cannot be retroactively corrected.

It is very costly to win back a customer once lost to another competitor. GTE would be irreversibly harmed by the "proxy rates" default, even if the Commission allowed for a retroactive "true-up" mechanism. For all these reasons, and for the reasons set forth in GTE's Arbitration Brief and Response, GTE believes that the FCC's proxy rates should not be applied.

Q. MAY THE COMMISSION ADOPT RATES ON AN INTERIM BASIS AND, IF SO, DOES THE COMMISSION HAVE THE AUTHORITY TO APPROVE A TRUE-UP MECHANISM TO ACCOMMODATE DIFFERENCES IN FINAL RATES FROM THOSE IMPLEMENTED ON AN INTERIM BASIS?

A. Yes, the Commission has such authority, provided that it adopts GTE's proposed rates as the interim rates. Should the Commission adopt proposed rates, which are below GTE's costs, and later order a true-up to compensate GTE, the Commission will be effecting the same unconstitutional taking that the FCC's proposed pricing rules committed. As I discussed earlier, those pricing rules, including the default proxy rates, were stayed by the United States Court of Appeals for the Eighth Circuit. Moreover, low interim rates, even with a true-up, would cause irreparable harm to GTE's market share, business reputation and good will as I previously explained.

I want to make clear, however, that even GTE's proposed rates do not reflect all of GTE's costs, including, for example, GTE's stranded

investment. This issue is addressed in GTE's Economic Report (along with the need to rebalance rates). GTE strongly believes it is entitled to recover all of its costs, and this position was an important part of GTE's Motion to Stay the FCC's First Report and Order. Therefore, any order of this Commission or any agreement between the parties must permit GTE recovery of all of its costs.

Q. HAS GTE PROPOSED ITS OWN PRICES FOR WHOLESALE SERVICES, UNBUNDLED ELEMENTS, AND INTERCONNECTION?

A. Yes, it has. However, the prices for these network elements are not compensatory due to GTE's current distorted rates. Wholesale rates and retail rates must be consistent and rational for all the rates set. Yet, GTE's wholesale rates for unbundled elements reflect market considerations, while GTE's retail rates were set with certain public policy goals in mind, most notably the goal of universal service. These goals allowed prices for some services to be set below their economic costs, while other services were priced far above costs as a source of contribution for the below-cost services. Other examples of distorted ratemaking policy goals included statewide rate averaging and class of service pricing. As long as GTE was the single provider, the public policy goals could be achieved without harm to the Company or its customers.

Now, however, competition has been introduced in the local exchange market. In that event, there arises a mismatch between,

on the one hand, the pricing methodology historically used for determining retail and wholesale rates (where rates will not uniformly reflect costs) and, on the other hand, the cost-based pricing required by the Act for unbundled elements and interconnection.

For this reason, GTE respectfully requests that the Commission move expeditiously to establish a uniform and consistent set of pricing policies that can be applied to the pricing of all of GTE's services – retail, wholesale, and unbundling.

Background on Sprint Negotiations

Q. WOULD YOU BRIEFLY DESCRIBE THE HISTORY OF GTE'S NEGOTIATIONS WITH SPRINT?

A. Yes. The parties have held numerous meetings to discuss the requirement that Sprint set forth in its initial requirements document, which is Sprint's Term Sheet, attached as Exhibit 3 to Sprint's petition. During the course of those meetings, the parties described their individual approaches to the items Sprint had requested. They did not fully complete negotiations, although they covered many topics in their discussions and endeavored to exchange views.

Q. HOW DID GTE APPROACH ITS NEGOTIATIONS WITH SPRINT?

A. GTE fully recognizes its obligations as an incumbent local exchange

carrier (ILEC) under the Act and is committed to seeing that Congress' objectives in enacting this legislation are achieved. To this end, GTE approached its negotiations with Sprint with a pro-competitive spirit to provide Sprint interconnection, access to unbundled network elements and the provision of services for resale on a nondiscriminatory basis. This does not mean, of course, that GTE was (or is) prepared to have either its customers or shareholders subsidize any ALEC's foray into the local exchange market. To the contrary, Congress intended, and the Act makes clear, that GTE must be fully compensated for its provision of interconnection, unbundled elements or resold services to Sprint.

Q. WAS THE NEGOTIATION OF A NATIONAL AGREEMENT THE PURPOSE OF THE PARTIES' DISCUSSIONS?

A. No. While the parties agreed to negotiate as many issues as possible at a national level, GTE made clear to Sprint from the beginning that state-specific agreements would be required once we reached consensus on all matters that could be treated consistently on a national level.

Q. DID THE PARTIES TRY TO KEEP TRACK IN WRITING OF THE PROGRESS ON ISSUES?

A. Yes. As early as January, 1996, GTE began working with Sprint to reach mutually agreeable terms and conditions for the resale of GTE's service in California. On April 18, 1996, Sprint requested the

commencement of negotiations with GTE for interconnection in each of GTE's other 26 franchise areas. Initially, progress on issues were documented in writing or some form of a worksheet. On June 5, 1996, Sprint provided GTE with their initial "term sheet" to serve as the basis for ongoing discussions GTE provided Sprint a corresponding "term sheet" on June 7, 1996. Negotiations came to a standstill July 16, 1996, as Sprint indicated that it could not agree to cost and pricing proposals presented by GTE and it was in Sprint's best interest to wait for the FCC Order due August 8, 1996 before pursuing negotiations further Sprint has since developed a revised Term Sheet Matrix incorporating requirements of the FCC Order and, based on Sprint's view, summarizes areas of agreement and disagreement between our companies. GTE has advised Sprint it would be more appropriate to address these issues in the context of full blown contractual language in order to avoid any misunderstanding on the issues.

Contract Between Sprint and GTE

Q. DID THE PARTIES EXCHANGE CONTRACT LANGUAGE?

A. Not really. GTE and Sprint have provided to each other initial and subsequent revisions to their individual model agreements. The approach taken by Sprint is entirely different than that which GTE would agree to. Sprint has merely taken their "Term Sheet" and incorporated the terms and associated language into a document

titled "Resale and Interconnection Agreement". The Sprint "Term Sheet" and "Term Summary" are unto themselves generally too vague in describing the Sprint and GTE positions. The complexity of the issues involved does not lend itself to a matrix approach.

GTE believes that the Commission should not work from Sprint's contract, and that it is premature to require filings of proposed interconnection agreements from either party. GTE proposes that the proper and efficient way to proceed in this arbitration would be to permit the parties to submit proposed contract language at a later time after they have negotiated the issues. That course of action should narrow issues on contract language, help to identify which issues need resolution by arbitration and which issues are subject to likely agreement once cost and pricing issues are resolved.

Q. DID GTE HAVE A POSITION ON COST AND PRICING IN THE NEGOTIATION?

A. Yes. GTE consistently maintained that any agreement to technical, business, and administrative issues necessarily awaited resolution of how GTE would be compensated for the elements, services, or modifications required by Sprint's terms.

Q. PLEASE DESCRIBE WHETHER THE MATRIX THAT SPRINT SUBMITTED IN THE ARBITRATION IS A NEGOTIATION DOCUMENT.

A. It is not. The matrix is organized in the same manner as Sprint's requirements document. And the parties, in discussing those requirements, exchanged views as I already have stated. *But* the views listed in that summary as "GTE's Position" were not written or reviewed by GTE, and in many instances they do not reflect GTE's position.

Summary of GTE's Response

Q. PLEASE SUMMARIZE GTE'S RESPONSE TO SPRINT'S PETITION.

A. In this summary, I have divided the issues into the following major categories: (1) "Most Favored Nation treatment"; (2) wholesale services; (3) unbundled elements; (4) interconnection; (5) "back office" issues such as ordering, provisioning, and systems implementation, functions that take place in the "back office" and that customers are usually not aware of Finally, I address briefly a number of discrete questions raised by Sprint.

"Most Favored Nation" Treatment

Q. ARE THERE SPECIFIC ISSUES IN DISPUTE WITH RESPECT TO "MOST FAVORED NATION" TREATMENT?

A. Yes. Sprint's position is that, as required by the FCC's Order, any price term and/or condition offered to any carrier by an ILEC shall be made available to Sprint on a most favored nation's ("MFN") basis

and the ILEC shall immediately notify Sprint of the existence of such better prices and/or terms and make the same available to Sprint effective on the date the better price and/or term became available to the other carrier. Sprint's position is based solely upon Rule 51.809. This rule has been stayed by the Eighth Circuit and is of no legal force.

Q. IS SPRINT ENTITLED TO "MOST FAVORED NATION" TREATMENT ON INDIVIDUAL TERMS AND CONDITIONS?

A. No. Sprint's position is based on FCC Rule 51.809. The Eighth Circuit's opinion stayed this Rule and described why it inhibits the negotiation process mandated by Congress. Consistent with the Act, GTE is willing to offer any ALEC, including Sprint, the same contract negotiated with any other ALEC. This fully satisfies the requirements of the statute.

Q. WHAT IS SPRINT'S POSITION ON "MOST FAVORED NATION" TREATMENT?

A. Sprint is asking for more than is required by the Act. Under the guise of "non-discrimination" in prices, Sprint asserts that it is entitled to "pick and choose" those portions of an agreement between GTE and any other ALEC, and have it inserted into its agreement. In other words, it wants to make sure it gets the same or <u>better</u> terms than any other ALEC. This is contrary to the purposes of the Act.

Q. HOW IS SPRINT'S PETITION CONTRARY TO THE PURPOSES OF THE ACT?

A. The Act was designed to encourage negotiation between the parties and specified arbitration of only the subset of unresolved issues as a last resort. Inherent in the negotiation process are trade-offs: e.g., Party A will concede on issue X if Party B will agree to A's position on issue Y. Particular issues may be more important to Sprint for example, than for another potential entrant. Thus, the negotiations between Sprint and GTE would produce an agreement that might be quite different than as between GTE and another ALEC.

Sprint, however, does not want negotiation and compromise. It wants "most favored nation" treatment so that all the material terms in the agreements will be the same among the ALECs. In other words, Sprint wants to "pick and choose" from various ALEC agreements in order to obtain individual contract terms that are most favorable to Sprint. This result is, of course the very opposite of competition.

Sprint's position -- if accepted by this Commission -- would destroy the negotiation process. Therefore, GTE's position is that each agreement is the product of comprehensive negotiations. Any party desiring to obtain the terms of another agreement must abide by that agreement in its entirety.

Q. SHOULD THE PRICES, TERMS AND/OR CONDITIONS UNDER WHICH SERVICES OR FACILITIES ARE PROVIDED BY GTE TO ONE CARRIER BE MADE AVAILABLE TO ALL CARRIERS?

A. No. The FCC Order did not intend to usurp the negotiation process by incenting the ability for ALECs to "pick and choose" terms in any and all agreements. Any normal sound business contract would not include a most favored nation clause because an agreement would never be finally binding. To do so would be to eliminate any and all incentive to the negotiation process and the individuality of the request. Each ALEC is unique and asking to negotiate for terms, conditions and rates that are appropriate to their individual requests based on their individual requirements. This is fundamental to establishing a fully competitive market place.

Q. ARE THE PARTIES IN DISPUTE WITH RESPECT TO GEOGRAPHICAL DEAVERAGING?

A. Yes. It is Sprint's position that, as required by the FCC Order, an ILEC must geographically deaverage its cost-based unbundled elements. Furthermore, Sprint states that geographic deaveraging must be accomplished in a manner such as Zone Density by office and not on specific routes or capacity dedicated to individual carriers and deaveraging should reflect cost differences due to transmission facility sizes on ILEC facilities and on such facilities the price to each interconnecting carrier shall be equal per unit of traffic thus sharing the economics of scale equally with each interconnecting carrier (e.g.,

a LEC could establish loop prices reflecting underlying cost differences, but the price per loop to a customer location should not vary by volume purchased by an individual carrier.)

GTE's position is that negotiation is the most appropriate and effective way to attain terms and conditions that will best produce a competitive marketplace and should not be required to geographically deaverage cost-based unbundled elements. As I stated previously, a uniform and consistent set of pricing policies must be established and applied to the pricing of all of GTE's services -- retail, wholesale, and unbundling.

Wholesale Services

Q. WHAT SERVICES WILL GTE OFFER ON A WHOLESALE BASIS TO SPRINT?

A. GTE will offer all the services it currently offers on a retail basis except for those set forth in the testimony of GTE's wholesale services/avoided cost witness. The services GTE will not offer on a wholesale basis include, for example, below-cost residential services, promotional services, and services that are already provided on a wholesale basis (e.g., special access sold to carriers and private line services offered predominately to carriers).

Q. WHY DOES GTE EXCLUDE THESE SERVICES?

A. Let me first address GTE's position with respect to below-cost services. Under GTE's current rates, certain services are priced below cost. These services receive contributions from other services, such as intraLATA toll, access, and vertical and discretionary services, all of which are priced above incremental cost. If GTE were required to offer its below-cost services on a wholesale basis, then other carriers would (1) obtain avoided-cost discounts for both below-cost and above-cost services, and (2) be able to pocket the contributions from the above-cost services that had been used to price the other services below-cost. Accordingly, GTE could not cover its total costs unless these services are excluded from GTE's wholesale offerings or are repriced to cover their costs.

Second, GTE should not be required to offer services such as promotions on a wholesale basis; otherwise GTE would not be able to differentiate its retail services from those of competing carriers. Put another way, a competitor will be able to offer any service it wants on any terms and conditions it desires to attract new customers, and GTE needs this same flexibility to respond to competition on a retail basis and give its customers more choices.

For example, if GTE offers a special promotion to its customers but is required to provide that same promotion to Sprint on an avoided cost basis, then GTE could never differentiate its offerings from those of Sprint. Importantly, GTE would have absolutely no incentive to

develop additional promotions and other new services that would benefit customers because Sprint could take and use them for its own marketing and economic advantage. In fact, GTE could never differentiate its offerings from Sprint's. This result is contrary to the purpose of the Act by limiting choices to customers. The Act should be implemented in a manner that allows all carriers to respond to competition, including GTE.

Q. HOW SHOULD THE SERVICES GTE OFFERS ON A WHOLESALE BASIS BE PRICED?

A. These services should be priced as follows: Retail price minus GTE's actual avoided cost, plus the wholesale costs GTE incurs, plus opportunity cost. GTE's resale/avoided cost witness describes GTE's avoided cost methodology whereby costs are excluded on a work-element basis as opposed to using broad account categories. In this way, GTE's methodology captures GTE's true avoided costs, in accordance with the Act's requirements.

Unbundled Elements

Q. PLEASE DESCRIBE THE UNBUNDLED ELEMENTS GTE WILL PROVIDE TO SPRINT.

A. GTE will offer on an unbundled basis the following:

(1) the loop, which is in general the transmission facility which extends from a main distribution frame to the customer premises;

(2) the port, which in general is the line card and associated peripheral equipment on a GTE end office switch that serves as the hardware termination for the customer's exchange service on that switch, generates dial tone and provides the customer a pathway to the public switched telecommunications network;

(3) transport, by which I mean the transmission facility which extends from a main distribution frame (MDF) to either another MDF or a meet point with transport facilities of Sprint (unbundled transport is provided under rates, terms and condition of the applicable access tariff);

(4) signaling, which in general is SS7 signaling and transport service in support of Sprint's local exchange service; and

(5) certain databases in accordance with the rates, terms and conditions of the applicable switched access tariff.

This description of unbundling means that Sprint may subscribe to and interconnect to whatever of these unbundled elements it

chooses, and may combine these unbundled elements with any facilities or services that Sprint may itself provide, pursuant to the following terms: first, the interconnection shall be achieved by expanded interconnection/collocation arrangements Sprint shall maintain at the wire center at which the unbundled services are resident; second, that each loop or port element shall be delivered to Sprint's collocation arrangement over a loop/port connector applicable to the unbundled services through tariffed or contract options; and third, Sprint shall combine unbundled elements with its own facilities but shall not recombine GTE unbundled elements.

Q. SPRINT WANTS TO BE ABLE TO OBTAIN UNBUNDLED ELEMENTS FROM GTE AND THEN REASSEMBLE THEM TO OFFER END-TO-END SERVICE. WHAT IS GTE'S POSITION ON THIS ISSUE?

A. As I alluded to earlier when describing the nature of Sprint's access to the GTE unbundled elements, GTE strongly believes that Sprint should not be permitted to unbundle and then reassemble GTE's network. Such a proposal by Sprint would render meaningless the Act's required distinction between unbundled elements and wholesale services -- that they be priced under different cost methodologies

Q. HOW SHOULD THE PRICES FOR UNBUNDLED ELEMENTS BE SET?

A. The prices should be cost-based, as required by the Act. They should be set in a manner to allow recovery of GTE's actual costs of its actual network and should not be based on the theoretical costs of a network that has never been built. GTE has proposed a pricing methodology that meets the Act's requirements and that allows prices to be set by the market as competition develops. This methodology is discussed in detail in the Economic Report included as part of the testimony of GTE witness Doane.

Interconnection

Q. PLEASE DESCRIBE GTE'S POSITION ON THE APPROPRIATE PRICING OF INTERCONNECTION.

A. GTE's position on all pricing matters is that the Company should be given the opportunity to recover costs incurred in the operations of the Company from the "cost-causers." Sections 251(b)(5) and 252(d)(2) of the Act, as well as the FCC's order released August 8, 1996, set forth the standard for establishing reciprocal compensation arrangements. These standards provide for the mutual and reciprocal recovery of each carrier's costs, calculating such amounts on the basis of the additional costs of terminating calls originated by the other carrier. A bill-and-keep arrangement is inconsistent with these standards unless costs of the two carriers are symmetrical and the volume of traffic terminated on each other's network is approximately equal.

"Back Office" Issues

Q. PLEASE DISCUSS GTE'S POSITION ON ISSUES SUCH AS OPERATOR SUPPORT SYSTEMS, BILLING, PROVISIONING, MAINTENANCE, SYSTEMS INTERFACES, AND OTHER "BACK OFFICE" ISSUES.

A. GTE believes that many of these issues need to be approached on an industry-wide basis, especially as they relate to GTE, which operates in 28 states. System interfaces are an important issue not just for Sprint but for all competitive carriers that want to interconnect with GTE. For example, GTE uses a standard, nationwide billing system, and it would not be appropriate for each state to establish unique interface standards that simply will not work in a single system that serves many states and many competitive carriers. For this reason, GTE believes these back office issues are best resolved in an industry-wide setting or workshops after the fundamental issues of pricing and costing are resolved on a state-specific basis. A key issue that unites all of these issues is the very important element of cost. As and when changes are to be made to satisfy Sprint's particular desires, the carrier causing the change – in this case Sprint – must pay for the cost of making the change.

The issues relating to specific back office functions and systems are discussed in the testimony of various GTE witnesses in this arbitration.

Q. MAY THE INTERCONNECTION AGREEMENT ULTIMATELY ACHIEVED BETWEEN GTE AND THE PETITIONING ALECs BE MODIFIED BY SUBSEQUENT TARIFF FILINGS?

A. Yes. But tariffs will continue to be filed from time to time pursuant to the Commission's rules and requirements. The Commission should not be hamstrung from having full authority to review and approve those tariffs at the time they are filed based upon all the considerations pertinent at that time, including the public interest and the competitive nature of the market.

Q. AS A WHOLESALE VENDOR OF SERVICES, SHOULD GTE BE REQUIRED TO PROVIDE ADVANCE NOTICE TO ITS WHOLESALE CUSTOMERS OF CHANGES TO GTE'S SERVICES?

A. Yes. This issue of notification needs to be addressed in three categories of changes. First, changes to existing service, such as price changes, or discontinuance of an offering; second, deployment of new technology; and third, network changes, such as new NXX's, end-office homing arrangements, and NPA splits. GTE is prepared to give notification to ALEC customers for these types of changes in certain time frames.

Q. PLEASE DESCRIBE IN WHAT MANNER GTE WILL PROVIDE NOTIFICATION OF CHANGES TO EXISTING SERVICES AND IN WHAT TIME FRAME.

A. For changes to existing services, GTE will file applicable tariffs with the Florida Public Service Commission (FPSC). A tariff filing is, in purpose and effect, a public notification. That is, all ALEC's have equal access to the FPSC and will have notice of changes upon filing of the tariff. Typically, tariff filings are made in advance of the effective date of the tariff. The period between the filing date and the effective date therefore would be the advance notification period. Because the FPSC controls the approval process and time line associated with tariff filings, GTE believes this is an appropriate method of providing advance notification of changes to existing services.

Q. WHY COULDN'T GTE INFORM ALECs OF UPCOMING FILINGS AND THEIR ASSOCIATED DETAILS PRIOR TO THE FILING DATE?

A. Many times, the specific details of a filing are not known to GTE much more than a day or two prior to the actual filing. In today's market, where service development cycle times are constantly being compressed, details regarding ordering, billing, feature availability, and price level are determined literally days or hours before a filing. It would be impossible to anticipate all aspects of a filing days in advance, much less months in advance, of the actual filing itself.

Q. PLEASE DESCRIBE IN WHAT MANNER NOTIFICATION FOR THE DEPLOYMENT OF NEW TECHNOLOGY WOULD BE MADE AND IN WHAT TIME FRAME.

A. For the deployment of new technology into the network, GTE would be willing to meet periodically with interested ALECs, on an individualized basis, to hold joint planning meetings to discuss the deployment of new technology and the introduction of new service offerings. Local exchange carriers, including GTE, frequently do this now in the LEC/IXC relationship. Utilizing a similar process, advance notification of new technology and new offerings typically occurs six months or more in advance of general availability, although full details of the new technology are not available until later in the planning and development process. For this reason, notice of the deployment of new technology cannot be subject to a standardized rule regarding advance notification, but must be handled by the two parties on a case-by-case basis. GTE suggests that each ALEC contact its GTE Account Manager to establish a schedule for planning meetings.

Q. PLEASE DESCRIBE IN WHAT MANNER NOTIFICATION FOR NETWORK CHANGES WOULD BE MADE AND IN WHAT TIME FRAME.

A. Notification already exists today in GTE's local exchange company-IXC relationship. GTE routinely sends information pertaining to a number of network changes to many IXC's, Sprint included,

regarding, for example, equal access conversions, NPA/NXX additions, NPA splits, CLLI code changes, and CLLI code assignments. Additionally, GTE provides to many IXCs a network activity schedule which includes equal access cut dates, C.O. conversion cut dates, intraLATA equal access conversion schedules, new host/remote relationships, and tandem re-homes.

Q. WOULD GTE AGREE TO MAKE THIS INFORMATION AVAILABLE TO REQUESTING ALECs?

A. Yes. Although many small ALECs may not desire all of the information that GTE typically provides to large carriers such as AT&T and Sprint, GTE would be willing to provide the data mentioned in my last answer to ALECs who desire to do business with us.

Q. SHOULD GTE BE REQUIRED VIA THE CONTRACT OR COMMISSION ORDER TO IMPLEMENT A PROCESS AND STANDARDS THAT WOULD ALLOW EVERY INTERCONNECTING ALEC TO SET ITS OWN STANDARD OF SERVICE TO WHICH GTE WOULD BE HELD WHEN RENDERING SERVICES FOR RESALE, INTERCONNECTION, OR UNBUNDLED NETWORK ELEMENTS?

A. No. GTE already plans to provide service quality that is non-discriminatory and equal to that which GTE provides to itself and its affiliates. GTE believes that it should not be required to adhere to different metrics and to different standards of performance for different ALECs. This would be onerous, particularly when multiple

ALECs begin to operate in the various markets. It is already difficult enough to address differing quality standards among the 28 states in which GTE operates given different approaches taken by the various commissions. To divide up that measurement process and standards levels further among various ALECs would be totally unworkable and impose a tremendous and useless burden on GTE. Further, it would not benefit the ALECs, for GTE already is committed to providing them non-discriminatory treatment with respect to the quality standards set in the public interest in each state.

Q. DOES GTE HAVE A POSITION ON THE TERM OF ANY AGREEMENT WITH GTE AND SPRINT?

A. Yes. GTE believes the term of the agreement should be limited to no more than two years. Given the unprecedented scope of the Act and all the issues raised, it would not be prudent to enter into a long-term contract.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

PART XIV

GTE FLORIDA INCORPORATED

DIRECT TESTIMONY OF ALLAN PETERS

DOCKET NO. 961173-TP

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Allan Peters and my business address is 600 Hidden Ridge, Irving, Texas 75038.

Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?

A. I am employed by GTE Telephone Operations ("GTE") as Group Product Manager-Directory Services. I am responsible for all directory-related matters within GTE Telephone Operations, including the establishment of terms and conditions under which GTE Telephone Operations provides directory services to third parties, including competitive local exchange carriers.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATION AND WORK EXPERIENCE.

A. I have an Associates Degree in Business Administration from Longview Community College in Lee's Summit, Missouri. I have 30 years experience in the directory publishing industry, having been employed by L. M. Berry & Company, Mast Advertising and Publishing, United Telephone/Sprint, and Contel Service Corporation before joining GTE in April, 1991. My initial position with GTE was as

a Staff Administrator-Directory Services, and I was named to my current position in June, 1993.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I will respond to the positions of Sprint on directory matters. In doing so, I will describe GTE's proposed handling of directory publishing and distribution in association with interconnecting Alternative Local Exchange Carriers ("ALECs").

Q. WILL GTE LIST THE SPRINT CUSTOMERS IN GTE'S DIRECTORIES?

A. Yes. GTE will print the Sprint customer listings in the GTE directories. GTE, however, will not automatically update the directory records for a Sprint Customer. Sprint must complete a separate file for the customer and provide it to GTE's directory publisher. This separate file is required to ensure that the correct information is entered into the directory database and that the database clearly establishes Sprint as the owner of the listing. This database does not reside at GTE Telops. It resides at GTE's directory publisher.

GTE will not migrate the existing information "as is" for an existing GTE customer that migrates to Sprint. GTE believes that the customer must verify with his new local provider how his directory information should be published. In order to handle subsequent listing changes from the customer, Sprint will need to establish the

customer listing information in their records. Additionally, "as is" migration could lead to directory errors and would place an unfair burden on GTE.

Q. SPRINT INDICATES IN ITS PETITION THAT IF GTE RECEIVES PAYMENT FOR WHITE PAGES LISTINGS, THEN SPRINT SHOULD RECEIVE PAYMENT, OR IF GTE PAYS FOR PUBLICATIONS THEN SPRINT SHOULD PAY FOR PUBLICATIONS, OR IF GTE RECEIVES A SHARE OF WHITE PAGE OR YELLOW PAGE REVENUE, THEN SPRINT SHOULD RECEIVE A SHARE ALSO OR AN ALTERNATIVE APPROACH MAY BE USED. WHAT IS GTE'S POSITION?

A. GTE has offered to Sprint the opportunity to enter into a comprehensive separate directories agreement which would enable Sprint to effectively and efficiently meet the directory needs of their customers. The terms of this agreement are very fair, reasonable and accommodating, and I believe the parties are very close to reaching consensus on all provisions.

Q. WILL GTE MAKE SPRINT CUSTOMER LISTINGS AVAILABLE TO THIRD PARTIES?

A. The only circumstances under which GTE will make Sprint customer listings available to third parties are those circumstances where Sprint has given GTE the approval to do so.

Q. WILL GTE CHARGE THE THIRD PARTY FOR THE SPRINT CUSTOMER LISTINGS WHEN GIVEN APPROVAL FROM SPRINT TO RELEASE THEIR CUSTOMER LISTINGS TO THIRD PARTIES?

A. No. All third party charges for Sprint customer listings will be made solely by Sprint to the third party and solely at their discretion. Sprint will be free to charge the third party a price that they deem appropriate in terms of the listing value. GTE will not charge or collect any revenues from third parties who receive Sprint customer listings.

Q. WILL THERE BE ANY FEES ASSESSED TO SPRINT FOR THE PROVISION OF SPRINT CUSTOMER LISTINGS TO THIRD PARTIES?

A. Yes. GTE will charge Sprint a reasonable listings extraction fee. The fee will be the same fee assessed to GTE by GTE's publisher when GTE provisions its listings to third parties.

Q. WILL GTE PROVIDE ITS CUSTOMER LISTINGS TO SPRINT?

A. GTE will provide GTE customer listings to Sprint for publication purposes only.

Q. WHAT ACCOMMODATIONS WILL BE MADE FOR SPRINT INFORMATION IN THE "INFORMATION PAGES" (OR CUSTOMER GUIDE SECTION) OF GTE'S DIRECTORIES?

A. Sprint will be provided limited space in the Information Pages of the directory at no charge for critical customer contact information (i.e., business office, billing inquiries, repair) only. Additionally, Sprint will have the option to purchase one full page in which it may discuss the products and services it offers.

Q. IF SPRINT OPTS TO PURCHASE THE ONE FULL PAGE, WHAT WILL SPRINT BE CHARGED?

A. Sprint will be charged 65% of the rate for a full page Yellow Pages ad.

Q. WILL GTE MAKE AVAILABLE ANY ADDITIONAL SPACE IN THE INFORMATION PAGES OTHER THAN WHAT IS MENTIONED ABOVE?

A. No. GTE disputes that the information pages of its directories are the proper place for ALECs to discuss their products and services. Moreover, in a competitive market, each new page on products and services that one ALECs includes may be replicated by every other ALECs. My understanding is that whatever the Commission orders for Sprint, GTE may have to make available to all other ALECs as a result of the FCC's recent interconnection order. Such a result -- even if only a few ALECs took advantage of it – would make the GTE directory information page section unwieldly, user unfriendly and potentially ineffective, which in turn will lead to end-user frustration and confusion.

Q. WILL GTE DISTRIBUTE DIRECTORIES TO SPRINT'S CUSTOMERS?

A. Yes. GTE is willing to provide the initial distribution of the telephone directory at no charge to Sprint customers located within the traditional directory service area. Secondary distribution of directories (e.g., a new customer, requests for additional copies) will be offered to Sprint at a reasonable rate based on the costs of furnishing distribution in the geographic area involved. Sprint will be required to supply GTE with all required subscriber mailing information to enable GTE to perform its distribution responsibilities. This will also include information on non-published and non-listed customers.

Q. WHAT RATE WILL SPRINT BE CHARGED FOR THE FULFILLMENT OF SECONDARY DISTRIBUTION?

A. Sprint will be charged the rate of $2.49 per directory volume distributed which is the same rate which GTE is assessed for secondary distribution to its customers.

Q. IS THIS A FAIR RATE?

A. Yes. The secondary distribution charge is precisely the same charge that GTE pays for secondary distribution.

Q. WHAT IS GTE'S POSITION RELATIVE TO BILLING FOR DIRECTORY ADVERTISING WHEN A DIRECTORY ADVERTISER

DECIDES TO CHANGE FROM A GTE DIAL TONE CUSTOMER TO A SPRINT DIAL TONE CUSTOMER?

A. GTE will continue to bill for the duration of the existing directory's life. After that time, the publisher will bill the end user directly.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.