

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
BellSouth Telecommunications, Inc. Request)	
for Declaratory Ruling that State)	WC Docket No. 03-251
Commissions May Not Regulate Broadband)	
Internet Access Services by Requiring)	
BellSouth to Provide Wholesale or Retail)	
Broadband Services to Competitive LEC)	
UNE Voice Customers)	

BELLSOUTH COMMENTS

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BellSouth Comments

I. Introduction and Summary

BellSouth Corporation, on behalf of itself and its wholly owned affiliates (“BellSouth”), by its attorneys, files these Comments in response to the *Notice of Inquiry* issued with the Commission’s *Order* granting BellSouth’s Petition for Declaratory Ruling seeking relief from state commission orders requiring BellSouth to provide wholesale or retail broadband services to Competitive Local Exchange Carrier (“CLEC”) voice customers.¹

Contrary to the Commission’s findings in the *Triennial Review Order*,² these state commission orders required BellSouth to provide its wholesale transmission or its retail broadband Internet access service over unbundled network element (“UNE”) loops leased by

¹ *BellSouth Telecommunications, Inc. Request for Declaratory Ruling that State Commissions May Not Regulate Broadband Internet Access Services by Requiring BellSouth to Provide Wholesale or Retail Broadband Services to Competitive LEC UNE Voice Customers*, WC Docket No. 03-251, *Memorandum Opinion and Order and Notice of Inquiry* (rel. Mar. 25, 2005) (“DSL Order” and “NOI”).

² *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, et al.*, CC Docket No. 01-338, *et al.*, *Report and Order and Order on Remand and Further Notice of Proposed Rulemaking*, 18 FCC Rcd 16978 (2003) (“*Triennial Review Order*”), *vacated in part and remanded, United States Telecom Ass’n v. FCC*, 359 F.3d 554 (D.C. Cir.) (“*USTA II*”), *cert. denied* 125 S. Ct. 313, 316 (2004).

CLECs (either on a stand alone basis or as part of the UNE-platform (“UNE-P”)).³ The Commission granted BellSouth’s request for relief, concluding that the state orders conflicted with “the Commission’s federal unbundling rules and policies set forth in the *Triennial Review Order* that implement[ed] sections 251(c) and (d)(2) of the [Communications Act of 1934, as amended].”⁴

During the course of the proceeding, some entities contended that BellSouth’s bundling of voice service, either BellSouth’s retail voice service or BellSouth’s voice services resold by a CLEC, with its wholesale transmission or retail broadband Internet access service constituted an impermissible tying arrangement. Although this claim is without merit, the Commission issued a *Notice of Inquiry* “to examine the competitive consequences” of the bundling of these services.⁵ For the reasons stated herein, the bundling of voice and broadband services does not distort or harm competition nor amount to anticompetitive behavior.

First, there are significant efficiencies in the way Digital Subscriber Line (“DSL”) service is provided in connection with voice service.⁶ DSL service was designed to be an overlay to voice service. The DSL service provides a broadband connection by using the high frequency portion of the voice grade loop over which local exchange service is provided on the low

³ The provision of a standalone service, i.e., a broadband service separate and apart from a voice service, discussed throughout these comments includes both of these concepts. While a standalone retail service would be provided directly by BellSouth to the end user customer, a wholesale transmission service would be provided to a CLEC or ISP, who in turn would provide a standalone retail service to the end-user customer.

⁴ *DSL Order*, ¶ 1.

⁵ *Id.*, ¶ 37.

⁶ BellSouth uses the term DSL to refer generically to Asymmetric Digital Subscriber Line (“ADSL”). The term does not include symmetrical (“SDSL”) service or symmetrical high speed (“G.SHDSL”) service, which are proprietary and standards based digital services that use the entire loop with no underlying voice service.

frequency portion. The network, and operating support systems, are therefore designed from a voice service perspective with DSL being an incremental add-on. The shared use of the facilities to provide both services produces significant cost savings and increased revenue potential that a standalone DSL service would not have. Moreover, because of the current network design based on industry technology standards, BellSouth would have to make technological and operational changes if the voice service is removed from the equation. If BellSouth were to provide a standalone DSL service, it would need to charge a price for the DSL service that covered the costs of making these changes and also covered the cost of the loop serving the customer (which would no longer be borne by the voice service). Whether it makes economic sense for BellSouth to do so should be determined by the marketplace.

Second, the broadband market is a thriving competitive market. BellSouth is not the dominant provider of broadband services; cable modem service, not DSL, is the prevalent technology in the broadband market. Additionally, new broadband technologies, such as wireless and satellite services, provide further competition and are advancing at a significant pace in obtaining new customers. Consumers, therefore, have significant choice in broadband service providers. This competition ensures that markets will thrive and the public interest will be protected without intervention by regulators.

Third, forcing one competitor in a competitive broadband market to incur the expense of developing and providing a costly standalone service will distort the market, waste resources, and ultimately harm consumers. Any attempt to regulate a competitive market will cause unintentional damage to consumers.

Finally, an analysis of antitrust law makes clear that the bundling of voice and DSL service by an ILEC does not amount to impermissible tying. Many ties are not illegal and in fact

ties are fairly common. Illegal tying involves the sale of one product, where the seller has market power, only on the condition that a customer also purchase a second product in order to foreclose competition in the market for the second product. Ties should only raise a policy concern if they improperly harm competition in the market for the tied product—that is, the product that the customer was forced to buy but would have preferred to buy from a competitor. An illegal tying arrangement can occur only when the seller has market power in selling the first product—here broadband Internet access—and only if there is not a valid business justification for the practice. In this case, BellSouth does not have market power in the broadband market and has a valid business justification for selling DSL service only in conjunction with its voice service.

II. The Bundling Of Voice And Broadband Services Does Not Distort Or Harm Competition Nor Amount To Anticompetitive Behavior

The bundling of local exchange and DSL broadband Internet access is an efficient means for BellSouth to provide DSL services. In fact, BellSouth's ability to utilize the otherwise unused high-frequency portion of the loop that is already providing an end user with voice service is the reason that BellSouth has been able to provide DSL service in the market at a competitive price and to challenge the dominant cable companies. This competition has benefited the consumers. To understand the effect of bundling on competition and the public interest, it is important to first understand the broadband services market, specifically how DSL service is provisioned, and the numerous alternatives available to consumers who wish to purchase broadband services.

A. BellSouth's Broadband Services

BellSouth has both a federally tariffed, federally regulated, wholesale DSL transport service (which may be thought of as the "pipe") and an enhanced non-regulated high-speed

Internet access service (which may be thought of as the “water” flowing through the pipe). Both of these require a loop in addition to the broadband elements. BellSouth® FastAccess® Internet Service (“FastAccess”) is BellSouth’s enhanced retail high-speed DSL-based Internet access service. FastAccess uses the regulated wholesale DSL transport service as an input component of the offering just as other Internet Service Providers (“ISPs”) do. BellSouth’s wholesale DSL service carries a DSL signal from the customer premises network interface device (“NID”) over a pair of copper wires to either a Digital Subscriber Line Access Multiplexer (“DSLAM”) housed in a remote terminal (“RT”) or to a DSLAM housed in the central office (“CO”).

Consistent with the industry standards, BellSouth’s DSL services were designed as an overlay to BellSouth’s voice services.⁷ The industry standards for DSL services never designed it to function as a standalone service. If BellSouth had to provide a standalone DSL offering where no local exchange service existed, there would be no line over which to overlay the DSL services. Thus, in order to provide a standalone DSL offering, BellSouth must make operational or technical modifications, including provisioning a DSL-only line in order to provide the standalone DSL service.

The cost of these system modifications, as well as the need to contribute to the cost of the dedicated loop facility, affects the pricing of any standalone DSL service. BellSouth estimates that these costs could add significantly to the price of its standard FastAccess service offering. Thus, it is these additional cost and market conditions that underlie BellSouth’s current decision not to offer a standalone broadband service at present.

⁷ Section 28.2.1(A) of BellSouth’s Tariff FCC No. 1 specifies that “the design, maintenance, and operation of BellSouth DSL service contemplates end-to-end communication consisting of combinations of overlay services such as in-service, Telephone Company-provided compatible end-user premises exchange line facility.”

The market will decide whether BellSouth has made the correct decision in not deciding to offer standalone broadband service. In the meantime, BellSouth has invested millions of dollars in its network in order to provide DSL services in a cost-efficient manner and should be able to compete against the dominant broadband providers – cable modems – as it sees fit. While it may be advantageous to BellSouth to be able offer these bundled services, it certainly is not unfair or anticompetitive. BellSouth made the investment and assumed all the risk; it therefore should also assume the benefits of its labors.

B. Competitive Broadband Providers

BellSouth's decision not to offer a standalone broadband service in no way hinders a Voice over Internet Protocol ("VoIP") provider from competing with BellSouth in the voice market. The VoIP providers' claims that an ILEC's bundling of voice and broadband unlawfully "ties" the services are without merit because consumers have choice in obtaining a broadband service provider. Thus, if a consumer wants VoIP without also purchasing a local exchange service from an ILEC or does not want to buy bundled voice and broadband services, he or she can simply change broadband providers. The evidence of broadband choice is overwhelming.

Broadband consumers seeking high-speed Internet access service have multiple options available to them. The most common broadband technology choices are cable modem service, DSL, SDSL, satellite, fixed and mobile wireless data services. Additionally, within each of the technology categories, there are multiple service provider options available to the end user. There are also several substitutes that small to large businesses use, such as Frame Relay service, and T1 services.

With cable modem service, end users can choose between having Internet access service directly from their cable service provider, or, in many cases, through independent ISPs that have

signed commercial agreements with those same cable providers. Cable is the single biggest competitor in the broadband market, with an average market share of approximately 60%. In fact, recent data from the Commission and the National Cable & Telecommunications Association (“NCTA”) show that cable, not DSL, continues to be the dominant provider of broadband services. In the Commission’s most recent High-Speed Services Report, as of June 2004, cable dominance in the market for provision of high-speed lines to residential and small-business customers is clear.⁸ Through the first half of 2004, cable providers served 18.5 million lines to residential and small-business customer, while DSL providers served 10.8 million lines, and satellite and wireless providers served 388,000 lines.⁹ Moreover, cable continues to lead DSL in terms of availability and penetration with cable modem service now available to more than 88 percent of all U.S. households.¹⁰

While cable modem is the dominant broadband service provider, DSL is a distant second. In the DSL technology sector of the broadband market, end users can buy DSL-based Internet access service from their local exchange carrier (such as incumbents like BellSouth as well as competing carriers like Florida Digital Network (“FDN”) that offer their own DSL-based Internet services), or through independent ISPs that have either purchased federally tariffed DSL transport services from an incumbent or signed commercial agreements with a CLEC.

So-called Data Local Exchange Carriers (“DLECs”) also provide broadband services to end users. Covad and New Edge Networks, for example, are also available as choices to the end

⁸ The cable industry reports this number to be 21 million as of December 31, 2004. <http://www.ncta.com>, Industry Overview, Statistics Resources.

⁹ High-Speed Services for Internet Access: Status as of June 30, 2004, Industry Analysis and Technology Division, Wireline Competition Bureau, Dec. 2004, Table 3 (“High-Speed Services Report”).

¹⁰ <http://www.ncta.com/Docs/PageContent.cfm?pageID=37>.

user in most locations. The DLEC service can be used with either their ILEC-provided voice service (via line sharing),¹¹ or with their CLEC-provided voice service (via line splitting) or by using UNE loops. In fact, Earthlink (the largest independent ISP) and Covad have just announced a new combined voice and data product that will allow the end-user to continue to use their existing phones (which will have E911 access, and continue to work in a power outage), yet still use VoIP to transmit the calls.

In addition to wireline alternatives, the Commission has recognized that “[b]roadband Internet access services are rapidly being developed or provided over technologies other than wireline and cable, such as wireless and powerline.”¹² Fixed wireless broadband technology is fast emerging as a viable broadband connection. Fixed wireless broadband technology utilizes centrally-located towers, and broadcasts high-speed data packets via wireless spectrum out to end user locations within a several square mile footprint. For instance, the Commission has estimated that residential fixed wireless Internet access is available in counties that contain approximately 62 million people, or 22 percent of the U.S. population.¹³ The national trade association for fixed wireless providers has stated “approximately 1,500-1,800 [Wireless ISPs] already are providing service to approximately 600,000 subscribers in the U.S., with subscribership expected to double by the end of 2003 and reach nearly 2,000,000 by the end of

¹¹ In the *Triennial Review Order* the Commission determined that line sharing should no longer be unbundled – a determination that the D.C. Circuit upheld. *USTA II*, 359 F.3d at 585.

¹² *Communications Assistance for Law Enforcement Act and Broadband Access and Services* ET Docket No. 04-295; Rm-10865, *Notice of Proposed Rulemaking and Declaratory Ruling*, 19 FCC 15676, ¶ 37 n.82 (2004).

¹³ See, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, WT Docket No. 02-379, *Eighth Report*, 18 FCC Rcd 14783, 14882, n.709 (2003).

2004.”¹⁴ As the chairman of that association has noted, “[w]ireless ISPs have rolled out broadband service in virtually every state of the union – and in hundreds of rural and metropolitan markets Wireless has boldly become the nation’s third pipe for last-mile access”¹⁵ Fixed Wireless broadband is expected to make further inroads with the completion of the WiMax industry standards expected later this year.

Satellite is yet another emerging technology. Satellite broadband service utilizes high speed two-way data communication via a satellite. Two significant providers of satellite broadband service are DirecWay® and Starband®/Spacenet®. Both provide broadband service connectivity to residential and business end users, as well as partnering with ISPs to reach a broader customer base. DirecWay® already has announced its next generation platform, called Spaceway®, that will launch in 2006, and will offer “site-to-site connectivity at rates of 512 Kbps and 2 Mbps for remote locations and up to 16 Mbps at larger locations.”¹⁶ A third satellite broadband competitor Wildblue® is also poised to start capturing market share with a recently

¹⁴ Comments of the License-Exempt Alliance at 3, *Revision of Parts 2 and 15 of the Commission’s Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, ET Docket No. 03-122 (FCC filed Sept. 3, 2003), available at http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6514784221 (citing Alvarion, Inc., *The License-Exempt Wireless Broadband Market* at 8 (Apr. 2003)). The Commission’s own *High-Speed Services Report* counts only 309,006 high-speed lines provided through satellite or fixed wireless as of June 2003, but this is likely due to the fact that many fixed wireless lines are provided in rural areas by small providers. As the Commission notes, “we do not know how comprehensively small providers, many of which serve rural areas with relatively small populations, are represented in the data summarized here.” *High-Speed Services Report* at 2.

¹⁵ *WISPs Buck Investment Trends*, ISP-Planet (Nov. 12, 2002) (internal quotation marks omitted), available at http://www.isp-planet.com/research/2002/vc_trends_021112.html.

¹⁶ <http://www.direcway.com/HNS/Rooms/DisplayPages/LayoutInitial?Container=com.webridge.entity.Entity%5BROID%5B1F25CC9CF1479743B2C83A5CF6F811F0%5D%5D>.

launched satellite based broadband service capable of 1.5Mb download speeds. Clearly, satellite broadband service is poised to grab an even larger market share starting this year.

Broadband over Power Lines (“BPL”) is an emerging technology that utilizes the high frequency portion of the power line to transmit data signals to end user locations. Since electricity utilizes only a 60 Hertz signal, there is significant opportunity to utilize the higher frequency range in power lines. The FCC recently modified its Part 15 interference rules to encourage the development of BPL. In a December 3, 2004 presentation, Commission Chairman Martin highlighted over 30 technology trials, and four (4) commercial deployments of BPL technology.

Consumers not only may choose from various technologies, many ISPs now provide their services over different platforms. For example, while many ISPs used BellSouth’s DSL network exclusively in the past, over the last few years, cable companies have started to compete for that business by opening up their cable modem networks to other ISPs via commercial agreements. Some of BellSouth’s largest ISP customers have taken advantage of this opportunity, and now put new end users on the cable network instead of BellSouth’s DSL network.

The largest independent Broadband ISP, Earthlink, uses multiple broadband technology options in addition to those available from BellSouth for Earthlink’s customers. Earthlink has signed agreements with several Time Warner systems in the southeast that allow Earthlink’s Internet customers to utilize cable access and has access to Cox and other cable broadband platforms via their agreements with NewEdge Networks. Earthlink also purchases and uses DSL services from Covad in many of its southeast markets. As a result, many Earthlink customers have both a cable modem and a facility-based DSL substitute in the markets where BellSouth

sells DSL transport services. In its most recent SEC filing, Earthlink continues to list its largest broadband network provider partners as Covad and Time Warner.¹⁷

C. Multiple Broadband Providers Guarantee that Competition Will Thrive and the Public Interest Will Be Protected

The breadth of competition in the broadband access services market underscores the many choices consumers have for such services and, significantly, demonstrates that no one provider, especially ILECs, can control the price for those services. This conclusion has been confirmed by Dr. William Taylor, an economist with National Economic Research Associates, Inc.¹⁸ As Dr. Taylor has stated, “[b]ecause no carrier can control the market price for broadband access service, how carriers package that service with other, less-competitive service, such as local exchange service, is immaterial.”¹⁹ According to Dr. Taylor, “[f]rom an economic perspective, the type of technology used to provide the broadband service in the package or bundle does not change the conclusion that it is good economic policy to allow such packages and good economic policy not to force one carrier to offer broadband on a standalone basis.”²⁰

Dr. Taylor’s conclusions were based on the fact that a standalone DSL service would have no effect on wireless or VoIP customers because a standalone service is “not very different” from BellSouth’s FastAccess service bundled with local exchange service. As Dr. Taylor explained:

¹⁷ Earthlink, Inc. Form 10-Q, May 9, 2005, at 21, *available at* http://www.sec.gov/Archives/edgar/data/1102541/000110465905021760/a05-8974_110q.htm.

¹⁸ Dr. Taylor testified before the Georgia Public Service Commission in connection with a generic proceeding to examine whether BellSouth should be required to provide a standalone broadband service. A copy of Dr. Taylor’s Testimony is attached at Exhibit 1.

¹⁹ *Id.* at 3.

²⁰ *Id.*

Basically, a standalone DSL service is redundant from the consumer's perspective. Technologically, the packaged service (DSL plus local exchange) and standalone DSL are essentially the same: they both use the high-frequency portion of a single dedicated copper loop to provide broadband access to a single customer. The packaged service uses the low-frequency portion to provide local exchange service, while the standalone product does not, effectively wasting that capacity. Economically, the services would be similar, in that the cost of providing standalone DSL service would not be much less than the cost of providing the packaged DSL and local exchange service. Indeed, to the extent that BellSouth sells local exchange service below its incremental cost, the *cost* of standalone DSL service — which includes the full cost of the dedicated local loop — could exceed the price at which the packaged DSL and local exchange service is sold today.²¹

Thus, as Dr. Taylor explains, consistent with the DSL provisioning discussion above, there are many benefits to the bundling of local exchange and DSL service and no obvious advantages to providing a standalone DSL service. A standalone DSL service could cost more, and therefore, be priced higher than the bundled service. Clearly, customers would either continue to buy the bundled BellSouth service or switch to another broadband service provider before he or she would purchase a higher priced standalone service, regardless of whether the customer planned to use wireless or VoIP as a local exchange service substitute. Therefore, bundling of these services does not hinder competition in either the broadband or local services market.

Finally, forcing an ILEC to make changes to its network and operations support systems and to develop a product that very few people may buy at a price that is remunerative will ultimately harm consumers because it forces the wasting of resources and interjects regulatory requirements on some but not all the participants in the market. As Dr. Taylor describes, “[r]equiring firms to offer standalone products and services that they have determined to be insufficiently profitable on a standalone basis would make those firms less profitable.”²² He then

²¹ *Id.* at 5-6.

²² *Id.* at 21.

explains that “[i]n competitive markets, market prices would have to rise to cover the additional costs and to compensate for the fact that customers prefer to purchase the bundled products and services. Thus, requiring firms to supply services that reduce firm profits at the market price would ultimately make consumers worse off.”²³

D. Competition Is Supplying Sufficient Incentives for Providers to Disaggregate Bundles to Maximize Consumer Choice

Forcing a standalone DSL Service will harm competition and consumers. As Dr. Taylor states, “[r]egulatory intervention in markets where competition is working adequately almost invariably has unintended disagreeable consequences for consumers.”²⁴ He notes that a forced standalone DSL service could cause (1) lower profitability of BellSouth’s DSL services, which in turn will cause a slower penetration of DSL within BellSouth’s region; (2) “unpredictable consequences on the market” because of a further asymmetrical requirement placed on BellSouth that is not placed on other more providers, including the dominant provider of broadband services – cable; and (3) harm consumers by essentially favoring other technologies over DSL services.²⁵ If BellSouth is forced to offer a standalone DSL service, it will incur significant costs. Broadband competition has not been affected by ILECs bundling of a local exchange service with broadband services.

The Commission’s aim should be to regulate where regulation is needed—because of a market failure—and to step back when competition fills the gap. As Dr. Taylor states “[a]lmost universally, the economic touchstone for regulation is some form of market failure. For economists, the proper economic role for regulation is ‘to correct a deviation from perfect

²³ *Id.* at 21-22.

²⁴ *Id.* at 17.

²⁵ Taylor Testimony at 18.

competition, a market inefficiency.”²⁶ Obviously, there is no market failure in the broadband market.

Indeed, no dispute exists that the broadband services market is highly competitive and competitors in this market will either find and cater to the customers’ desires and demands and thrive or else they will be unsuccessful. Such competition ensures that competitors are providing customers with the services they want in an efficient manner, whether it is bundled with other services or provided on a standalone basis. And competition, not regulation, is the best motivator of carriers’ behavior. If the market demands standalone broadband services, BellSouth will either have to adapt to these demands or face being a market loser. It is the market that should control the outcome, however, and not unneeded “regulatory intervention” into the market.

Regulation in a competitive market only adds unnecessary costs to the service and limits what competitors can provide to the customer. Competition has been tried and tested time and again and always prevails as the best way to ensure that consumers receive the services they want at the best possible price. The Commission, therefore, should not seek to resolve a problem that does not exist.

III. BellSouth’s DSL Policy Does Not Constitute an Unlawful “Tying” Arrangement

In the *DSL Order*, the Commission states that it “expressly raise[s] the issue of discriminatory or anticompetitive tying of two services offered by a company, but makes no conclusions on [the] issue and confine[s] its discussions to the attached *Notice of Inquiry*.”²⁷ The

²⁶ *Id.* at 9, citing D.W. Carlton and J.M. Perloff, *Modern Industrial Organization, Second edition*, HarperCollins, 1994 at 853.

²⁷ *DSL Order* at n.101.

NOI goes on to say “we seek to examine the competitive consequences when providers bundle their legacy services with new services, or ‘tie’ such services together such that the services are not available independent from one another to end users.”²⁸ As discussed above, bundling of voice and DSL services causes no competitive harm and, therefore, does not constitute an antitrust concern. Moreover, a review of the law regarding an antitrust tying claim demonstrates that none of the elements is present and that a claim for tying cannot be sustained.

Under antitrust law, tying involves using market power in one market (A) to foreclose competition in a second market (B).²⁹ The mechanics of tying involve the following: a monopoly supplier of service A refuses to supply that service by itself and requires customers to also purchase service B. Under some circumstances, the monopolist can make more money by following such a strategy and competing suppliers of service B can be effectively foreclosed from the market, harming competition in market B.³⁰

The law is clear that not every refusal to sell two products separately constitutes an unlawful tying arrangement.³¹ Rather, as the United States Supreme Court has explained, “the essential characteristic of an invalid tying arrangement lies in the seller’s exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer

²⁸ *NOI*, ¶ 37.

²⁹ See *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 461 (1992) (“A tying arrangement is ‘an agreement by a party to sell one product but only on the condition that the buyer also purchases a different (or tied) product, or at least agrees that he will not purchase that product from any other supplier’”) (quoting *N. Pac. Ry. Co., v. United States*, 356 U.S. 1, 5-6 (1958)).

³⁰ *Generic Proceeding to Examine Local Exchange Carriers’ Policies Pertaining to Digital Subscriber Line Service*, Ga. Pub. Serv. Comm’n Docket No. 19393-U, Direct Testimony of William E. Taylor, Ph.D., On Behalf of BellSouth Telecommunications, Inc. at 22 (Nov. 19, 2004) (“Taylor Direct Testimony”).

³¹ *Jefferson Parish Hospital Dist. No. 2 v. Hyde*, 466 U.S. 2, 11 (1984).

either did not want at all, or might have preferred to purchase elsewhere on different terms.”³² In order for the seller to be able to “force” its tied product on an otherwise unwilling buyer, the seller must have sufficient market power in the tying market.³³

In the current proceeding, where the question is whether the offering of DSL service only in conjunction with local exchange voice service is somehow improper, it is clear that there cannot be an illegal tie from an antitrust perspective because BellSouth and other ILECs do not have market power in the broadband market. In fact, most people would assume that if ILECs have any market power, it would be in local exchange voice service, not broadband service. Because BellSouth and other ILECs do not have market power over the broadband market, their bundling of broadband service with voice service would have no effect on an alternative voice provider’s business: potential customers of a competing voice service would simply buy broadband access services from someone other than the ILEC.³⁴

There are two critical elements of an illegal tying arrangement. First, the seller must force the buyer to purchase the tied product to get the tying product. Second, that the seller must possess sufficient economic power in the tying product market to coerce buyer acceptance of the tied product.³⁵ Neither of these elements is present in a local exchange and broadband Internet access bundled service offering.³⁶

³² *Id.* at 12.

³³ *Id.* at 14.

³⁴ Taylor Direct Testimony at 24.

³⁵ *Amey, Inc. v. Gulf Abstract & Title, Inc.*, 758 F.2d 1486, 1502-03 (11th Cir. 1985), *cert. denied*, 475 U.S. 1107 (1986).

³⁶ In addition to these elements, it is appropriate to consider anticompetitive effects in the tied market and any business justification for the alleged tie in evaluating a tying claim. In this case, BellSouth demonstrates herein ample justification for its decision not to offer DSL on a standalone basis separate and apart from its voice service.

Although the *Notice* expresses concerns over “the issue of discriminatory or anticompetitive tying of two services,” it makes no determination about the relevant product market. However, as they did in their comments in the Petition proceeding, some parties may argue that the relevant tying market should be defined as the DSL market.³⁷ The problem with this argument is that DSL service is not a market by itself. Indeed, DSL service is only one technological means of serving the broadband access market. These entities cannot, nor can the Commission, define the relevant tying market by ignoring the numerous other broadband alternatives described above that have the actual and potential ability to take significant amounts of business away from an ILECs’ DSL service.³⁸ Indeed, the D.C. Circuit rejection of the Commission’s line sharing rules was premised on the fact that the broadband market includes services in addition to DSL and that “robust competition” exists in that market.³⁹

ILECs do not possess market power in the broadband market. Market power is defined as “the power to raise prices to supra-competitive levels or . . . the power to exclude competition in the relevant market either by restricting entry of new competitors or by driving existing competitors out of the market.”⁴⁰ While a high market share will sometimes permit the inference

³⁷ See, e.g., Comments of Vonage Holdings Corp. WC Docket No. 03-251 (filed Jan. 30, 2004) (“Vonage Comments”).

³⁸ See *U.S. Anchor Mfg., Inc.*, 7 F.3d at 995; *Town Sound & Custom Tops, Inc. v. Chrysler Motors Corp.*, 959 F.2d 468, (3rd Cir. 1992) (rejecting a relevant market consisting only of new Chrysler cars manufactured for sale in the United States because “such a narrow definition makes no sense in terms of real world economics, and as a matter of law we cannot adopt it”).

³⁹ See *United States Telecom Ass’n v. FCC*, 290 F.3d 415, 428 (D.C. Cir. 2002), *cert. denied*, 538 U.S. 940 (2003).

⁴⁰ *U.S. Anchor Mfg., Inc.*, 7 F.3d at 994.

of market power, a low market share signifies the lack of market power.⁴¹ Here, the conclusion is inescapable that BellSouth lacks market power in the broadband market.

Clearly, ILECs lack the requisite power in the broadband Internet access services market necessary to establish an illegal tying arrangement. Both the Commission and the United States Court of Appeals for the D.C. Circuit have recognized the competitiveness of the high-speed Internet access market.⁴² Furthermore, based on the Commission's data as of June 30, 2004, the percentage of high-speed lines that were served by DSL service is nowhere near the levels required to suggest market power.⁴³ Thus, there is simply no basis for the Commission to find that ILECs have the requisite market power in the broadband market, which would be required in order to state a tying claim.

Furthermore, notwithstanding claims to the contrary, BellSouth does not force consumers to buy the tied product (voice service) in order to get the tying product (DSL service).⁴⁴ This is because consumers can purchase BellSouth DSL service without purchasing voice service from BellSouth.

⁴¹ See, e.g., *Bailey v. Allgas*.

⁴² See *United States Telecom Ass'n v. FCC*, 290 F.3d at 428-30 (noting the FCC's own findings that "repeatedly confirmed both the robust competition, and the dominance of cable, in the broadband market").

⁴³ DSL lines comprised only 35.8% of total lines as compared to cable modem service, which comprised 61.6% of the total lines. High-Speed Services Report, Chart 6. See *Times-Picayune Publishing Co. v. United States*, 345 U.S. 594, 612-13 (1953) (newspapers' 33-40 percent of advertising market insufficient to establish market power); *Bailey v. Allgas, Inc.*, 284 F.3d 1237, 1250 (11th Cir. 2002) (a defendant with less than 50 percent market share does not possess market power); *Rebel Oil Co., Inc. v. Atlantic Richfield Co.*, 51 F.3d 1421, 1438 (9th Cir. 1995) ("[N]umerous cases hold that a market share of less than 50 percent is presumptively insufficient to establish market power").

⁴⁴ See *Amey*, 758 F.2d at 1502-03 (noting that one element to an illegal tying claim is that the buyer was in fact forced to buy the tied product to get the tying product).

First, BellSouth makes its DSL service available over resold voice lines. Thus, a consumer can purchase BellSouth® FastAccess® Internet Service (“FastAccess”) from BellSouth and purchase his or her voice service from a CLEC reselling BellSouth’s line. Because a consumer is not forced to buy voice service from BellSouth but rather can obtain voice service from a reseller and get FastAccess service from BellSouth, BellSouth’s DSL policy does not constitute an unlawful tying arrangement.

Second, since December 2003, BellSouth has offered a tariffed SDSL product, which is a standalone DSL offering that uses the entire loop. Thus, a customer can purchase broadband service from BellSouth without buying BellSouth’s voice service. Not surprisingly, the price of this SDSL product is significantly higher than similar speed DSL products, which may explain why only 100 or so customers have elected to purchase it.

In summary, BellSouth has no market power in the broadband Internet access market and is not forcing customers to buy BellSouth’s voice service in order to obtain broadband service. Thus, the elements for establishing an unlawful tying claim are wholly lacking.

IV. Conclusion

Bundling voice and broadband services does not distort or harm competition nor amount to anticompetitive behavior. It allows ILECs to operate in an efficient manner pursuant to the design of its network. For the reasons discussed, the Commission should take no action from

this *NOI* but instead allow the broadband market to continue to function in a competitive environment.

Respectfully submitted,

BELLSOUTH CORPORATION

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Dated: June 13, 2005

EXHIBIT 1

**BEFORE THE
GEORGIA PUBLIC SERVICE COMMISSION**

Direct Testimony of William E. Taylor, Ph.D.

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**BEFORE THE
GEORGIA PUBLIC SERVICE COMMISSION**

In re: GENERIC PROCEEDING TO EXAMINE LOCAL EXCHANGE CARRIERS' POLICIES PERTAINING TO DIGITAL SUBSCRIBER LINE SERVICE)))))	Docket No. 19393-U Filed November 19, 2004
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DIRECT TESTIMONY OF WILLIAM E. TAYLOR, Ph.D.

I. Introduction and Summary

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND CURRENT POSITION.

A. My name is William E. Taylor. I am Senior Vice President of National Economic Research Associates, Inc. ("NERA"), head of its Communications Practice, and head of its Cambridge office located at One Main Street, Cambridge, Massachusetts 02142.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL, PROFESSIONAL, AND BUSINESS EXPERIENCE.

A. I have been an economist for over thirty years. I earned a Bachelor of Arts degree from Harvard College in 1968, a Master of Arts degree in Statistics from the University of California at Berkeley in 1970, and a Ph.D. from Berkeley in 1974, specializing in Industrial Organization and Econometrics. For the past twenty-five years, I have taught and published research in the areas of microeconomics, theoretical and applied econometrics, which is the study of statistical methods applied to economic data, and telecommunications policy at academic and research institutions. Specifically, I have taught at the Economics Departments of Cornell

1 University, the Catholic University of Louvain in Belgium, and the Massachusetts
2 Institute of Technology. I have also conducted research at Bell Laboratories and
3 Bell Communications Research, Inc.

4 I have participated in telecommunications regulatory proceedings before many state
5 public service commissions, including the Georgia Public Service Commission
6 (“Commission”) and on market power and antitrust economics in federal court.
7 Before this Commission, I testified in Docket No. 3882-U (on incentive and price
8 cap regulation), Docket No. 10767-U (arbitration with ICG Telecom), Docket No.
9 10854-U (arbitration with ITC^DeltaCom), and Docket No. 7892 (performance
10 measures) on behalf of BellSouth Telecommunications, Inc. (“BellSouth”) and in
11 Docket No. 6863-U (on the economic benefits from BellSouth’s entry into the
12 interLATA market) on behalf of BellSouth Long Distance, Inc. I recently testified
13 on topics related to the current proceeding in Docket No. 11901-U on behalf of
14 BellSouth.

15 My curriculum vita is attached as Exhibit WET-1.

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

17 A. I have been asked by BellSouth to respond to the economic issues raised in the
18 Commission’s Procedural Order in this Docket.¹ In that Order, the Commission
19 asked parties to address:

- 20 1. whether it is lawful for a carrier to deny its Digital Subscriber Line (“DSL”) service to a consumer that purchases a competitor’s wireline voice service and
21 whether the technology of the wireline voice service matters,
22
- 23 2. whether it is lawful for a carrier to deny its DSL to a consumer that desires no
24 voice service or an alternative voice service such as Voice over Internet
25 Protocol (“VoIP”), and
- 26 3. whether the Commission should apply a different standard to Incumbent Local
27 Exchange Carriers (“ILECs”) with regard to bundling voice and data services.

¹ Georgia Public Service Commission, Procedural and Scheduling Order,” Docket No. 19393-U, issued September 10, 2004 (“Scheduling Order”)

1 My testimony addresses these issues from the perspective of an economist. I focus
2 on Issue (2), which raises economic questions this Commission has not addressed in
3 previous DSL-related Orders, but I offer an economic perspective on Issues (1) and
4 (3) as well.

5 **Q. WHAT ASPECTS OF BELLSOUTH'S OVERALL CASE, OUTLINED IN MR.**
6 **MORILLO'S TESTIMONY, DO YOU COVER?**

7 **A.** I also address two economic arguments from Mr. Morillo's testimony. First, the
8 value and competitive advantage of DSL service in the broadband access market
9 stems from its packaging with the local access line. That value provides the
10 incentives necessary to induce BellSouth to invest in the facilities to supply the
11 service ubiquitously. Second, in the absence of some market failure, regulatory
12 intervention in a competitive, well-functioning market (for broadband access service)
13 will harm the competitive process and ultimately harm Georgia consumers.

14 **Q. PLEASE SUMMARIZE YOUR TESTIMONY**

15 **A.** In response to the Commission's issue list, from an economic perspective, the
16 answers are:

- 17 1. Yes, substituting "good economic policy" for "lawful." Because no carrier can
18 control the market price for broadband access service, how carriers package that
19 service with other, less-competitive services, such as local exchange service, is
20 immaterial. From an economic perspective, the type of technology used to
21 provide the broadband service in the package or bundle does not change the
22 conclusion that it is good economic policy to allow such packages and good
23 economic policy not to force one carrier to offer broadband on a standalone basis.
24 The type of technology used by the competitor's wireline service is relevant only
25 to the extent that the cost of the standalone broadband service may differ
26 depending on whether the competitor uses resold BellSouth local exchange
27 service, the Unbundled Network Element Platform ("UNE-P") or its own
28 facilities.
- 29 2. Yes, emphatically. In the case of standalone broadband transmission to a non-
30 wireline voice customer, there is no link between the broadband service and the
31 local exchange market. For that reason, there is no market failure involved in the
32 absence of a stand-alone broadband service, and the presence of market failure is

1 a necessary (but not sufficient) condition for regulation to benefit customers. In
2 both (1) and (2), the harms from injecting regulation into a well-functioning
3 market are likely to outweigh any possible benefits.

4 3. No. Asymmetric regulatory treatment of packaging and bundling will distort the
5 competitive process to the detriment of customers and is unnecessary to control
6 market power.

7 **II. Mandatory Provision of Standalone DSL Service to Customers** 8 **Who Do Not Buy Wireline Voice Service**

9 **Q. WHAT NEW ISSUE DOES THE COMMISSION ADDRESS IN THIS** 10 **PROCEEDING?**

11 A. The Commission asks “whether it is lawful for a carrier to deny its DSL service to a
12 consumer that desires no voice service or an alternative voice service, such as VoIP.”
13 I can’t speak to whether any Commission policy is lawful. I will analyze from an
14 economic perspective whether a policy that requires one competitor (and not all) to
15 provision standalone broadband access service to households that are not wireline
16 local exchange customers will benefit competition and customers in Georgia local
17 exchange and broadband access markets.

18 **Q. HOW DOES THIS PROPOSAL RELATE TO PREVIOUS** 19 **DETERMINATIONS OF THE COMMISSION?**

20 A. In its *MCI* and *ITC^DeltaCom*² Orders, the Commission considered the effect of
21 BellSouth’s DSL policy on competition for local exchange service. It determined
22 (incorrectly, in my view), that requiring BellSouth to provide DSL service to
23 Competitive Local Exchange Carrier (“CLEC”) customers who were served on a
24 BellSouth UNE-P line would prevent an anticompetitive tying arrangement in which
25 provision of local exchange service was tied to the provision of broadband access.

² In Re: *Petition of MCImetro Access Transmission Services, et. al., for Arbitration of Certain Terms and Conditions of Proposed Agreement with BellSouth Telecommunications, Inc., Concerning Interconnection and Resale Under the Telecommunications Act of 1996*, Docket No. 11901-U, Order on Complaint (“*MCI Order*”) at 18. In Re: *Petition for Arbitration of ITC^DeltaCom Communications, Inc. with BellSouth Telecommunications, Inc., pursuant to the Telecommunications Act of 1996*, Docket No. 16583-U, Order (“*ITC^DeltaCom Order*”).

1 The intention was apparently to improve the competitive process in *the wireline*
2 *local exchange market* — the market over which the Commission has regulatory
3 authority:

4 In sum, BellSouth uses the tying arrangement to insulate its voice service
5 from competition by impairing the customer's ability to choose its
6 provider of local service. It would inhibit local voice competition for
7 BellSouth to gain advantage over its current competitors in the local voice
8 market because of the history of regulation in the industry.³

9 The current proposal to require BellSouth to provision a standalone DSL service for
10 any customer (wireline local exchange customer or not) thus poses a radically new
11 question: irrespective of possible anticompetitive effects in the market that this
12 Commission regulates — the wireline local exchange market — should the
13 Commission require BellSouth to provide a standalone broadband access service?

14 **Q. BUT WOULDN'T THE AVAILABILITY OF A STANDALONE DSL**
15 **SERVICE TO VOIP OR WIRELESS CUSTOMERS AMELIORATE THE**
16 **COMMISSION'S CONCERN THAT BELL SOUTH'S POLICY PREVENTS**
17 **"CUSTOMERS FROM EXERCISING UNFETTERED CHOICE FOR**
18 **LOCAL TELECOMMUNICATIONS SERVICE."**⁴

19 A. No. From the standpoint of wireless or VoIP customers, a standalone DSL service is
20 not very different from BellSouth's current package of (i) its retail DSL-based
21 Internet access service known as BellSouth® FastAccess® DSL and (ii) its local
22 exchange service. Thus, for these customers, the availability of standalone DSL
23 service has no effect on their participation in the local exchange market.

24 **Q. PLEASE EXPLAIN.**

25 A. Basically, a standalone DSL service is redundant from the consumer's perspective.
26 Technologically, the packaged service (DSL plus local exchange) and standalone
27 DSL are essentially the same: they both use the high-frequency portion of a single

³ MCI Order at 18.

⁴ MCI Order at 19.

1 dedicated copper loop to provide broadband access to a single customer. The
2 packaged service uses the low-frequency portion to provide local exchange service,
3 while the standalone product does not, effectively wasting that capacity.

4 Economically, the services would be similar, in that the cost of providing standalone
5 DSL service would not be much less than the cost of providing the packaged DSL
6 and local exchange service. Indeed, to the extent that BellSouth sells local exchange
7 service below its incremental cost, the *cost* of standalone DSL service — which
8 includes the full cost of the dedicated local loop — could exceed the price at which
9 the packaged DSL and local exchange service is sold today.

10 Consider a hypothetical example. Suppose local exchange service is sold for \$10
11 and local exchange customers can buy DSL service for an additional \$30. Suppose
12 also that the incremental cost of local exchange service is \$15 and that the
13 incremental cost of DSL in the competitive broadband access market is close to the
14 market price of \$30. Assuming the standalone service could be sold at no price less
15 than cost — *i.e.*, \$45 — the service would obviously be priced out of the market,
16 since the packaged price for DSL and local exchange service is only \$40. Moreover,
17 in the broadband market, it would be difficult to sell standalone DSL service for
18 much more than \$30, since this is the relevant price that most purchasers of the
19 service (those that already have cable service or local exchange telephone service)
20 actually pay.

21 Now, the theory of the Commission's *MCI Order* is that some wireline customers
22 would be willing to buy standalone FastAccess service at a premium above \$30, and
23 if FastAccess were available on a standalone basis, they would buy a CLEC's local
24 exchange service and BellSouth FastAccess service. If standalone DSL were not
25 available, those customers would buy BellSouth's packaged service, taking them out
26 of the wireline local exchange market and reducing competition in that market.

27 The reason the case of non-wireline customers is different is because buying the
28 packaged product does not affect non-wireline customers' behavior in the local

1 exchange market. These customers would not, by assumption, give up their wireless
2 service or their VoIP service because they were forced to buy a packaged service that
3 included a wireline local exchange service for which they had no use.⁵ Thus, the
4 presence or absence of even a competitively-priced standalone DSL service would
5 have little or no affect on the demand of these customers for local exchange service.

6 **Q. DOES ECONOMIC ANALYSIS SUPPORT THE EXTENSION OF THE**
7 **COMMISSION'S DECISIONS IN THE MCI AND ITC^DELTACOM**
8 **ORDERS TO REQUIRE BELLSOUTH TO SUPPLY A STANDALONE DSL**
9 **SERVICE TO ALL CUSTOMERS?**

10 A. No. In my view, economic analysis did not support the requirement that BellSouth
11 provision a DSL service for CLEC UNE-P customers. Nonetheless, even if the
12 Commission were correct that the availability of DSL service could have an effect on
13 a sufficient number of customers' choices in the wireline local exchange market to
14 warrant a regulatory repair, that logic does not carry over into the current situation.
15 Here, no potential wireline local exchange customer is forced to choose between
16 giving up her DSL Internet service and remaining with BellSouth's local exchange
17 service. Thus, BellSouth's policy cannot have

18 the same anticompetitive effect as courts have warned against in the
19 context of tying arrangements, namely insulating a product or service from
20 competition⁶

21 because, applied to customers that do not buy wireline local exchange service, the
22 policy has no effect in the regulated wireline local exchange market whatsoever, let
23 alone the effect of insulating BellSouth local exchange service from competition.

24 **Q. BUT VOIP CUSTOMERS NEED A BROADBAND CONNECTION TO USE**
25 **THEIR SERVICE. IF BELLSOUTH DOESN'T PROVIDE A STANDALONE**

⁵ A potential VoIP customer does need a broadband connection to obtain VoIP service. However, as discussed below, there is no market failure in the broadband access market that a standalone DSL product would solve or for which the Commission has responsibility.

⁶ *MCI Order* at 19.

1 **DSL PRODUCT, WON'T THAT REDUCE POTENTIAL DEMAND FOR**
2 **VOIP?**

3 A. No. The broadband access market is competitive and developing fine without
4 regulation by this Commission or the FCC. There is no market failure in the
5 broadband access market, and thus no reason to regulate entry into the market —
6 particularly an odd regulation requiring that one firm (and no other) provide a
7 standalone service in that market. And, presumably, the Commission would not be
8 examining the need for standalone DSL service if the only consideration were the
9 broadband access market because that market is not within the Commission's
10 purview.

11 But in this case, there is no link with the wireline local exchange market, because the
12 provision of standalone DSL service would affect potential VoIP customers
13 differently than potential CLEC wireline customers. Under the Commission's theory
14 in the *MCI Order*, a potential CLEC wireline customer who likes FastAccess service
15 must either do without FastAccess or the CLEC's local exchange service. In the
16 Commission's view, there is a sufficient number of such customers that BellSouth
17 would derive an unfair competitive advantage in the local exchange market unless
18 FastAccess were available to CLEC wireline local exchange customers. But no such
19 link with the local exchange market is at issue here.

20 Consider the consequences of requiring BellSouth to provide a standalone
21 FastAccess service.

- 22 1. If standalone FastAccess must be provisioned, a potential VoIP customer who
23 likes FastAccess service can buy that service from BellSouth which only uses the
24 high-frequency portion of the local loop, or
- 25 2. If standalone FastAccess need not be provisioned, the potential VoIP customer
26 can buy the BellSouth package of FastAccess and local exchange service and only
27 use FastAccess, so that only the high-frequency portion of the local loop is used.

28 Unlike for the potential CLEC wireline customer, the Commission's Option 2 does
29 not take the potential VoIP customer out of the local exchange market. No choice at

1 the margin between BellSouth's local exchange service and any other local exchange
2 service is affected by the provision or non-provision of standalone FastAccess
3 service, because the VoIP customer doesn't use BellSouth local exchange service in
4 either Option 1 or 2.

5 **A. Adopting this Policy Would Lose Sight of the Role of**
6 **Regulation in a Free Market Economy**

7 **Q. WHEN DO ECONOMISTS RECOMMEND THAT A MARKET OR A**
8 **SERVICE BE SUBJECT TO REGULATION?**

9 A. Almost universally, the economic touchstone for regulation is some form of market
10 failure. For economists, the proper economic role for regulation is "to correct a
11 deviation from perfect competition, a market inefficiency."⁷ In his classic exposition
12 of regulatory economics, Alfred Kahn further identifies market characteristics that
13 have particularly compelling economic justifications for regulation:

- 14 1. The *importance* of the industry, measured by share of Gross Domestic Product
15 ("GDP"), by whether it supplies essential inputs to other industries, by whether it
16 conditions the possibility of economic development. [But, as Professor Kahn
17 observes, food and medicine are important in these senses but are not price-
18 regulated].
- 19 2. The presence of natural monopoly, where unit costs are lower if there is a single
20 supplier. In this case, competition cannot protect consumers, and when the
21 product is important and market demand is inelastic, regulation is thought to be
22 cost-effective.
- 23 3. Other circumstances where competition "simply does not work well."⁸

24 Thus, some form of externality or market failure is a *necessary* condition for a
25 market to be considered a candidate for regulation.

26 **Q. WHAT TYPES OF MARKET FAILURE HAVE JUSTIFIED REGULATION**

⁷ D.W. Carlton and J.M. Perloff, *Modern Industrial Organization, Second edition*, HarperCollins, 1994 at 853.

⁸ Alfred E. Kahn, *The Economics of Regulation*, (Cambridge: The MIT Press) 1988 at 11.

1 **OF LOCAL EXCHANGE TELECOMMUNICATIONS SERVICES?**

2 A. Historically, local exchange service has been regulated for two reasons: (i) provision
3 of some services was thought to be governed technologically by natural monopoly
4 conditions and (ii) the presence of network externalities. In a natural monopoly, one
5 supplier can provide the service (local exchange service in this case) more cheaply
6 than many, and if customers are to receive the lower costs of efficient production, the
7 market would have to be organized as a monopoly with regulation in place to hold
8 prices below the monopoly profit-maximizing level. The network externality market
9 failure stems from the fact that the telephone network is more valuable to me if you
10 are subscriber, but in a competitive market, I am not charged for that extra value.⁹
11 That market failure, combined with the essential nature of telephone service and the
12 societal value of having an infrastructure over which citizens can communicate, gave
13 rise to the implicit and explicit subsidies in the federal and state universal service
14 regulatory policies.

15 **B. There is No Failure in the Broadband Market for Regulatory**
16 **Intervention to Cure.**

17 **Q. WHAT MARKETS ARE INVOLVED IN THE COMMISSION'S DECISION**
18 **REGARDING THE SUPPLY OF BROADBAND SERVICE TO CUSTOMERS**
19 **WHO DO NOT PURCHASE TELEPHONE SERVICE?**

20 A. Just the market for broadband access to the Internet.

21 **Q. IS THERE SOME MARKET FAILURE IN THAT MARKET THAT**
22 **REQUIRES REGULATORY INTERVENTION?**

23 A. No. On the contrary, as I discuss below and as the facts in the testimony of Eric
24 Fogle demonstrate, there is increasing evidence that the supply of broadband Internet
25 access services by various means is growing rapidly in both Georgia and the rest of

⁹ The network externality is the increase in the benefit a customer obtains from a service when the number of customers purchasing the service increases. See, e.g., M. Katz and C. Shapiro, "Network Externalities, Competition and Compatibility," *American Economic Review*, vol. 75 (3), 1985, pp. 424-440. In telecommunications economics, this effect is a well-known theoretical justification for universal service policies that subsidize access to the network.

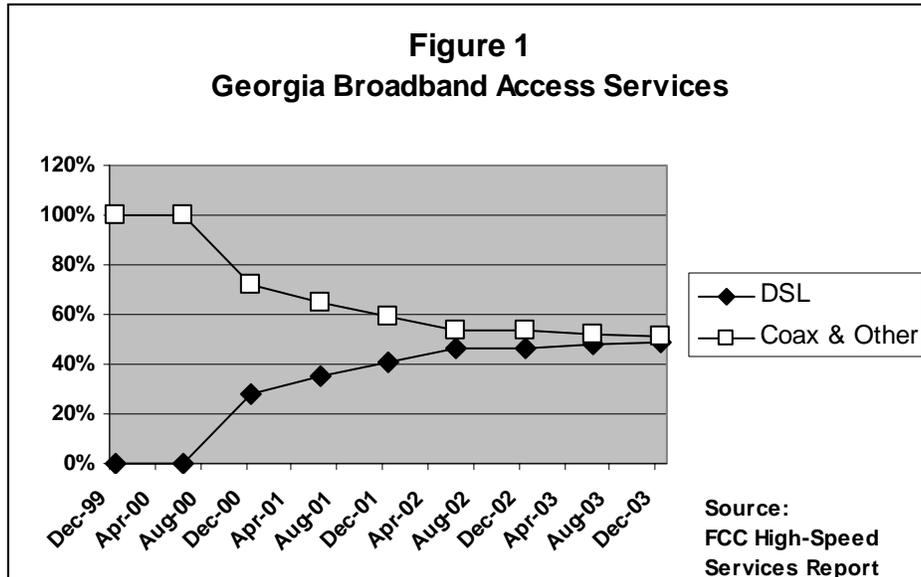
1 the nation, and that DSL service providers (of whom BellSouth is just one) are
2 locked in strenuous competition with providers of inter-modal alternatives like cable
3 modem service.

4 **1. Broadband access market**

5 **Q. PLEASE DESCRIBE THIS EVIDENCE.**

6 A. According to the *FCC Advanced Services Report*,¹⁰ Table 8, the number of lines
7 capable of broadband Internet access in Georgia (from all technologies) rose from
8 75,870 in December 1999 to 927,398 in December 2003 (a growth rate of 87 percent
9 per year). Nationwide, that number rose from 2,754,286 to 28,230,149 over the
10 same four-year period (or 78 percent per year). Thus, the growth of advanced
11 services in Georgia has been well ahead of that nationwide. Moreover, in December
12 2003, there were 452,567 lines providing DSL-based service in Georgia and 474,831
13 lines providing comparable service over inter-modal alternatives, such as cable
14 modems, optical fiber, satellite, and fixed wireless. Thus, the share of DSL-based
15 lines in December 2003 was about 49 percent and that of inter-modal alternatives 51
16 percent. This clearly establishes that advanced service customers in Georgia have
17 significant alternatives to DSL services (or, even BellSouth FastAccess service).
18 The history of broadband access in Georgia is shown in Figure 1.

¹⁰ Also see the FCC report, *High-Speed Services for Internet Access: Status as of December 31, 2003* (“*FCC High-Speed Services Report*”), Industry Analysis and Technology Division, Wireline Competition Bureau, June 2004. Although this report distinguishes between “high-speed” Internet access service (speed above 200 kbps in one direction) and “advanced” service (speeds above 200 kbps in both directions), I treat them interchangeably for present purposes.



1

2 **Q. HOW DID THE COMMISSION VIEW THIS MARKET IN ITS MCI**
3 **ORDER?**

4 A. The Commission correctly viewed the market as the market for high-speed Internet
5 access, agreeing that DSL, cable modems and other¹¹ forms of access were
6 substitutes from the perspective of the consumer. The Commission also concluded
7 that the market share of FastAccess DSL service did not automatically determine
8 whether BellSouth did or did not possess market power in the broadband access
9 market.

10 The Commission then gave two reasons why it concluded that BellSouth possessed
11 market power in the Georgia broadband access market.

12 **Q. DO YOU AGREE WITH THAT CONCLUSION?**

13 A. No. From an economic perspective, neither of the reasons cited by the Commission
14 support a finding that BellSouth possesses market power in the broadband access
15 market.

1 First, the Commission asserted that BellSouth had “some advantage not shared by
2 [its] competitors in the market for the tying product”¹² which the Commission
3 identified with BellSouth’s incumbency in the local exchange market, explaining that

4 because of BellSouth’s position as the incumbent [local exchange carrier]
5 it had an advantage in the DSL market over other competitive local
6 exchange companies ... in Georgia.

7 The problem with this explanation is that it looks at the wrong market. The question
8 is whether BellSouth has market power in the broadband access market, not the DSL
9 segment of that market. The asserted fact that it has an advantage over CLECs in
10 providing DSL in that market does not dispose of the market power question. In
11 fact, BellSouth’s main competitors in the broadband access market are not CLECs
12 but rather cable companies, and those companies share BellSouth’s alleged
13 advantage of incumbency, as they are the incumbents in the cable television markets
14 to which cable modem service is a DSL-like overlay.

15 In addition, the Supreme Court explained that its logic in *Fortner* required more than
16 uniqueness but an advantage protected by some kind of entry barrier:

17 Uniqueness confers economic power only when other competitors are in
18 some way prevented from offering the distinctive product themselves.
19 Such barriers may be legal, as in the case of patented and copyrighted
20 products, e.g., International Salt; Loew's, or physical, as when the product
21 is land, e.g., Northern Pacific. It is true that the barriers may also be
22 economic, as when competitors are simply unable to produce the
23 distinctive product profitably, but the uniqueness test in such situations is
24 somewhat confusing since the real source of economic power is not the
25 product itself but rather the seller's cost advantage in producing it.¹³

26 Certainly nothing in the Georgia broadband market suggests that “other competitors”
27 are prevented from offering a distinctive product where the distinguishing feature is

¹¹ The “other” broadband access technologies enumerated in the FCC reports include fiber-to-the-home, satellite, wireless broadband systems and wireline technologies other than ADSL. See *FCC High-Speed Services Report*, footnote 1, Table 7.

¹² *United States Steel Corp. v. Fortner Enterprises, Inc.*, 429 U.S. 610 (1977).

¹³ 394 U.S., at 505 n. 2.

1 based on incumbency. Cable modem, satellite, long distance and wireless companies
2 are incumbent carriers in different markets, and whatever advantages of customer
3 loyalty that incumbency brings would also pertain to entrants into the broadband
4 access market.

5 In addition, as explained in the accompanying testimony of Mr. Morillo, the FCC has
6 concluded that CLECs are not impaired if they lack access to such portions of the
7 incumbent's broadband network as fiber to the home, fiber to the curb, DSLAMs and
8 packet switches. What the FCC has concluded, after extensive investigation, is that
9 CLECs are as able to deploy broadband networks as are ILECs. Thus, whatever
10 uniqueness incumbency brings to BellSouth, it is not significant enough to impair
11 others' ability to compete in the broadband market.

12 The Commission's second stated reason was that "[t]he evidence indicates that DSL
13 is capturing most of the growth in the high speed internet market" and that "DSL had
14 captured 71.1 percent of the growth within this market over the intervening six
15 months."¹⁴ A simple tabulation of these Georgia data is shown in Table 1.

Table 1			
	Annual Change Broadband Access Lines	Annual Change DSL Access Lines	Percent
Jun-00	54,422	0	0.0%
Dec-00	73,563	56,588	76.9%
Jun-01	98,743	50,061	50.7%
Dec-01	117,608	65,907	56.0%
Jun-02	91,929	65,366	71.1%
Dec-02	142,698	67,082	47.0%
Jun-03	113,227	63,368	56.0%
Dec-03	159,338	84,195	52.8%

Source: FCC Advanced Services Report

16

17 Examination of Table 1 or Figure 1 shows that DSL is by no means capturing the
18 lion's share of the growth in the broadband access market. If anything, DSL appears

¹⁴ MCI Order at 14 and 12.

1 to be gaining a declining percentage of the growth in the market which is stabilizing
2 around 50 percent of the growth, far short of the 71 percent (for June 2002) on which
3 the Commission apparently relied. In sum, these data provide no evidence that the
4 market share of DSL (and ultimately of BellSouth FastAccess service) will
5 inevitably reach a level from which the possession of market power can be safely
6 inferred.

7 From an economic perspective, the Commission's conclusion that competition in the
8 broadband access market is impaired is incorrect. That conclusion also runs counter
9 to the views of other regulatory and antitrust enforcement agencies, including the
10 FCC. As summarized by the D.C. Court of Appeals:

11 The [FCC's] own findings (in a series of reports under s 706 of the 1996
12 Act) repeatedly confirm both the robust competition, and the dominance
13 of cable, in the broadband market. The first s 706 report found that
14 "[n]umerous companies in virtually all segments of the communications
15 industry are starting to deploy, or plan to deploy in the near future,
16 broadband to the consumer market," including "cable television
17 companies, incumbent LECs, some utilities, and 'wireless cable'
18 companies." In the Matter of Inquiry Concerning the Deployment of
19 Advanced Telecommunications Capability to All Americans in a
20 Reasonable and Timely Fashion, and Possible Steps to Accelerate Such
21 Deployment Pursuant to Section 706 of the Telecommunications Act of
22 1996, 14 FCC Rcd 2398, 2404 p 12 (1999). The Commission also noted
23 that the "most popular offering of broadband to residential consumers is
24 via 'cable modems'...." *id.* at 2426, p 54, that "no competitor has a large
25 embedded base of paying residential consumers," *id.* at 2423, p 48, and
26 that the "record does not indicate that the consumer market is inherently a
27 natural monopoly," *id.* The most recent s 706 Report (not in the record of
28 this case) is consistent: As of the end of June 2001, cable companies had
29 54% of extant high-speed lines, almost double the 28% share of
30 asymmetric DSL. Third Report Pursuant to s 706, 2002 FCC LEXIS 655,
31 at pp 44, 48 (Feb. 6, 2002). Even in the Local Competition Order on
32 review in this case, the Commission said, "Competitive LECs and cable
33 companies appear to be leading the incumbent LECs in their deployment
34 of advanced services." 15 FCC Rcd at 3835, p 307.¹⁵

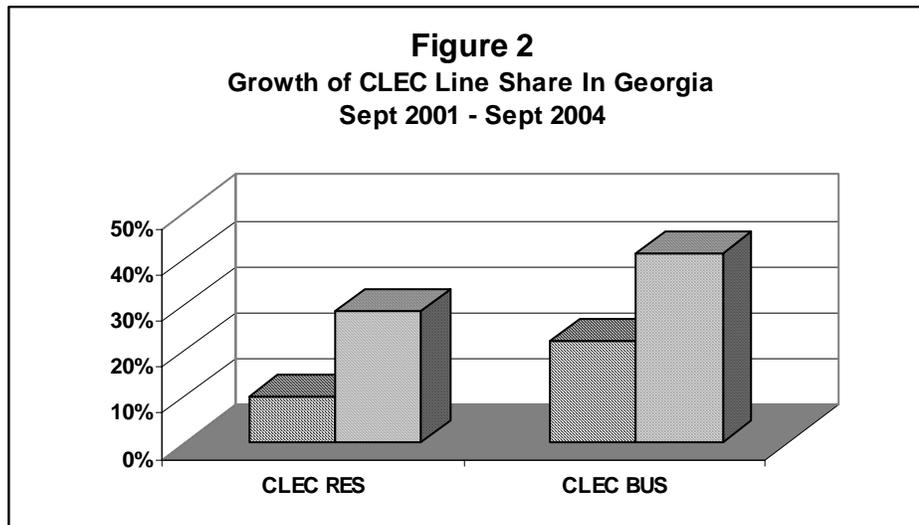
¹⁵ *United States Telecom Association, et. al., v. Federal Communications Commission, et. al.*, 290 F.3d 415 (D.C. Cir. 2002).

1 More recent data confirm this trend for the U.S., and there is no reason to believe
2 that the long-run trend in the market will be different in Georgia.

3 **2. Local exchange telephone market**

4 **Q. IS THERE SOME MARKET FAILURE IN THE WIRELINE LOCAL**
5 **EXCHANGE TELEPHONE MARKETS THAT WOULD BE CORRECTED**
6 **BY THE AVAILABILITY OF BELLSOUTH'S STANDALONE DSL**
7 **SERVICE?**

8 A. No. The market failure cited in the Commission's previous decision — market



9 power in basic local exchange telephone service — is not a concern here, because,
10 by assumption, the customers in question are not in the market for regulated wireline
11 voice telephone service. Hence, there no longer is any link between the wireline
12 local exchange market (where the Commission has regulatory authority) and the
13 broadband access market where the Commission does not have direct authority and
14 where price regulation is non-existent and contrary to explicit FCC policy.

15 **Q. IS THERE ANY EVIDENCE OF MARKET FAILURE IN THE LOCAL**
16 **EXCHANGE MARKETS IN GEORGIA?**

17 A. No. There is no sign that competition in Georgia's local exchange markets is
18 impaired by anticompetitive tying of FastAccess service to local exchange service.

1 While BellSouth access lines are falling in absolute terms (at about 7 percent per
2 year), CLEC access lines are growing at about 18 percent per year. See Figure 2.

3 **C. Regulation in the Absence of a Market Failure Harms the**
4 **Competitive Process and Consumers**

5 **Q. SOME CUSTOMERS WOULD BE MADE BETTER OFF IF BELLSOUTH**
6 **SUPPLIED A STANDALONE DSL SERVICE. WHAT HARM WOULD BE**
7 **DONE BY REQUIRING IT?**

8 A. Regulatory intervention in markets where competition is working adequately almost
9 invariably has unintended disagreeable consequences for consumers. The principal
10 reasons stem from the facts that competition is messy and regulation aspires to be
11 neat. In the words of a former Chairman of the New York Public Service
12 Commission:

13 There is no acceptable halfway house [between thorough regulation and
14 free competition] because the regulatory mentality is hostile to
15 competition. The regulator tends as a matter of constitutional
16 preference—a preference inculcated by the regulatory system and the
17 responsibilities that go with it—to convert the maintaining of “level
18 playing fields” into an interference with the contest itself. Regulators
19 move from trying to assure a fair and equal start to ensuring an equal
20 finish...

21 In short, regulation confronted with competition will have a systematic
22 tendency either to suppress it — as, most thoroughly in international
23 aviation, by stipulating or permitting the carriers to stipulate the maximum
24 permissible size of sandwiches, mandatory changes for in-flight
25 entertainment, numbers of flights and permissible commissions to travel
26 agents — or to orchestrate it and control the results it produces.

27 Why? Because competition is unpredictable and messy, and the regulator
28 prizes predictability and tidiness. Businesses move in and out of
29 competitive markets. They are constantly changing their product and
30 service offerings, schedules and prices. The regulator, in contrast, prefers
31 continuity of service and stability and uniformity of prices and service
32 offerings.¹⁶

¹⁶ Alfred E. Kahn, “The Uneasy Marriage of Regulation and Competition,” *Telematics*, Vol. 1, No. 5, September 1984 at 8-9.

1 Without any putative market failure to correct, regulatory intervention in the
2 broadband access market in Georgia is an unnecessary intrusion into the competitive
3 process.

4 The likely consequences of inserting the regulatory stick into the well-functioning
5 competitive anthill are not simply that BellSouth's profits will fall, and CLEC shares
6 of the local exchange market will be higher than otherwise. The consequences are
7 unpredictable, but the following examples are likely outcomes.

- 8 • A reduction in the profitability of BellSouth's DSL service will mean a slower
9 rollout of DSL into marginally profitable areas of Georgia. Worse, the prospect
10 that new broadband services will have to be unbundled in Georgia and provided
11 on a standalone basis will raise the cost of provisioning those service, which will
12 reduce investment and delay their implementation in Georgia.
- 13 • Requiring one carrier to provide a standalone service in a market where the
14 service is naturally bundled with another service by extremely important
15 economies of scope and where every competitor sells these products as bundles
16 would have unpredictable consequences on the market. It is difficult to
17 understand how such an offering could be priced at a profitable level and still
18 succeed in the market.
- 19 • By favoring wireline CLEC customers in its MCI and ITC^DeltaCom Orders, the
20 Commission has tilted the technology contest, possibly changing the outcome as
21 copper wire, coaxial cable and fixed wireless media compete to become the
22 network standard of the future for the last broadband mile to reach the ultimate
23 consumer. Regulatory actions that bias technology choice in markets like this are
24 potentially the most costly to consumers.

25 **Q. HAVE YOU SPECIFIC CONCERNS?**

26 A. Yes. To an economist, requiring one supplier in a competitive market to provide a
27 packaged service on a standalone basis is fraught with peril. It is the banana peel at
28 the top of a slippery slope.

29 While the Commission is careful to point out that it does not intend to regulate
30 BellSouth's offerings in the broadband access market:

31 This Commission's decision is not telling BellSouth that it cannot sell its
32 DSL service. Nor is this Commission telling BellSouth that it cannot be
33 compensated for selling its DSL service. It is not even telling BellSouth

1 what price to offer for its DSL service. All the Commission is telling
2 BellSouth is not to refuse customers an option separate from voice service
3 in an effort to preserve its monopoly share of the voice market and
4 insulate its voice service from the effects of competition. [*MCI Order* at
5 18-19]

6 it is unlikely to be successful in such restraint. To achieve its goal (provide an option
7 separate from voice service), the Commission cannot ignore the characteristics, price
8 and quality of the service BellSouth ultimately would offer because otherwise, a
9 preference for FastAccess service could still create an (allegedly) anticompetitive
10 advantage for BellSouth's local exchange service. While deliberate flouting of the
11 Commission's intentions (*e.g.*, standalone DSL at \$250 per month) would be
12 unlikely, it would be difficult to satisfy BellSouth's local exchange competitors that
13 any particular standalone DSL offering was comparable to its packaged FastAccess
14 and local exchange service. Moreover, since FastAccess service can be offered in
15 multiple packages with different services and different prices, it is not clear to what
16 package a standalone DSL offering should be compared.

17 **III. Economic Issues Before the Commission**

18 **Q. WHAT COMMISSION ISSUES DO YOU DISCUSS IN THIS SECTION?**

19 A. My testimony in this section presents the economic principles that are applicable to
20 both Issues (1) and (2) in the Commission's *Scheduling Order*.

21 **A. The Services and the Markets in which They are Sold**

22 **Q. PLEASE DESCRIBE THE RELATIONSHIP BETWEEN BROADBAND 23 SERVICES AND LOCAL EXCHANGE SERVICE.**

24 A. Broadband services and local exchange telephone service are not unrelated services:
25 there are economic and technological links between them. From a technology
26 perspective, DSL provides a broadband connection using the high-frequency portion
27 of the voice-grade copper loop over which local exchange service is provided on the
28 low-frequency portion. Local exchange and DSL services are thus supplied in fixed
29 proportions: each copper loop provides one of each type of connection to the same

1 customer, just as an egg provides both a white and a yolk to each purchaser. Thus,
2 from a customer's perspective, it is often cheaper to buy local exchange service and
3 broadband access from the same supplier, since packaging the services together
4 allows the single copper loop to be used (at no additional cost) for both services.
5 Indeed, DSL's principal competitor — cable modem service — makes use of the
6 same feature: overlaying broadband access on the coaxial cable used to supply video
7 services.

8 On the other hand, the markets in which these services are sold are very different.
9 First, the services are different. Local exchange service is used for voice telephone
10 services and dial-up internet access service, while broadband access is currently used
11 for data services, primarily high-speed access to the internet. Broadband access is
12 also required to support VoIP voice telephony services. Most Georgia households
13 buy some form of local exchange service, but many of them do not buy broadband
14 access service.

15 Second, the characteristics of the markets in which these services are sold are
16 different. The broadband access market is competitive and unregulated. The
17 principal competitors in Georgia are DSL services sold by local exchange carriers
18 (predominantly BellSouth) and cable modem services provided by Georgia cable
19 companies. Thus, most broadband customers can purchase broadband access and
20 local exchange telephone service from different suppliers, if they wish. The local
21 exchange telephone market is regulated by the Commission, though the market is
22 open to competition. BellSouth's share of access lines is falling due to competition
23 from other local exchange carriers (CLECs), wireless companies, cable telephony
24 and VoIP suppliers.

25 **B. Anticompetitive Tying in Theory**

26 **Q. WHY WOULD A COMPANY REFUSE TO SELL ONE OF ITS SERVICES**
27 **ON A STANDALONE BASIS INSTEAD OF PACKAGED WITH OTHER**
28 **SERVICES?**

1 A. Presumably because it finds it more profitable not to offer the standalone service.
2 Every communications company (ILEC, CLEC, cable, wireless, VoIP, satellite,
3 broadcast) determines how to package its services, presumably to offer the most
4 profitable mix possible. Thus cable companies sell packages of channels, and
5 premium channels are generally not offered as standalone services. Wireless
6 companies and CLECs offer packages of packages of local and long distance service
7 and many do not find it profitable to offer a standalone long distance service. Even
8 fewer CLECs offer the vertical services (voice mail, call waiting, call forwarding,
9 speed dialing) that they supply to their basic exchange customers, on a standalone
10 basis, to the basic exchange customers of their competitors. Outside of
11 communications, Hilton doesn't offer room service in the Sheraton next door, and
12 Dell doesn't service IBM computers.

13 In some of these examples, the reason the standalone offering isn't profitable is
14 because of the cost. For example, to provide standalone speed dialing service to a
15 competitor's local exchange customer would require network connections whose
16 cost would dwarf the price at which speed dialing is offered by local exchange
17 suppliers to their own customers. In other words, though standalone speed dialing
18 might be technically feasible, it would make no business sense to offer it, since it
19 couldn't cover its incremental costs at the market price. In other examples, some of
20 the benefit from packaging occurs on the demand side. For example, Dell's
21 reputation for service helps it sell more Dell computers than if its service were
22 available for any brand of computer. In either case, there is nothing *per se*
23 anticompetitive about not offering a service on a standalone basis that is offered as
24 part of a package.

25 **Q. BUT AREN'T CONSUMERS BETTER OFF IF PRODUCTS AND SERVICES**
26 **ARE AVAILABLE ON A COMPLETELY UNBUNDLED BASIS?**

27 A. Generally, no. Requiring firms to offer standalone products and services that they
28 have determined to be insufficiently profitable on a standalone basis would make
29 those firms less profitable. In competitive markets, market prices would have to rise

1 to cover the additional costs and to compensate for the fact that customers prefer to
2 purchase the bundled products and services. Thus, requiring firms to supply services
3 that reduce firm profits at the market price would ultimately make consumers worse
4 off.

5 **Q. BUT ARE THERE CIRCUMSTANCES IN WHICH THE REFUSAL TO**
6 **PROVIDE A STANDALONE PRODUCT COULD BE ANTICOMPETITIVE?**

7 A. Yes. Suppose a monopoly supplier of service A refuses to supply that service by
8 itself and requires customers to also purchase service B, for which it faces
9 competition. Under some circumstances, the monopolist can make more money by
10 following such a strategy, and competing suppliers of service B can be placed at a
11 competitive disadvantage. That is because any customer who buys the competitors'
12 services must find a substitute for the monopolist's service A, which is, by
13 assumption, hard to do.

14 **Q. IS TYING ALWAYS PROFITABLE?**

15 A. No. The basic reason why tying may fail to increase profits is that the monopolist
16 would be expected to charge the profit-maximizing price for monopoly service A *to*
17 *begin with*, so that no additional profit could be realized from selling the service at a
18 higher price.¹⁷ Tying the supply of service B to that of A effectively raises the price
19 of service A for those customers who would not ordinarily choose to buy B at the
20 competitive market price, and because the price for service A was profit maximizing
21 to begin with, an effective price increase for service A would reduce, rather than
22 increase, profits to the firm.

23 **Q. IS TYING SOMETIMES PROFITABLE?**

24 A. Under certain conditions. The economics literature recognizes two cases in which
25 such anticompetitive tying can be a profitable strategy. In both cases, we assume the
26 firm has the ability to control price in the market for service A. Then, when

¹⁷ This would be the case because the profit-maximizing price is that price at which the profit per unit multiplied by the number of units sold is greatest. Raising the price from this level causes a decrease in the number of units sold such that the total profit is lower than at the profit-maximizing price.

1 demands for services A and B are interrelated, it is sometimes possible to increase
2 firm profits when requiring the purchase of B can facilitate price discrimination in
3 the monopolized service A. For example, sometimes tying can act as a metering
4 device that separates customers that use the product intensely (and value it highly)
5 for those who do not. The classic example was IBM tabulating machines and punch
6 cards. By pricing the machine low and the cards high, the firm can effectively
7 charge heavy users more than light users for the machine.

8 Second, when service A is regulated, so that regulation prevents the monopolist from
9 charging the profit-maximizing price for A, tying can be profitable. Here, forcing
10 customers to buy B in addition to A could increase firm profits because its regulated
11 price is less than the monopoly price. Thus, an effective price increase for service A
12 (caused by bundling the service together with service B at a higher-than-competitive
13 price) could increase profits.

14 **C. Tying DSL and Local Exchange Service in Georgia**

15 **Q. DOES BELLSOUTH'S BROADBAND POLICY AMOUNT TO**
16 **ANTICOMPETITIVE TYING IN ECONOMICS?**

17 A. No.

18 **Q. ARE EITHER OF THE CASES DESCRIBED ABOVE RELEVANT TO THE**
19 **BROADBAND ACCESS AND LOCAL EXCHANGE MARKETS IN**
20 **GEORGIA?**

21 A. No. First, and most important, is that BellSouth does not possess market power for
22 the tying service (broadband access). As discussed below, that means that enough
23 customers have a choice of suppliers for broadband access services that BellSouth
24 cannot raise its FastAccess price profitably above the market level. Because it
25 cannot force enough customers to pay more than the market level for broadband
26 service, it cannot force enough customers to buy a local exchange service they don't
27 want as part of the package for FastAccess service.

1 Second, if BellSouth *did* have the ability to hold the price of broadband service
2 above competitive market levels, (which it does not), it still would have no profit
3 incentive to engage in anticompetitive tying. BellSouth is free to set any price it
4 pleases for FastAccess service, subject only to market constraints. If it wished (and
5 had the ability) to extract monopoly profits from broadband service, it could do so
6 directly by charging a monopoly price. There is no reason (such as potential price
7 discrimination or regulation) that would make tying a more profitable strategy than
8 simply setting the FastAccess price at its profit-maximizing level.

9 **Q. IS BELLSOUTH'S DECISION NOT TO PROVISION A STANDALONE DSL**
10 **SERVICE AN EXAMPLE OF ANTICOMPETITIVE TYING?**

11 A. No. BellSouth's business decision not to supply FastAccess service as a standalone
12 retail services is not a case of anticompetitive tying. Tying occurs when a firm
13 forces customers of its less-competitive service to also buy its more-competitive
14 service. In this case, BellSouth is requiring customers of its more-competitive
15 service (FastAccess) to also buy its less-competitive service (basic exchange voice
16 service). Such a strategy is not tying, and it is not anticompetitive because almost
17 any FastAccess customer that prefers not to buy BellSouth voice service can find
18 another supplier of broadband access. BellSouth can extract no additional profits
19 from its FastAccess service by combining it with its basic exchange services because
20 customers have viable substitutes for BellSouth FastAccess service. Thus, without a
21 monopoly position or market power in the supply of broadband access, BellSouth
22 cannot harm competition or competitors in the local exchange market from its
23 business decision not to supply its FastAccess service on either a wholesale or stand-
24 alone retail basis.

25 **Q. WHY WOULD IT MAKE ECONOMIC SENSE FOR AN ILEC TO PROVIDE**
26 **DSL SERVICE EXCLUSIVELY TO ITS VOICE CUSTOMERS?**

27 A. From the fact that BellSouth chooses not to offer the service to those who do not buy
28 BellSouth voice service, we may infer that BellSouth believes offering such a service
29 would reduce its profits. There are several economic explanations for this belief.

1 First, because DSL was designed as an overlay service on top of a wireline access
2 line, all of the BellSouth's systems (ordering and installation, billing, customer
3 service) expect DSL customers to also be voice customers. Thus, the systems to
4 provide customer support for a standalone DSL service would have to be created,
5 and the standalone service would have to be priced higher than the bundled service
6 in order to recover these extra costs. In the current market for broadband access,
7 such a service may not be able to compete successfully against cable modem service or
8 against BellSouth FastAccess service (combined with its local exchange service).
9 That is, the small number of potential customers for the service is unlikely to justify
10 the investment and fixed costs necessary to provision it.

11 Second, where there is no active BellSouth access line providing voice service to the
12 customer, BellSouth would have to supply one. Consider the components of a
13 business case for developing and offering such a service:

- 14 • Such a truly standalone broadband access service would be provisioned
15 differently from competing services: ordinary DSL, cable modem and satellite
16 service all piggyback their broadband access offering on facilities shared with
17 another service (*i.e.*, telephone or video).
- 18 • In effect, the service would resemble a slow, asymmetric DS-1 connection, where
19 the similarity is not in the available bandwidth but in the manner in which it is
20 provisioned.
- 21 • The total service long run incremental cost ("TSLRIC") of the service would
22 include the full cost of the loop in addition to the DSL equipment. It is difficult to
23 see how the service could be priced at a compensatory level and still compete with
24 ordinary DSL and cable modem service at prices that do not have to cover the
25 entire cost of a loop.
- 26 • Potential demand for the service would likely be small. The market for the
27 service would be restricted to broadband customers who were not BellSouth voice
28 customers, because BellSouth voice customers would simply buy ordinary
29 FastAccess service and save themselves the cost of the additional loop.
- 30 • To sell the service successfully to the remaining portion of the market, the
31 BellSouth product would still have to compete with cable modem services. These
32 services currently compete successfully against ordinary FastAccess service, and
33 customers would perceive the standalone service as the same as ordinary
34 FastAccess service, only more expensive.

1 Thus, provisioning such a service is unlikely to be profitable, so the fact that
2 BellSouth does not voluntarily develop and provision it does not indicate
3 anticompetitive intent.

4 Since we frequently observe telecommunications firms offering various packages of
5 services to different customers, it is likely that there is some reason other than
6 anticompetitive tying that makes selling packages of services attractive. For
7 example, we rarely see local exchange carriers offering call-waiting and call-
8 forwarding by themselves, and it is probably the case that the economies of scope in
9 providing those services together with local exchange service are so large that no
10 firm could profitably supply such services on a stand-alone basis. This conclusion is
11 also reinforced in the present case by the observation that most telecommunications
12 firms voluntarily choose to provide some services to everyone and some services
13 exclusively to their pre-subscribed customers.

14 Consider an example. Suppose a farmer were asked to sell egg whites — just the
15 whites, not the yolks — (say) to a bakery that only needed the whites. Egg whites
16 and yolks (like DSL and local exchange services) are supplied in fixed proportions,
17 and the egg-related TSLRIC to supply an egg white is the same as the egg-related
18 cost to supply a yolk and is the same as the egg-related cost to supply both. The full
19 TSLRIC of a standalone egg white product would surely be higher than that of an
20 egg, since providing the standalone service would require labor to separate the white
21 and the yolk. Farmers generally choose to sell both products together as a package,
22 no one considers it anticompetitive that they do not offer a standalone egg white
23 product, and consumers are better off if farmers are not required to offer a product
24 that is expensive and that only a small fraction of customers might consider buying.

25 **Q. BUT ISN'T SUCH EXCLUSIVITY INHERENTLY ANTICOMPETITIVE,**
26 **PARTICULARLY FOR THOSE FASTACCESS CUSTOMERS WHO WANT**
27 **TO SWITCH VOICE PROVIDERS AND KEEP THEIR FASTACCESS**
28 **SERVICE?**

1 A. No. Any form of packaging causes some customers to buy something other than
2 their most preferred services, but that is not necessarily anticompetitive. In addition
3 to the reasons I discuss above, if the number of such customers is small — that is, if
4 broadband access customers can choose services that are reasonable substitutes for
5 FastAccess service — then such packaging does not give BellSouth an unfair
6 advantage in the local exchange market. The fact that some customers don't have
7 viable substitutes for FastAccess doesn't mean that BellSouth can exploit them.
8 Competition takes place at the margin, and the fact that choices may be restricted for
9 some customers does not mean that the competitive process will fail to work for the
10 benefit of all customers.¹⁸

11 As discussed below, enough customers have a choice of suppliers for broadband
12 access services that BellSouth cannot raise its FastAccess price profitably above the
13 market level. Because it cannot force enough customers to pay more than the market
14 level for broadband service, it cannot force enough customers to buy a local
15 exchange service they don't want as part of the package for FastAccess service.

16 Moreover, even if true, the claim that BellSouth FastAccess service gives BellSouth
17 a competitive advantage in the voice market does not make that advantage
18 *anticompetitive*. Presumably some BellSouth voice customers also like its inside
19 wire maintenance plans, its calling card plans, or its voice mail services. For those
20 customers, their experience with those BellSouth services confers a competitive
21 advantage on BellSouth in the basic exchange market—a (hypothetical) competitive
22 advantage which is *deserved* and which would be anticompetitive to remove.

¹⁸ Take tomatoes, for example. I have no idea what a can of tomatoes costs at the supermarket, and I would guess that most people wouldn't know. However, I do know that my local market cannot raise the price of a can of tomatoes by a penny and make more money, because if they could, they would have done it already. Thus, while I'm not a marginal consumer when it comes to cans of tomatoes — and the average customer is probably in a similar situation — nonetheless, someone is, and there are enough such customers to discipline the market.

1 **D. Requiring BellSouth to Provision a Standalone DSL Product**
2 **Does not Foster Competition in any Market**

3 **Q. SOME CUSTOMERS COULD BE INCONVENIENCED BY BELLSOUTH'S**
4 **DECISION NOT TO PROVIDE STANDALONE DSL SERVICE. WHAT**
5 **WOULD BE THE HARM IN REQUIRING THAT BELLSOUTH PROVISION**
6 **SUCH A SERVICE?**

7 A. Requiring BellSouth to provide standalone broadband access service would be

- 8 • *Anti-consumer*: The requirement would reduce consumer choice for broadband
9 access because competitors could rely on mandatory BellSouth-provided services
10 instead of supplying their own broadband service or obtaining broadband service
11 from another DSL provider. By using BellSouth to supply broadband access to its
12 customers, competitors, in effect, would be denying their voice customers the
13 benefits (in terms of convenience and cost) of purchasing broadband access and
14 basic exchange service from them as a package.
- 15 • *Anti-competitive*: BellSouth would be required to invest to supply DSL service in
16 circumstances which it determined to be unprofitable. No other broadband access
17 provider would have this responsibility and imposing this requirement would
18 distort competitive outcomes in the broadband access market among wireline
19 suppliers and across technologies (wireline, cable, wireless and satellite). In
20 addition, injecting a regulated supplier-of-last-resort requirement into a well-
21 functioning competitive (broadband access) market would expand the role of
22 regulation, and inevitably the process of competition in the broadband access
23 market would deteriorate.
- 24 • *Contrary to public policy*: Competitors would not have to invest in broadband
25 access facilities because their voice customers could use FastAccess service. In
26 addition, BellSouth's incentives to develop similar services would be reduced
27 because whatever competitive advantage it could gain from investing in
28 infrastructure and developing new broadband services would be offset by the
29 requirement to provide the service to its competitors' customers.

30 Basically, because the broadband access market is effectively competitive and
31 functioning well in Georgia, any proposal to mandate that any carrier supply a
32 standalone service against its will would have bad consequences for competition and
33 for consumers.

34 **Q. IN YOUR PREVIOUS ANSWER, YOU CLAIMED THAT A MANDATE TO**
35 **SUPPLY A STANDALONE SERVICE WOULD "EXPAND THE ROLE OF**

1 **REGULATION.” WHAT DID YOU MEAN?**

2 A. Suppose the Commission required BellSouth to provision and deploy a standalone
3 DSL product in order to make it easier for FastAccess customers to choose a
4 BellSouth competitor’s voice service — or no voice service. To achieve that goal,
5 the price and quality of BellSouth’s standalone product would have to be comparable
6 to that of ordinary FastAccess service. On the other hand, the TSLRIC of the
7 standalone service is higher than that of the packaged FastAccess service, and the
8 potential market to which it could be sold is much smaller.

9 How could the Commission be assured that BellSouth’s standalone service was (i)
10 sufficiently comparable to FastAccess service that local exchange customers were
11 not affected in their choice of carrier by differences in standalone and ordinary
12 FastAccess service, and at the same time, (ii) priced at a level that could be expected
13 to recover its incremental costs from the restricted set of customers that would
14 consider purchasing it?

15 Furthermore, requiring BellSouth to supply standalone DSL service is simply a
16 competitive handicap, reflecting the Commission’s intention that BellSouth not be
17 permitted to take advantage of its success in the broadband access market in the
18 competition for local exchange service. In principle, then, where would such
19 handicapping end? What principles should the Commission apply to determine if
20 BellSouth should be required to provide standalone voice mail? Standalone inside
21 wire maintenance? Standalone long distance service? Standalone speed dialing?

22 **Q. HOW WOULD THE REQUIREMENT TO PROVIDE STANDALONE DSL**
23 **SERVICE FIT INTO THE PLAN UNDER WHICH BELL SOUTH IS**
24 **REGULATED IN GEORGIA?**

25 A. It wouldn’t. BellSouth is regulated under a price cap plan in Georgia, as opposed to
26 traditional cost-of-service regulation. If BellSouth incurs additional costs that
27 exceed its incremental revenue from developing, designing, investing, and rolling out
28 a new standalone DSL service — one that BellSouth expects to be unprofitable — it

1 cannot simply increase the prices of regulated services to make up for its lost
2 earnings.

3 Many price cap plans include a provision for exogenous changes, in which the
4 effects of regulatory or legislative decisions that change revenues or costs are passed
5 through to the price cap index. The purpose of these provisions is to ensure that
6 customers receive the benefits (or pay the costs) of regulatory or legislative changes
7 that affect the telephone company. Such changes enhance economic efficiency
8 because they allow price changes to follow cost changes more accurately, and since
9 the exogenous changes are beyond the control of the regulated firm, they do not
10 dilute the firm's incentives to increase productivity. These provisions also improve
11 the incentives of regulators and legislators, since customers will feel the effects of
12 changes in law and regulation. And, finally, exogenous change provisions make the
13 implicit price cap bargain between the regulator and the regulated firm a fair one, in
14 that the regulator cannot impose new conditions that affect the profitability of the
15 firm after the price cap bargain is sealed.

16 While I cannot interpret the legal status of exogenous changes in the BellSouth price
17 cap plan in Georgia, in regulatory economics, requiring that a firm design and
18 provision a new service that the firm expects to be unprofitable¹⁹ would certainly
19 trigger an exogenous adjustment to the price cap index.

20 **IV. Wireline Competitors Should All Have the Same Ability to**
21 **Offer Bundles of Services to Their Customers**

22 **Q. WHAT IS THE COMMISSION'S ISSUE REGARDING SYMMETRIC**
23 **REGULATORY TREATMENT FOR LOCAL EXCHANGE CARRIERS?**

24 A. In its *Scheduling Order*, the Commission asked:

¹⁹ I infer that BellSouth expects the standalone DSL service to be unprofitable because (i) it doesn't choose to offer the service voluntarily and (ii) it is hard to understand how the service would be marketable at a price that covered its cost. Nonetheless, demand, cost and technology are constantly changing, and there may be circumstances in the future that cause BellSouth's expectations to change.

1 Whether there are reasonable bases for applying a different standard to
2 incumbent local exchange carriers than competitive local exchange
3 carriers with regard to the bundling of these services.

4 **A. Bundling Rules should not Favor any Particular Carrier or**
5 **Technology**

6 **Q. WHAT IS THE PROPER ECONOMIC FUNCTION OF REGULATION IN**
7 **THESE MARKETS?**

8 A. As Professor Kahn observed (in the quotation at pp. 17-18 above), it is to ensure an
9 even start, but not necessarily an even finish to the competitive race. And in the
10 local exchange market, which has been opened to competition, it is particularly
11 important that regulation control whatever market power it must control while
12 affecting the outcome of the competitive process as little as possible.

13 In contrast, the economic function of the competitive process is to identify and foster
14 those firms, products, services, bundles of services and technologies that best meet
15 consumers' demands. Asymmetric regulation can distort that process so that firms or
16 technologies succeed, not on their merits, but because they satisfy some regulatory
17 requirement that has unintended competitive consequences.

18 **Q. HAS ASYMMETRIC REGULATION OF AN INCUMBENT FIRM**
19 **CREATED COMPETITIVE PROBLEMS IN THE PAST?**

20 A. Yes. The history of regulation in the U.S. is replete with examples where
21 asymmetric regulation has shaped the direction of the market, determining which
22 firms or (worse) which technologies or products ultimately succeed and which fail.

23 The textbook examples include:

- 24 • Transport: regulating railroads in the face of intermodal competition from barges
25 and trucks.
- 26 • Energy: regulating the relationships between the distribution of natural gas and
27 electricity,
- 28 • Video distribution: regulating broadcast, cable, and telecommunications video dial
29 tone under radically different rules.

30 **Q. ARE THERE PARTICULAR CONCERNS WHEN A FIRM WITH MARKET**

1 **POWER OFFERS BUNDLES OF SERVICES TO ITS CUSTOMERS?**

2 A. No, as long as the regulated services in packages remain available for sale separately
3 under unchanged terms and conditions. That is, even if it is thought that an ILEC
4 has residual market power in the local exchange market, there is still no problem
5 combining that local exchange service with other competitive services. No customer
6 is made worse off by such packaging, in the sense that customers can continue to buy
7 the unbundled services as they could before.

8 Note that the requirement that the regulated service remain available on a standalone
9 basis stems precisely (and correctly) from a concern to preclude anticompetitive
10 tying. If a regulated service — which, by assumption, is a service for which the firm
11 has market power — were only available in packages with other, competitively-
12 supplied services — we would have a classic case of tying. Market power for
13 service A could be leveraged into the competitive market for service B, if A were
14 only available in a package with B. That, of course, is emphatically not the
15 packaging problem the Commission faces with FastAccess because the less
16 competitive service is local exchange service, and BellSouth is not proposing to
17 provide local exchange service only to its FastAccess customers.

18 **B. Long-term Effects: Research, Development and Investment**

19 **Q. CAN ASYMMETRIC REGULATION AFFECT A FIRM'S INCENTIVES TO**
20 **INNOVATE AND INVEST?**

21 A. Certainly. Investment in research and development, new services and new facilities
22 is made with the expectation of profit. In planning how much and in what projects to
23 invest, the firm determines some expected level of profit that it can obtain by selling
24 the new service in various packages, including possibly as a standalone service. If
25 incumbent firms are required to offer new services on a standalone basis, the
26 expected level of profit from such activities will be smaller than if the firm is free —
27 like its competitors — to offer services in the most profitable packages. That
28 reduction in the expected level of profit from the development and provisioning of

1 new services, in turn, reduces the firm's incentives to undertake such investment in
2 the first place.

3 **Q. HOW DOES THIS EFFECT APPLY TO DSL SERVICE?**

4 A. A reduction in the profitability of DSL service would reduce the incentive to rollout
5 DSL technology to marginally profitable places in Georgia and delay the diffusion of
6 the technology throughout the network. More seriously, while investment in
7 research and development for today's DSL service is largely a sunk cost that has
8 already been expended, incumbent firms learn from the past. If all new DSL,
9 broadband and other telecommunications services are required to be sold on a
10 standalone basis to customers of CLECs, expected profits from these new service
11 innovations will be smaller than otherwise, and investment in research and
12 development and implementation will be smaller than otherwise. Looking forward,
13 incumbent local telephone companies like BellSouth are currently developing
14 technologies and platforms to bring more robust forms of DSL and other services
15 with much higher bandwidth to customers in the future. Restrictions on BellSouth's
16 ability to offer FastAccess service packages will reduce BellSouth's estimates of the
17 profitability of those investments, which, in turn, will reduce investment in new
18 products and services.

19 **V. Conclusions**

20 **Q. HOW SHOULD THE COMMISSION RESPOND TO THE THREE ISSUES**
21 **IN ITS SCHEDULING ORDER THAT YOU ADDRESS?**

22 A. The Commission should not extend its conclusions in the *MCI* and *ITC^DeltaCom*
23 *Orders* to the case where the broadband access customer is not a participant in the
24 regulated wireline local exchange market. The Commission's reasoning in those
25 cases does not apply here. There is no market failure to correct, and BellSouth
26 derives no ability to "insulate its voice service from the effects of competition"²⁰
27 from not provisioning a standalone DSL product.

²⁰ *MCI Order* at 19.

1 The Commission should not apply its conclusions in the *MCI and ITC^DeltaCom*
2 *Orders* in the current generic docket. Economic analysis shows that BellSouth did
3 not (and does not) have market power in the broadband access market so that it has
4 no ability to insulate its voice service from the effects of competition in the first
5 place. This view of the broadband market is widespread and held, in particular, by
6 the regulatory authority responsible for assessing competition in that market.

7 There are no valid economic grounds for setting different packaging and bundling
8 rules for ILECs and CLECs. Asymmetric regulation that does more than simply
9 control the (assumed) market power of the regulated firm will distort the competitive
10 process in unpredictable and unfortunate ways. Competition in telecommunications
11 markets is not simply a matter of a successful supplying a homogenous product more
12 efficiently than an unsuccessful firm. Services are combined and packaged in
13 complex and interdependent ways, so that the Commission cannot reliably assess the
14 effect on a firm of requiring it to provide a service on a standalone basis at a higher
15 cost with a more limited potential market.

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Dr. Taylor received a B.A. *magna cum laude* in Economics from Harvard College, an M.A. in Statistics and a Ph.D. in Economics from the University of California at Berkeley. He has taught economics, statistics, and econometrics at Cornell and the Massachusetts Institute of Technology and was a post doctoral Research Fellow at the Center for Operations Research and Econometrics at the University of Louvain, Belgium.

At NERA, Dr. Taylor is a Senior Vice President, heads the Cambridge office and is Director of the Telecommunications Practice. He has worked primarily in the field of telecommunications economics on problems of state and federal regulatory reform, competition policy, terms and conditions for competitive parity in local competition, quantitative analysis of state and federal price cap and incentive regulation proposals, and antitrust problems in telecommunications markets. He has testified on telecommunications economics before numerous state regulatory authorities, the Federal Communications Commission, the Canadian Radio-Television and Telecommunications Commission, the New Zealand Commerce Commission, the Comisión Federal de Telecomunicaciones de México, federal and state congressional committees and courts. Recently, he was chosen by the Mexican Federal Telecommunications Commission and Telmex to arbitrate the last two renewals of the Telmex price cap plan in Mexico. Other recent work includes studies of the competitive effects of major mergers among telecommunications firms and analyses of vertical integration and interconnection of telecommunications networks. He has appeared as a telecommunications commentator on PBS Radio and on The News Hour with Jim Lehrer.

He has published extensively in the areas of telecommunications policy related to access and in theoretical and applied econometrics. His articles have appeared in numerous telecommunications industry publications as well as *Econometrica*, the *American Economic Review*, the *International Economic Review*, the *Journal of Econometrics*, *Econometric Reviews*, the *Antitrust Law Journal*, *The Review of Industrial Organization*, and *The Encyclopedia of Statistical Sciences*. He has served as a referee for these journals (and others) and the National Science Foundation and has served as an Associate Editor of the *Journal of Econometrics*.

Education

UNIVERSITY OF CALIFORNIA, BERKELEY
Ph.D., Economics, 1974

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Professional Experience

1988- NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC. (NERA)
Senior Vice President, Office Head, Telecommunications Practice Director.

1983-1988 BELL COMMUNICATIONS RESEARCH, INC. (Bellcore)
Division Manager, Economic Analysis, formerly Central Services Organization, formerly American Telephone and Telegraph Company: theoretical and quantitative work on problems raised by the Bell System divestiture and the implementation of access charges, including design and implementation of demand response forecasting for interstate access demand, quantification of potential bypass liability, design of optimal nonlinear price schedules for access charges and theoretical and quantitative analysis of price cap regulation of access charges.

1975-1983 BELL TELEPHONE LABORATORIES
Member, Technical Staff, Economics Research Center: basic research on theoretical and applied econometrics, focusing on small sample theory, panel data and simultaneous equations systems.

Fall 1977 MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Visiting Associate Professor, Department of Economics: taught graduate courses in econometrics.

1974-1975 CENTER FOR OPERATIONS RESEARCH AND ECONOMETRICS
Université Catholique de Louvain, Belgium.
Post Doctoral Research Associate: basic research on finite sample econometric theory and on cost function estimation.

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1972-1975 Assistant Professor, Department of Economics. (On leave 1974-1975.) taught graduate and undergraduate courses on econometrics, microeconomic theory and economic principles.

Miscellaneous

1985-1995 Associate Editor, *Journal of Econometrics*, North-Holland Publishing Company.
1990- Board of Directors, National Economic Research Associates, Inc.
1995- Board of Trustees, Treasurer, Episcopal Divinity School, Cambridge, Massachusetts.

Publications

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1. Alabama

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2. Alabama Public Service Commission, on behalf of BellSouth Long Distance, Inc., (Docket No. 25835): direct testimony regarding the probable economic benefits to consumers in Alabama from entry by BellSouth into the interLATA long distance market. Filed June 18, 1997. Rebuttal testimony filed August 8, 1997.
3. Alabama Public Service Commission, on behalf of BellSouth Telecommunications, Inc., (Docket No. 26029): rebuttal testimony of intervenor testimonies in BellSouth's cost and unbundled network element pricing docket in Alabama. Filed September 12, 1997.
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5. Alabama Public Service Commission (Docket No. 27091), on behalf of BellSouth Telecommunications, rebuttal testimony regarding intercarrier compensation for Internet-bound traffic, filed October 14, 1999.
6. Alabama Public Service Commission (Docket No. 25835), on behalf of BellSouth Telecommunications, Inc., economic aspects of service quality penalty plans. Rebuttal testimony filed June 19, 2001.
7. Alabama Public Service Commission (Docket Nos. 15957 and 27989), on behalf of BellSouth Telecommunications, Inc.: economic support for promotional offerings. Direct testimony filed August 3, 2001, rebuttal testimony filed August 13, 2001. Additional rebuttal testimony filed August 17, 2001.
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2. Alaska

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3. Arizona

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13. Arizona Corporation Commission (Docket No. T-01051B-99-105), on behalf of Qwest Corporation., rebuttal testimony regarding rate design. Filed August 21, 2000.
14. Arizona Corporation Commission (Docket Nos. T-03654A-00-0882,T-01051B-00-0882), on behalf of Qwest Corporation, direct testimony regarding intercarrier compensation for internet-bound traffic. Filed January 8, 2001.
15. Arizona Corporation Commission (Docket No. T-00000A-00-0194, Phase 2), on behalf of Qwest Corporation., direct testimony regarding intercarrier compensation for Internet-bound traffic. Filed March 15, 2001.

4. Arkansas

16. Arkansas Public Service Commission (Docket No. 83-042-U) on behalf of Southwestern Bell Telephone Company: economic analysis of non-traffic sensitive cost recovery proposals. Filed October 7, 1985.

5. California

17. California Public Utilities Commission (Case 88-04-029) on behalf of Pacific Bell: commission payment practices, cross-subsidization of pay telephones, and compensation payments to competitive pay telephone suppliers. Filed July 11, 1988.
18. California Public Utilities Commission (Phase II of Case 90-07-037) on behalf of Pacific Bell: economic analysis of the effects of FAS 106, (accrual accounting for post-retirement benefits other than pensions) under state price cap regulation, (with Timothy J. Tardiff). Filed August 30, 1991. Supplemental testimony filed January 21, 1992.
19. California Public Utilities Commission, (Docket No. I.87-11-033), on behalf of Pacific Bell, "The New Regulatory Framework 1990-1992: An Economic Review," (with T.J. Tardiff). Filed May 1, 1992.
20. California Public Utilities Commission, (Docket No. I.87-11-033), on behalf of Pacific Bell, "Pacific Bell's Performance Under the New Regulatory Framework: An Economic Evaluation of the First Three Years," (with T.J. Tardiff). Filed April 8, 1993, reply testimony filed May 7, 1993.
21. California Public Utilities Commission, (Investigation No. I.95-05-047), on behalf of Pacific Bell, "Incentive Regulation and Competition: Issues for the 1995 Incentive Regulation Review," (with R.L. Schmalensee and T.J. Tardiff). Filed September 8, 1995, reply testimony filed September 18, 1995.

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6. Colorado

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30. Colorado Public Utilities Commission (Docket No. 99A-407T), on behalf of US West Communications, Inc., rebuttal testimony regarding the effects of the proposed Qwest-US West merger on economic welfare, filed December 7, 1999.
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7. Connecticut

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40. State of Connecticut, Department of Public Utility Control (Docket No. 96-04-07) on behalf of Southern New England Telephone Company: direct testimony regarding economic principles guiding access charge reform. Filed October 16, 1997.
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42. Connecticut Department of Public Utility Control, on behalf of SBC Communications Inc. and Southern New England Telecommunications Corporation: direct testimony regarding the SBC-SNET merger, filed June 1, 1998.
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8. Delaware

47. Delaware Public Service Commission (Docket No. 86-20, Phase II) on behalf of The Diamond State Telephone Company: appropriate costing and pricing methods for a regulated firm facing competition. Filed March 31, 1989. Rebuttal testimony filed November 17, 1989.
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49. Delaware Public Utilities Commission, (Docket No. 33), on behalf of Diamond State Telephone Company, "Incentive Regulation of Telecommunications Utilities in Delaware," filed June 22, 1992.
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9. District of Columbia

55. Affidavit to the U.S. District Court for the District of Columbia on behalf of Bell Atlantic Corporation in *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company*, re relief from the interLATA restrictions of the MFJ in connection with the pending merger with Tele-Communications, Inc. and Liberty Media Corporation. Filed January 14, 1994, (with A.E. Kahn).
56. Affidavit to the U.S. District Court for the District of Columbia on behalf of Southwestern Bell in *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company*, regarding provision of telecommunications and information services across LATA boundaries outside the regions in which its local exchange operations are located. Filed May 13, 1994, (with A.E. Kahn).

57. District of Columbia, Public Service Commission (Case No. 962), on behalf of Bell Atlantic - Washington, D.C., direct testimony regarding costing and pricing of interconnection and network elements. Filed January 17, 1997. Rebuttal testimony filed May 2, 1997.
 58. Public Service Commission of the District of Columbia (Case No. 962), on behalf of Bell Atlantic - Washington, D.C., direct testimony regarding costing and pricing of interconnection and network elements. Filed July 16, 2001. Rebuttal testimony filed January 11, 2002.
 59. United States District Court for the District of Columbia, (MDL No. 1285, Misc. No 99-0197 (TFH)), Declaration regarding statistical issues in measuring damages from price fixing in the vitamin industry, filed October 31, 2002. Reply Declaration filed January 15, 2003.
 60. Public Service Commission of the District of Columbia on behalf of Verizon District of Columbia, Direct testimony regarding forecasts of incremental hot cut demand, filed December 15, 2003.
10. Florida
61. Florida Public Service Commission (Docket No. 820537-TP) on behalf of Southern Bell Telephone and Telegraph Company: economic analysis of premium intraLATA access charges. Filed July 22, 1983.
 62. Florida Public Service Commission (Docket No. 820400-TP) on behalf of Southern Bell Telephone and Telegraph Company: economic principles underlying a proposed method for calculating marginal costs for private line services. Filed June 25, 1986.
 63. Florida Public Service Commission (Docket No. 880069-TL) on behalf of Southern Bell Telephone and Telegraph Company: economic incentives for firms under the proposed Florida Rate Stabilization Plan. Filed June 10, 1988.
 64. Florida Public Service Commission (Docket No. 900633-TL) on behalf of Southern Bell Telephone and Telegraph Company: alternative measures of cross-subsidization. May 9, 1991.
 65. Florida Public Service Commission (Docket No. 920260-TL) on behalf of Southern Bell Telephone and Telegraph Company: economic analysis of a proposed price cap regulation plan. December 18, 1992.
 66. Florida Public Service Commission (Docket No. 920385-TL) on behalf of Southern Bell Telephone and Telegraph Company: the economic relationship between depreciation rates, investment, and infrastructure development. September 3, 1992.
 67. Florida Public Service Commission on behalf of BellSouth, "Local Telecommunications Competition: An Evaluation of a Proposal by the Communications Staff of the Florida Public Service Commission," filed November 21, 1997 (with A. Banerjee).
 68. Florida Public Service Commission (Docket No. 980000-SP) on behalf of BellSouth Telecommunications, Inc.: "Costing and Pricing Principles for Determining Fair and Reasonable Rates Under Competition," economic principles for pricing local exchange services, filed September 24, 1998.
 69. Florida Public Service Commission (Docket No. 980000-SP) on behalf of BellSouth Telecommunications, Inc.: "Determining Fair and Reasonable Rates Under Competition: Response to Major Themes at the FPSC Workshop," economic principles for pricing local exchange services, filed November 13, 1998.

70. Florida Public Service Commission (Docket No. 980696-TP) on behalf of BellSouth Telecommunications, Inc.: rebuttal testimony regarding measurements of cost for sizing a universal service fund, filed September 2, 1998.
 71. Florida Public Service Commission (Docket No. 990750-TP), on behalf of BellSouth Telecommunications, rebuttal testimony regarding intercarrier compensation for Internet-bound traffic, filed September 13, 1999.
 72. Florida Public Service Commission (Docket No. 000075-TP) on behalf BellSouth Telecommunications, Inc.: rebuttal testimony regarding intercarrier compensation for Internet-bound traffic, filed January 10, 2001.
 73. Florida Public Service Commission (Docket No. 0000121-TP) on behalf BellSouth Telecommunications, Inc.: direct testimony regarding properties of a service quality performance assurance plan. Filed March 1, 2001. Rebuttal filed March 21, 2001.
 74. Florida Public Service Commission (Docket No. 000075-TP) on behalf BellSouth Telecommunications, Inc., rebuttal testimony regarding efficient intercarrier compensation, filed April 12, 2001.
 75. Florida Public Service Commission (Docket No. 960786-TL) on behalf BellSouth Telecommunications, Inc.: surrebuttal testimony regarding the state of local competition in Florida, filed August 20, 2001.
 76. Florida Public Service Commission (Docket Nos. 020119-TP and 020578-TP) on behalf of BellSouth Telecommunications, Inc., regarding competitive promotional offerings. Direct testimony filed October 23, 2002, rebuttal filed November 25, 2002.
 77. Florida Public Service Commission (Docket No. 020507-TP) on behalf of BellSouth Telecommunications, Inc., regarding bundling of basic and non-basic services. Rebuttal testimony filed December 23, 2002.
 78. U.S. District Court, Southern District of Florida (Case No. 99-1706), on behalf of BellSouth Telecommunications, Confidential Reply Affidavit (“Economic Assessment of Damages”). Filed April 25, 2003.
 79. Florida Public Service Commission (Docket No. 030869-TL), on behalf of BellSouth Telecommunications, Inc., regarding rate rebalancing in the Florida Statutes. Direct testimony filed August 27, 2003.
 80. Florida Public Service Commission, (Docket No. 030851-TP) on behalf of Verizon Florida, Direct Testimony regarding forecasts of incremental hot cut demand, filed December 4, 2003.
 81. Florida Public Service Commission, (Docket No. 030851-TP) on behalf of Verizon Florida, Rebuttal Testimony regarding geographic market definition for unbundled network elements, filed January 7, 2004.
 82. Florida Public Service Commission (Docket No. 040353-TP), on behalf of BellSouth Telecommunications, Inc., regarding predatory pricing, promotional offerings and discrimination. Affidavit filed August 16, 2004.
11. Georgia
83. Georgia Public Service Commission (Docket No. 3882-U) on behalf of Southern Bell Telephone and Telegraph Company: analysis of incentive regulation plans. Filed September 29, 1989.

84. Georgia Public Service Commission (Docket No. 6863-U) on behalf of BellSouth Long Distance, Inc., direct testimony concerning benefits from BellSouth participation in long distance service markets. Filed January 3, 1997. Rebuttal testimony filed February 24, 1997.
 85. Georgia Public Service Commission (Docket No. 10767-U), on behalf of BellSouth Telecommunications, rebuttal testimony regarding intercarrier compensation for Internet-bound traffic, filed October 25, 1999.
 86. Georgia Public Service Commission (Docket No. 10854-U), on behalf of BellSouth Telecommunications, direct testimony regarding intercarrier compensation for Internet-bound traffic, filed November 15, 1999, rebuttal testimony filed November 22, 1999.
 87. Georgia Public Service Commission (Docket No. 7892-U), on behalf of BellSouth Telecommunications, rebuttal testimony regarding implementation of service quality standards, filed June 27, 2000.
 88. CPR Institute for Dispute Resolution Arbitral Tribunal, Rebuttal Affidavit in Arbitrations III and IV between BellSouth Telecommunications and Supra Telecommunications & Information Systems. Filed November 5, 2001.
 89. Georgia Public Service Commission (Docket No. 11901-U) on behalf of BellSouth Telecommunications, Inc., regarding the provision of DSL service to competitors' voice customers. Rebuttal testimony filed November 8, 2002.
 90. CPR Institute for Dispute Resolution Arbitral Tribunal, Rebuttal Affidavit in Arbitration V between BellSouth Telecommunications and Supra Telecommunications & Information Systems. Filed November 21, 2003.
12. Idaho
91. Idaho Public Utilities Commission (Case No. GST-T-99-1), on behalf of US West Communications, Inc., direct testimony regarding intercarrier compensation for ISP-bound traffic, November 22, 1999, rebuttal testimony filed December 2, 1999.
13. Illinois
92. Illinois Commerce Commission (Docket No. 88-0412) on behalf of Illinois Bell Telephone Company: analysis of pricing issues for public telephone service. Filed August 3, 1990. Surrebuttal testimony filed December 9, 1991.
 93. United States Bankruptcy Court, Northern District of Illinois, Eastern Division Telesphere Liquidating Trust vs. Francesco Galesi, Adv. Proc. Nos. 95 A 1051 & 99 A 131: expert opinion regarding the condition of alternative operator service provider and 900 service markets. Report filed August 23, 2002.
 94. Illinois Commerce Commission (Docket No. 03-0595) on behalf of SBC Illinois. Direct testimony concerning geographic market definition for unbundled network elements. Filed December 2, 2003.
14. Iowa
95. Iowa Utilities Board, on behalf Qwest Communications Intl, Inc., rebuttal testimony regarding public interest effects of the proposed merger, filed December 23, 1999

96. Iowa Utilities Board, on behalf of Qwest Corporation, (Docket No. INU-04-01), Counterstatement regarding reclassification of services as competitive. Filed August 2, 2004.

15. Kentucky

97. Kentucky Public Service Commission on behalf of South Central Bell Telephone Company, testimony concerning telecommunications productivity growth and price cap plans, April 18, 1995.
98. Kentucky Public Service Commission (Administrative Case No. 96-608) on behalf of BellSouth Long Distance, Inc., testimony regarding the economic effects of BellSouth entry into interLATA services. Filed April 14, 1997. Rebuttal testimony filed April 28, 1997, supplemental rebuttal testimony filed August 15, 1997.
99. Kentucky Public Service Commission (Docket No. 98-292), on behalf of Cincinnati Bell Telephone Company, direct testimony regarding proposed price regulation plan containing earnings sharing requirements. Filed April 5, 1999.
100. Kentucky Public Service Commission (Docket No. 99-218), on behalf of BellSouth Telecommunications, direct testimony regarding intercarrier compensation for Internet-bound traffic, filed October 21, 1999. Rebuttal testimony filed November 19, 1999.
101. Kentucky Public Service Commission (Docket No. 99-296), on behalf of GTE & Bell Atlantic, direct testimony on the effects of the Bell Atlantic-GTE merger on competition in Kentucky and on the benchmarking abilities of regulators. Filed July 9, 1999, rebuttal testimony filed August 20, 1999.
102. Kentucky Public Service Commission (Docket No. 2001-105), on behalf of BellSouth Telecommunications, Inc.: local competition in Kentucky and BellSouth's performance measurements plan to support its application for interLATA authority. Rebuttal testimony filed July 30, 2001. Surrebuttal testimony filed September 10, 2001.

16. Louisiana

103. Louisiana Public Service Commission (Docket No. U-17949, Subdocket E) on behalf of South Central Bell Telephone Company, rebuttal testimony concerning productivity growth accounting and other aspects of a price regulation plan, July 24, 1995.
104. Louisiana Public Service Commission (Docket No. U-17949, Subdocket E) on behalf of South Central Bell Telephone Company, supplemental and rebuttal testimony concerning economic issues in depreciation accounting in the presence of competition and price cap regulation, November 17, 1995. Surrebuttal testimony, December 13, 1995, Further Surrebuttal testimony, January 12, 1996.
105. Louisiana Public Service Commission (Docket No. U-20883) on behalf of South Central Bell Telephone Company, "Price Regulation and Local Competition in Louisiana," affidavit evaluating a framework for local competition and price regulation in Louisiana, November 21, 1995.
106. Louisiana Public Service Commission (Docket No. U-20883, Subdocket A) on behalf of South Central Bell Telephone Company, rebuttal testimony concerning methods for measuring the cost of providing universal service, August 16, 1995.

107. Louisiana Public Service Commission (Docket No. U-U-22020) on behalf of South Central Bell Telephone Company, testimony concerning economic principles determining wholesale prices for resold services. Filed August 30 1996. Rebuttal testimony filed September 13, 1996.
108. Louisiana Public Service Commission, on behalf of BellSouth Long Distance, Inc. (Docket No. U-22252), direct testimony regarding the probable economic benefits to consumers in Louisiana from entry by BellSouth into the interLATA long distance market. Filed March 14, 1997. Rebuttal testimony filed May 2, 1997. Supplemental testimony filed May 27, 1997.
109. Louisiana Public Service Commission (Docket No. U-24206), on behalf of BellSouth Telecommunications, direct testimony regarding intercarrier compensation for Internet-bound traffic. Filed September 3, 1999, rebuttal filed September 17, 1999.
110. Louisiana Public Service Commission (Docket No. U-22632) on behalf of BellSouth Telecommunications, rebuttal testimony concerning payphone access services, July 17, 2000.
111. Louisiana Public Service Commission (Docket No. U-22252, Subdocket E), on behalf of BellSouth Telecommunications, economic properties of service quality penalty plans. Reply affidavit filed June 25, 2001.
112. United States District Court, Eastern District of Louisiana, Civil Action No. 02-0481: *Dwayne P. Smith, Trustee v. Lucent Technologies, Inc.*, on behalf of Lucent Technologies, Inc., damage calculation from alleged equipment failure. Expert Report filed June 16, 2003.

17. Maine

113. State of Maine Public Utilities Commission (Docket No. 89-397) on behalf of New England Telephone & Telegraph Company: theoretical and historical analysis of incentive regulation in telecommunications, entitled "Incentive Regulation in Telecommunications," filed June 15, 1990.
114. State of Maine Public Utilities Commission (Docket Nos. 94-123/94-254) on behalf of New England Telephone & Telegraph Company: analysis of appropriate parameters for a price regulation plan. Filed December 13, 1994. Rebuttal testimony filed January 13, 1995.
115. Maine Public Utilities Commission (Docket No. 96-388) on behalf of NYNEX, testimony regarding the economic effects of the proposed merger between Bell Atlantic and NYNEX, Direct Testimony filed September 6, 1996. Rebuttal Testimony filed October 30, 1996.
116. Maine Public Utilities Commission (Docket No. 97-505) on behalf of NYNEX: direct testimony regarding economic principles for setting prices and estimating costs for interconnection. Filed April 21, 1997. Rebuttal testimony filed October 21, 1997.
117. Maine Public Utilities Commission on behalf of NYNEX: affidavit regarding competitive effects of NYNEX entry into interLATA markets. Filed May 27, 1997 (with Kenneth Gordon, Richard Schmalensee and Harold Ware).
118. Maine Public Utilities Commission (Docket No. 99-851) on behalf of Verizon: direct testimony regarding the review of Maine's alternative regulation plan. Filed January 8, 2001. Rebuttal filed February 12, 2001.
119. Maine Public Utilities Commission (Docket No. 99-851), on behalf of Verizon- Maine, affidavit regarding economics of price cap regulation. Filed April 29, 2003.

18. Maryland

120. Maryland Public Service Commission (Case No. 8462) on behalf of The Chesapeake and Potomac Telephone Company of Maryland: competition and the appropriate regulatory treatment of Yellow Pages. Filed October 2, 1992.
121. Maryland Public Service Commission (Case No. 8584) on behalf of The Chesapeake and Potomac Telephone Company of Maryland: appropriate pricing and regulatory treatment of interconnection to permit competition for local service. Filed November 19, 1993, (with A.E. Kahn). Rebuttal testimony filed January 10, 1994, surrebuttal testimony filed January 24, 1994.
122. Maryland Public Service Commission (Case No. 8584, Phase II) on behalf of Bell Atlantic - Maryland: geographically deaveraged incremental and embedded costs of service. Filed December 15, 1994. Additional direct testimony concerning efficient rate structures for interconnection pricing filed May 5, 1995. Rebuttal testimony filed June 30, 1995.
123. Maryland Public Service Commission (Case No. 8659) on behalf of Bell Atlantic - Maryland: appropriate pricing of interconnection among competing local exchange carriers. Filed November 9, 1994.
124. *FreBon International Corp. vs. BA Corp. Civil Action*, No. 94-324 (GK): Defendants' Amended Expert Disclosure Statement, regarding markets for teleconferencing services. Filed under seal February 15, 1996.
125. Maryland Public Service Commission (Case No. 8715), on behalf of Bell Atlantic - Maryland: rebuttal testimony on the economic criteria for the reclassification of telecommunications services. Filed March 14, 1996, surrebuttal testimony filed April 1, 1996.
126. Maryland Public Service Commission, on behalf of Bell Atlantic-Maryland, (Case No. 8731-II), statement regarding costing and pricing of interconnection and unbundled network elements. Filed January 10, 1997. Rebuttal testimony filed April 4, 1997.
127. Maryland Public Service Commission, on behalf of Bell Atlantic - Maryland: statement regarding consumer benefits from Bell Atlantic's provision of interLATA service, filed March 14, 1997.
128. Maryland Public Service Commission (Case No. 8786), on behalf of Bell Atlantic - Maryland: rebuttal testimony regarding economic principles underlying costs and prices for non-recurring services and access to operations support systems. Filed November 16, 1998.
129. Maryland Public Service Commission (Case No. 8745), direct testimony on behalf of Verizon Maryland Inc. regarding efficient pricing of carrier access charges. Filed March 23, 2001. Rebuttal filed May 21, 2001. Surrebuttal filed June 11, 2001.
130. Before the Public Service Commission of Maryland (Case No. 8879), direct testimony on behalf of Verizon Maryland Inc. regarding costing principles for network elements. Filed May 25, 2001. Rebuttal testimony filed September 5, 2001. Surrebuttal filed October 15, 2001.
131. Circuit Court For Prince George's County, Maryland. Case No: CAL 99-21004, Jacqueline Dotson, et al. v. Bell Atlantic - Maryland, Inc. and Maryland Public Service Commission, affidavit on behalf of Bell Atlantic Maryland regarding late payment fees. Filed October 14, 2002.

132. Maryland Public Service Commission (Case No. 8927), on behalf of Verizon Maryland, rebuttal testimony regarding complaint by CloseCall America alleging anti-competitive tying of Verizon's residential and small business local service with voice messaging and high-speed Internet access, filed September 24, 2002. Supplemental rebuttal testimony filed March 3, 2003. Surrebuttal testimony filed April 11, 2003.
133. Maryland Public Service Commission (Case No. 8988) on behalf of Verizon Maryland, forecasts of the demand for incremental hot cuts, January 9, 2004.

19. Massachusetts

134. Massachusetts Department of Public Utilities (Docket No. D.P.U. 94-50), on behalf of NYNEX: analysis of appropriate parameters for a price regulation plan. Filed April 14, 1994. Rebuttal testimony filed October 26, 1994.
135. Massachusetts Department of Public Utilities (Docket No. D.P.U. 94-185) on behalf of NYNEX: economic analysis of terms and conditions for efficient local competition. Filed May 19, 1995. Rebuttal testimony filed August 23, 1995.
136. Affidavit to the Superior Court Department of the Trial Court (Civil Action No. 95-6363F), on behalf of New England Telephone and Telegraph Company, d/b/a NYNEX: in opposition to Plaintiffs' Motion for Class Certification. Filed July 1996.
137. Massachusetts Department of Public Utilities (Docket Nos. D.P.U. 96-73/74, 96-75, 96-80/81, 96-83, 96-94) on behalf of NYNEX: economic analysis of costs avoided from resale of local exchange services. Testimony filed September 27, 1996. Rebuttal Testimony filed October 16, 1996.
138. Massachusetts Department of Public Utilities (Docket Nos. D.P.U. 96-73/74, 96-75, 96-80/81, 96-83, 96-94) on behalf of NYNEX: Arbitration of interconnection agreements under the Telecommunications Act of 1996. Filed October 11, 1996. Rebuttal Testimony filed October 30, 1996.
139. Massachusetts Department of Public Utilities (Docket No. DTE 98-15), on behalf of Bell Atlantic – MA: direct testimony regarding the method used to determine wholesale (avoided cost) discount that applies to resold retail services. Filed January 16, 1998.
140. Massachusetts Department of Public Utilities (Docket No. D.P.U./D.T.E. 94-185-C) on behalf of Bell Atlantic: economic analysis of the usefulness of a regulatory price floor for wholesale services. Affidavit filed February 6, 1998. Reply Affidavit filed February 19, 1998.
141. Massachusetts Department of Telecommunications and Energy (D.P.U. 96-3/74, 96-75, 96-80/81, 96-83, & 96-94), on behalf of Bell Atlantic – Massachusetts: rebuttal testimony discussing the types of costs for OSSs, filed April 29, 1998.
142. Massachusetts Department of Telecommunications and Energy (Docket No. 85-15, Phase III, Part 1), on behalf of Bell Atlantic – Massachusetts: rebuttal testimony discussing appropriate forward-looking technology for costing network elements, filed August 31, 1998.
143. Massachusetts Department of Telecommunications and Energy (Docket No. 98-15, Phase II), on behalf of Bell Atlantic – Massachusetts: rebuttal testimony concerning the avoided costs of resold services, filed September 8, 1998.

144. Massachusetts Department of Telecommunications and Energy (Docket No. 98-67), on behalf of Bell Atlantic-Massachusetts: direct testimony regarding regulatory rules/economic principles pertaining to exogenous adjustment factors in Bell Atlantic's price cap formula, filed September 25, 1998.
145. Massachusetts Department of Telecommunications and Energy (Docket No. 98-85), on behalf of Bell Atlantic-Massachusetts: direct testimony regarding efficiency changes from intraLATA presubscription, filed October 20, 1998.
146. Massachusetts Department of Telecommunications and Energy (Docket No. D.T.E. 97-116-B), on behalf of Bell Atlantic-Massachusetts, affidavit regarding consequences for economic efficiency of different intercarrier compensation rules for ISP-bound traffic. Filed March 29, 1999.
147. Massachusetts Department of Telecommunications & Energy (Docket No. 94-185-E), on behalf of Bell Atlantic, rebuttal testimony re: inclusion of overhead costs in the calculation of price floors for BA-MA services. Filed July 26, 1999.
148. Massachusetts Department of Telecommunications and Energy (Docket DTE -1-20), on behalf of Verizon New England Inc., D/B/A/ Verizon Massachusetts, direct testimony regarding cost concepts and pricing principals for UNEs, filed May 4, 2001. Rebuttal testimony filed December 17, 2001.
149. Massachusetts Department of Telecommunications and Energy, testimony on behalf of Verizon New England Inc. d/b/a/ Verizon Massachusetts, regarding benefits of alternative regulation in Massachusetts since adoption of price cap plan.. Filed April 12, 2001. Rebuttal testimony filed September 21, 2001. Reply filed November 14, 2001.
150. Massachusetts Department of Telecommunications and energy (Docket No. 03-60) on behalf of Verizon Massachusetts, forecast of incremental hot cut demand, filed November 12, 2003.
151. Massachusetts Department of Telecommunications and Energy (Docket No. 03-60) on behalf of Verizon Massachusetts, Reply Panel Testimony regarding geographic market definition. Filed February 25, 2004, Rebuttal Panel Testimony regarding hot cuts. Filed February 25, 2004.

20. Michigan

152. Testimony before the Michigan Circuit Court (Case No. 87-709234-CE and 87-709232-CE) on behalf of Combustion Engineering, Inc., in *Her Majesty the Queen, et al., v. Greater Detroit Resource Recovery Authority, et al.*, re statistical analysis of air pollution data to determine emissions limits for the Detroit municipal waste-to-energy facility, February, 1992.
153. Michigan Public Service Commission (Case No. U-11756), on behalf of Ameritech Michigan: direct testimony regarding efficient prices for services supplied to independent phone payers, filed October 9, 1998.
154. Michigan Public Service Commission (Case No. U-13796), on behalf of SBC Michigan: direct testimony regarding geographic markets for local exchange services, filed December 19, 2003. Reply testimony filed February 10, 2004. Response testimony filed March 5, 2004.
155. Michigan Public Service Commission (Case No. U-14323), on behalf of SBC Michigan: direct testimony regarding deregulation of business local exchange services, filed October 26, 2004.

156. Michigan Public Service Commission (Case No. U-14324), on behalf of SBC Michigan: direct testimony regarding deregulation of residential local exchange services, filed October 26, 2004.

21. Minnesota

157. Minnesota Public Utilities Commission (Docket No. P3009, 3052, 5096, 421, 3017/PA-99-1192), on behalf of US WEST Communications, Inc., rebuttal affidavit regarding the effects of the proposed Qwest-US West merger on economic welfare. Filed January 14, 2000.
158. Minnesota Public Utilities Commission (Docket No. P3009, 3052, 5096, 421, 3017/PA-99-1192), direct testimony regarding the effects of the proposed Qwest-US West merger on economic welfare. Filed March 29, 2000.
159. Minnesota Public Utilities Commission (PUC Docket No. P-421/C1-01-1372, OAH Docket No. 7-2500-14487-2) on behalf of Qwest Corporation, economic aspects of separate affiliate requirements, affidavit filed December 28, 2001, Surrebuttal Affidavit filed January 16, 2002.

22. Mississippi

160. Mississippi Public Service Commission (Docket No. 95-UA-313) on behalf of BellSouth Telecommunications, Inc. d/b/a South Central Bell Telephone Company, rebuttal testimony addressing cost issues, as they pertain to price regulation raised in the direct testimony by interveners. Filed October 13, 1995.
161. Mississippi Public Service Commission (Docket No. 95-UA-358) on behalf of BellSouth Telecommunications, Inc. d/b/a South Central Bell Telephone Company, testimony regarding universal service fund issues. Filed January 17, 1996. Rebuttal testimony filed February 28, 1996.
162. Mississippi Public Service Commission (Docket No. 97-AD-0321), on behalf of BellSouth Long Distance, Inc., direct testimony regarding the likely economic benefits to consumers in Mississippi from entry by BellSouth into the interLATA long distance market. Filed July 1, 1997. Rebuttal testimony filed September 29, 1997.
163. Mississippi Public Service Commission (Docket No. 97-AD-544), on behalf of BellSouth Telecommunications: rebuttal testimony regarding economic issues of costing and pricing unbundled network elements. Filed March 13, 1998.
164. Mississippi Public Service Commission (Docket No. 98-AD-035), on behalf of BellSouth Telecommunications: direct testimony regarding universal service funding and price benchmark issues. Filed February 23, 1998, rebuttal testimony filed March 6, 1998.
165. Mississippi Public Service Commission (Docket No. 99-AD-421), on behalf of BellSouth Telecommunications, direct testimony regarding intercarrier compensation for Internet-bound traffic, filed October 20, 1999. Rebuttal testimony filed November 12, 1999.
166. Mississippi Public Service Commission (Docket No. 97-AD-321), on behalf of BellSouth Telecommunications, Inc.: local competition in Mississippi and BellSouth's performance measurements plan to support its application for interLATA authority. Rebuttal testimony filed August 2, 2001.

23. Montana

167. Montana Public Service Commission (Docket No. 90.8.46) on behalf of US West Communications: theoretical and historical analysis of incentive regulation plans in telecommunications. Filed October 4, 1990.
168. Montana Public Service Commission (Docket No. 90.12.86) on behalf of US West Communications: economic analysis of a proposed incentive regulation plan. Filed November 4, 1991. Additional testimony filed January 15, 1992.
169. Montana Public Service Commission (Docket No. D99.8.200), on behalf of US West Communications, Inc., rebuttal testimony regarding the effects of the proposed Qwest-US West merger on economic welfare. Filed February 22, 2000.
170. Montana Department of Public Service Regulation (Docket No. D2000.6.89), on behalf of US West Communications, Inc., direct testimony regarding efficient intercarrier compensation for Internet-bound traffic. Filed July 24, 2000. Rebuttal testimony filed February 7, 2001.
171. Montana Department of Public Service Regulation (Docket No. D2000.8.124), on behalf of Qwest Corporation., direct testimony in arbitration with TouchAmerica regarding efficient intercarrier compensation for Internet-bound traffic. Filed October 20, 2000. Rebuttal testimony filed December 20, 2000.
172. Montana Public Service Commission (Docket No. D2002.12.153) on behalf of Qwest Long Distance Corp.: rebuttal testimony regarding alleged anticompetitive practices in long distance services. Filed July 18, 2003.

24. Nebraska

173. Nebraska Public Service Commission, on behalf of US WEST, (Application No. C-1628), economic analysis of local exchange and exchange access pricing, direct testimony filed October 20, 1998; reply testimony filed November 20, 1998.
174. Nebraska Public Service Commission, *In the Matter of the Petition of Sprint Communications Company L.P. for Arbitration of Interconnection Rates, Terms, Conditions, and Related Arrangements with U S WEST Communications, Inc. N/K/A Qwest Corporation*, (Docket No. C-2328), Direct testimony regarding intercarrier compensation for Internet-bound traffic filed September 25, 2000. Rebuttal testimony filed October 4, 2000.

25. Nevada

175. United States District Court, District of Nevada (Case No. CV-S-99-1796-KJD(RJJ) on behalf of Broadwing Communications Services, Inc., affidavit regarding damages from alleged misuse of trade secret information. Filed December 28, 2000.

26. New Hampshire

176. New Hampshire Public Service Commission (Docket 89-010) on behalf of New England Telephone & Telegraph Company: appropriate level and structure of productivity adjustments in a proposed price regulation plan. Filed March 3, 1989.

177. New Hampshire Public Service Commission, (Docket DE 90-002), on behalf of New England Telephone & Telegraph Company: the appropriate relationship between carrier access and toll prices. Filed May 1, 1992. Reply testimony filed July 10, 1992. Rebuttal testimony filed August 21, 1992.
 178. Science, Technology and Energy Committee of the New Hampshire House of Representatives on behalf of New England Telephone Company, "An Economic Perspective on New Hampshire Senate Bill 77," an analysis of resale of intraLATA toll services. April 6, 1993
 179. New Hampshire Public Service Commission, (Docket DE 96-252) on behalf of NYNEX: economic analysis of costs avoided from resale of local exchange services. Filed October 1, 1996.
 180. New Hampshire Public Service Commission (Docket DE 96-220) on behalf of NYNEX, testimony regarding the economic effects of the proposed merger between Bell Atlantic and NYNEX. Filed October 10, 1996.
 181. New Hampshire Public Service Commission, (Docket DE 96-252) on behalf of NYNEX: Arbitration of interconnection agreements under the Telecommunications Act of 1996. Filed October 23, 1996.
 182. New Hampshire Public Service Commission (Docket No. 97-171, Phase II), on behalf of Bell Atlantic – New Hampshire: direct testimony discussing the basic economic principles regarding costs and prices of interconnection and unbundled network elements, filed March 13, 1998. Rebuttal filed April 17, 1998.
 183. New Hampshire Public Utilities Commission (Docket No. 99-018), on behalf of Bell Atlantic, direct testimony regarding the use of Total Element Long Run Incremental Cost (TELRIC) methodology as the basis for prices in special contracts. Filed April 7, 1999. Rebuttal testimony filed April 23, 1999.
 184. New Hampshire Public Utilities Commission (Docket No. DT 02-111) on behalf of Verizon – New Hampshire, rebuttal testimony regarding private line pricing. Filed May 2, 2003.
 185. New Hampshire Public Utilities Commission (Docket No. DT 02-165) on behalf of Verizon – New Hampshire, rebuttal testimony regarding Yellow Pages revenue imputation. Filed June 4, 2003. Surrebuttal filed November 10, 2003.
27. New Jersey
186. New Jersey Board of Public Utilities (Docket No. TX90050349) on behalf of New Jersey Bell Telephone Company: theoretical and empirical analysis of the Board's intraLATA compensation policy. Filed December 6, 1990.
 187. New Jersey Board of Regulatory Commissioners, (Docket No. TX93060259), Affidavit analyzing statistical evidence regarding the effect of intraLATA competition on telephone prices. Filed October 1, 1993.
 188. New Jersey Board of Public Utilities (Docket Nos. TX90050349, TE92111047, TE93060211) on behalf of Bell Atlantic-New Jersey: economic impacts of intraLATA toll competition and regulatory changes required to accommodate competition. Filed April 7, 1994. Rebuttal testimony filed April 25, 1994. Summary Affidavit and Technical Affidavit filed April 19, 1994.

189. New Jersey Board of Public Utilities (Docket No. TX94090388) on behalf of Bell Atlantic - New Jersey: economic analysis of issues regarding proposed presubscription for intraLATA toll traffic in New Jersey. Amended direct testimony filed April 17, 1995. Rebuttal Testimony filed May 31, 1995.
190. New Jersey Board of Public Utilities on behalf of Bell Atlantic - New Jersey: "Economic Competition in Local Exchange Markets," position paper on the economics of local exchange competition filed in connection with arbitration proceedings, August 9, 1996 (with Kenneth Gordon and Alfred E. Kahn).
191. New Jersey Board of Public Utilities (Docket No. TX95120631) on behalf of Bell Atlantic - New Jersey, incremental costs of residential basic exchange service. Filed August 15, 1996. Rebuttal testimony filed August 30, 1996.
192. New Jersey Board of Public Utilities (Docket No. TO96070519) on behalf of Bell Atlantic - New Jersey: evaluation of proxy models of the incremental cost of unbundled network elements, testimony filed September 18, 1996.
193. New Jersey Board of Public Utilities (Docket No. TX95120631) on behalf of Bell Atlantic - New Jersey: economic analysis of the avoided costs from resale of local exchange services. Rebuttal testimony filed September 27, 1996.
194. New Jersey Board of Public Utilities (Docket No. T096080621: MCI/Bell Atlantic Arbitration) on behalf of Bell Atlantic-New Jersey. Rebuttal testimony concerning the pricing of unbundled network elements, November 7, 1996.
195. New Jersey Board of Public Utilities on behalf of Bell Atlantic - New Jersey (Docket No. T097030166) economic analysis of costs and benefits from Bell Atlantic provision of interLATA services, statement filed March 3, 1997, reply affidavit filed May 15, 1997.
196. New Jersey Board of Public Utilities (Docket No. TX95120631) on behalf of Bell Atlantic - New Jersey: economic analysis of proposed universal service funds. Direct testimony filed September 24, 1997. Rebuttal testimony filed October 18, 1997.
197. New Jersey Board of Public Utilities (BPU Docket No. TO97100808, OAL Docket No. PUCOT 11326-97N) on behalf of Bell Atlantic - New Jersey: economic analysis of imputation rules for long distance services. Direct testimony filed July 8, 1998, rebuttal testimony filed September 18, 1998.
198. The New Jersey Board of Public Utilities (OAL DOCKET Nos. PUCOT 11269-97N, PUCOT 11357-97N, PUCOT 01186-94N AND PUCOT 09917-98N) on behalf of Bell Atlantic - New Jersey: economic issues regarding alleged subsidization of payphone services. Rebuttal testimony filed March 8, 1999; surrebuttal testimony filed June 21, 1999.
199. New Jersey Board of Public Utilities (Docket No. TO 00031063), on behalf of Bell Atlantic-New Jersey, direct testimony regarding the measurement of economic costs of ISP-bound traffic and economic issues concerning intercarrier compensation for such traffic. Filed April 28, 2000. Rebuttal testimony filed May 5, 2000.
200. New Jersey Board of Public Utilities (Docket No. TO 99120934), on behalf of Bell Atlantic-New Jersey, direct testimony regarding reclassification of services as competitive. Filed May 18, 2000.

201. New Jersey Board of Public Utilities (Docket No. TO00060356), on behalf of Bell Atlantic-New Jersey, affidavit regarding the measurement of economic costs for unbundled network elements. Filed July 28, 2000.
 202. The New Jersey Board of Public Utilities (Docket No. TO01020095), on behalf of Verizon-New Jersey, panel testimony regarding parameters in an incentive regulation plan. Filed February 15, 2001. Rebuttal filed June 15, 2001. Supplemental rebuttal filed September 25, 2001.
 203. The New Jersey Board of Public Utilities (Docket No. TO01020095), on behalf of Verizon-New Jersey, panel testimony regarding measurement of cross-subsidies. Filed February 15, 2001. Rebuttal filed June 15, 2001.
 204. The New Jersey Board of Public Utilities (Docket No. TO01020095), on behalf of Verizon-New Jersey, panel testimony regarding reclassification of business services as competitive. Filed February 15, 2001. Rebuttal filed June 15, 2001.
 205. New Jersey Board of Public Utilities (Docket No. TT97120889), on behalf of Verizon – New Jersey, updated rebuttal testimony (with Michael Falkiewicz) regarding reclassification of directory assistance services as competitive, filed February 13, 2003.
 206. New Jersey Public Utilities Commission on behalf of Verizon New Jersey, Direct Testimony regarding forecasts of incremental hot cut demand, filed December 10, 2003.
 207. New Jersey Board of Public Utilities (Docket No. T003090705), on behalf of Verizon New Jersey. Rebuttal testimony regarding geographic market definition in applying the FCC's switching triggers. Filed February 26, 2004.
 208. New Jersey Board of Public Utilities on behalf of Verizon New Jersey, Rebuttal Panel Testimony regarding forecasts of incremental hot cut demand, filed February 27, 2004.
28. New Mexico
209. New Mexico Public Regulation Commission (Case No. 3131), On behalf of U S WEST Communications, direct testimony regarding intercarrier compensation for Internet-bound traffic, filed October 14, 1999. Rebuttal testimony filed October 18, 1999.
 210. New Mexico Public Regulation Commission (Utility Case No. 3147), on behalf of US West Communications, Inc., direct testimony regarding efficient pricing and policies towards investment and new service implementation, filed December 6, 1999, rebuttal testimony filed December 28, 1999.
 211. New Mexico Public Regulation Commission, on behalf of US West Communications, Inc., direct testimony regarding pricing flexible and alternatives to rate of return regulation, filed December 10, 1999.
 212. New Mexico Public Regulation Commission (Case No. 3008), On behalf of U S WEST Communications, rebuttal testimony regarding local exchange rate levels and structure, filed May 19, 2000.
 213. New Mexico Public Regulation Commission (Case No. 3225), on behalf of Qwest Corporation, direct testimony regarding the subsidy in existing telephone rates. Filed August 18, 2000.
 214. New Mexico Public Regulation Commission (Case No. 3300), on behalf of Valor Telecommunications of New Mexico, LLC, rebuttal testimony regarding the subsidy in existing telephone rates. Filed October 19, 2000.

29. New York

215. New York State Public Service Commission (Case 28961 - Fifth Stage) on behalf of New York Telephone Company: appropriate level and structure of productivity adjustments in a proposed price regulation plan. Filed September 15, 1989.
216. Testimony before the United States District Court, Eastern District of New York on behalf of Jancyn Manufacturing Corp., in *Jancyn Manufacturing Corp. v. The County of Suffolk*. Commercial damages. Depositions: September 19, 1991, November 22, 1993; Testimony and Cross-Examination: January 11, 1994.
217. New York Public Service Commission (Case No. 28425) on behalf of New York Telephone Company, "Costs and Benefits of IntraLATA Presubscription," (with T.J. Tardiff). Filed May 1, 1992.
218. New York State Public Service Commission (Case 92-C-0665, Proceeding on Motion of the Commission to Investigate Performance-Based Incentive Regulatory Plans for New York Telephone Company) on behalf of New York Telephone Company: appropriate level and structure of productivity adjustments and competitive pricing safeguards in a proposed incentive regulation plan. Filed as part of panel testimony, October 3, 1994.
219. New York Public Service Commission (Case 94-C-0017) on behalf of New York Telephone Company, testimony regarding competition and market power in intrastate toll markets. Filed August 1, 1995.
220. New York Public Service Commission (Case Nos. 95-C-0657, 94-C-0095, 91-C-1174) on behalf of New York Telephone Company, costing principles for resold services. Filed May 31, 1996. Costing and pricing principles for unbundled network elements. Filed June 4, 1996. Rebuttal testimony filed July 15, 1996.
221. New York Public Service Commission (Case Nos. 93-C-0451 and 91-C-1249) on behalf of New York Telephone Company, statistical issues in the calculation of damages in the provision of Mass Announcement Services: Rebuttal testimony filed July 23, 1996.
222. New York Public Service Commission (Case 96-C-0603) on behalf of NYNEX and Bell Atlantic, *Initial Panel Testimony*, regarding the economic effects of the proposed merger between Bell Atlantic and NYNEX. Filed November 25, 1996. *Reply Panel Testimony* filed December 12, 1996.
223. Affidavit to the U.S. District Court, Southern District of New York, on behalf of Multi Communication Media Inc., *Multi Communications Media Inc., v. AT&T and Trevor Fischbach*, (96 Civ. 2679 (MBM)) regarding the application of the filed tariff doctrine to contract tariffs in telecommunications. Filed December 27, 1996.
224. New York Public Service Commission on behalf of New York Telephone Company, "Competitive Effects of Allowing NYNEX To Provide InterLATA Services Originating In New York State," public interest analysis of NYNEX's proposed entry into in-region long distance service. Filed February 18, 1997 (with Harold Ware and Richard Schmalensee).
225. State of New York Public Service Commission (Case 94-C-0095 and 28425), on behalf of NYNEX, *Initial Panel Testimony*: direct testimony regarding InterLATA Access Charge Reform. Filed May 8, 1997. *Rebuttal Panel Testimony* filed July 8, 1997.

226. State of New York Public Service Commission (Cases 95-C-0657, 94-C-0095, 91-C-1174 and 96-C-0036), on behalf of Bell Atlantic, *Panel Testimony of Bell Atlantic – New York on Costs and Rates for Miscellaneous Phase 3 Services*: panel testimony regarding statistical sampling issues in cost studies for non-recurring charges. Filed March 18, 1998. Rebuttal filed June 3, 1998.
227. New York Public Service Commission, (Case 98-C-1357), on behalf of Bell Atlantic-New York, Panel Testimony on costs for wholesale services, Panel Testimony filed February 7, 2000. Panel Rebuttal Testimony filed October 19, 2000.
228. New York Public Service Commission, (Case 00-C-1945), on behalf of Verizon-New York, Panel Testimony on price regulation, filed May 15, 2001.
229. New York Public Service Commission, (Case 00-C-1945), on behalf of Verizon-New York, Panel Testimony on the New York competitive marketplace, filed May 15, 2001.
230. American Arbitration Association, New York, MCI WorldCom Communications Inc. v. Electronic Data Systems, Corporation, Expert Report on prices and incentives in a disputed contract filed June 25, 2001. Supplemental Expert Report filed July 13, 2001.
231. New York Public Service Commission (Case 01-C-0767), on behalf of Verizon-New York, panel testimony regarding incremental costs and pricing of mobile interconnection services. Filed October 31, 2001.
232. New York Public Service Commission, (Case 00-C-1945), economic issues in renewing the New York incentive regulation plan, (panel testimony), filed February 11, 2002.
233. American Arbitration Association, on behalf of Verizon – New York, direct testimony regarding events in telecommunications markets affecting employment. February 2003.
234. American Arbitration Association (Case No: 50-T-180-00458-02), *Global Crossing USA, Inc. v. Softbank Corp.*, on behalf of Softbank Corp., damage calculations regarding undersea optical fiber capacity. Direct and Supplemental direct testimonies filed July 2003.
235. New York Public Service Commission, (Case 02-C-1425), on behalf of Verizon New York, forecasts of incremental hot cut demand (panel testimony), filed October 24, 2003.

30. North Carolina

236. North Carolina Utilities Commission (Docket No. P-7, Sub 825; P-10, Sub 479) on behalf of Carolina Telephone and Telegraph Company and Central Telephone Company, direct and rebuttal testimony regarding price cap regulation for small telephone companies, February 9, 1996.
237. North Carolina Utilities Commission (Docket No. P-55, Sub1022) on behalf of BellSouth Long Distance, Inc.: direct testimony regarding the likely economic benefits to consumers in North Carolina from entry by BellSouth into the interLATA long distance market. Filed August 5, 1997. Rebuttal testimony filed September 15, 1997.
238. North Carolina Utilities Commission (Docket No. P-100, SUB 133d), on behalf of BellSouth Telecommunications: direct testimony on the proper economic basis for determining costs and prices of interconnection, unbundled network elements, and operating support systems. Filed December 15, 1997. Rebuttal filed March 9, 1998.

239. North Carolina Utilities Commission (Docket No. P-100, SUB 133g), on behalf of BellSouth Telecommunications: direct testimony on appropriate economic principles for sizing the state universal service fund. Filed February 16, 1998. Rebuttal filed April 13, 1998.
240. North Carolina Utilities Commission, *In re: Petition for Arbitration of ITC^DELTA COM Communications, Inc., with BellSouth Telecommunications, Inc., Pursuant to the Telecommunications Act of 1996*, (Docket No. P-500, Sub 10), testimony regarding economic interconnection issues, filed July 9, 1999.
241. North Carolina Utilities Commission, *In the Matter of Bell South Telecommunications, Inc., Complainant vs. US LEC of North Carolina, Respondent*, (Docket No. P-561, Sub 10), rebuttal testimony regarding economic efficiency and reciprocal compensation. Filed July 30, 1999.
242. North Carolina Utilities Commission (Docket No. P-100, SUB 133k), on behalf of BellSouth Telecommunications: rebuttal testimony regarding properties of a service quality performance assurance plan. Filed May 21, 2001.
243. North Carolina Utilities Commission (Docket No. P-55, SUB 1022), on behalf of BellSouth Telecommunications: rebuttal testimony regarding status of local competition in North Carolina. Filed October 8, 2001.

31. North Dakota

244. North Dakota Public Service Commission, on behalf of US WEST Communications, rebuttal testimony in support of US WEST's filing for a residential basic local service rate increase, filed May 30, 2000.

32. Ohio

245. The Public Utilities Commission of Ohio (Case No. 94-1695-TP-ACE) on behalf of Cincinnati Bell Telephone Company: economic analysis of terms and conditions for efficient local competition. Filed May 24, 1995.
246. Ohio Public Utility Commission (Case No. 96-899-TP-ALT) on behalf of Cincinnati Bell Telephone Company: direct testimony regarding CBT's proposed rate rebalancing and price regulation plan. Filed February 19, 1997.
247. Ohio Public Utility Commission (Case No. 97-152-TP-ARB), on behalf of Cincinnati Bell Telephone Company: direct testimony regarding the application of MCI Telecommunications Corporation Petition for Arbitration Pursuant to Section 252 (b) of the Telecommunications Act of 1996. Filed April 2, 1997.
248. Ohio Public Utility Commission (Docket No. 98-1398-TP-AMT), on behalf of Bell Atlantic and GTE, rebuttal testimony concerning economic effects of the proposed merger of Bell Atlantic and GTE. Filed June 16, 1999, substitute rebuttal testimony filed October 12, 1999.

33. Oregon

249. Oregon Public Utility Commission (ARB 154) on behalf of US WEST Communications, direct testimony regarding intercarrier compensation for ISP-bound traffic, November 1, 1999, rebuttal testimony filed November 5, 1999.

34. Pennsylvania

250. Pennsylvania Public Utility Commission, (Docket No. P-009350715), on behalf of Bell Atlantic: a study of inflation offsets in a proposed price regulation plan. Filed October 1, 1993. Rebuttal testimony filed January 18, 1994.
251. Pennsylvania Public Utility Commission, (Docket No. I-940034) on behalf of Bell Atlantic: issues regarding proposed presubscription for intraLATA toll traffic. Filed as part of panel testimony, December 8, 1994. Reply testimony filed February 23, 1995. Surrebuttal testimony filed March 16, 1995.
252. *US WATS v. AT&T*: Retained by counsel for US WATS, a reseller of AT&T long distance services, plaintiff in an antitrust suit alleging monopolization and conspiracy in business long distance markets. Antitrust liability and damages. Confidential Report, August 22, 1995. Depositions September 30, October 1, October 12, December 3, 1995. Testimony October 18-20, 25-27, 30, 1995. Rebuttal testimony December 4, December 11, 1995.
253. Pennsylvania Public Utility Commission (Docket Nos. A-310203F0002, A-310213F0002, A-310236F0002 and A-310258F0002), on behalf of Bell Atlantic - Pennsylvania: rebuttal testimony to evaluate costing and pricing principles and cost models. Filed March 21, 1996.
254. Pennsylvania Public Utility Commission (Docket No. P-00961024), on behalf of Commonwealth Telephone Company: economic appraisal of a price cap regulation proposal, Direct testimony filed April 15, 1996. Rebuttal testimony filed July 19, 1996.
255. Pennsylvania Public Utility Commission (Docket No. R-00963550), on behalf of Bell Atlantic - Pennsylvania: economic consequences of rate rebalancing, Direct testimony filed April 26, 1996. Rebuttal testimony filed July 5, 1996.
256. Pennsylvania Public Utility Commission (Docket No. R-963550 C0006), on behalf of Bell Atlantic - Pennsylvania: economic consequences of rate rebalancing, Direct testimony filed August 30, 1996.
257. Pennsylvania Public Utility Commission (Docket No. A-310258F0002 - Interconnection Arbitration, Eastern Telelogic Corporation/Bell Atlantic) on behalf of Bell Atlantic-Pennsylvania, direct and rebuttal testimony on economic costs of interconnection and unbundled network elements, September 23, 1996.
258. Pennsylvania Public Utility Commission, on behalf of Bell Atlantic-Pennsylvania, statement regarding costs and benefits from Bell Atlantic entry into interLATA telecommunications markets. Filed February 10, 1997. Rebuttal testimony filed March 21, 1997.
259. Pennsylvania Public Utility Commission (Docket No. I-00960066), on behalf of Bell Atlantic: direct testimony providing an economic framework for the intrastate carrier switched access rates charged by Bell Atlantic. Filed June 30, 1997. Rebuttal testimony filed July 29, 1997. Surrebuttal testimony filed August 27, 1997.
260. Pennsylvania Public Utility Commission (Docket No. I-00940035), on behalf of Bell Atlantic: direct testimony regarding the relationship between access charge reform and universal service funding. Filed October 22, 1997.

261. Pennsylvania Public Utility Commission (Docket No. P-00971307), on behalf of Bell Atlantic: direct testimony concerning the classification of Bell Atlantic's business services in Pennsylvania as competitive and the calculation of an imputation price floor for those services. Filed February 11, 1998. Rebuttal filed February 18, 1998.
262. Pennsylvania Public Utility Commission (Docket No. P-00981410), on behalf of The United Telephone Company of Pennsylvania: direct testimony regarding role of productivity offset in a price cap plan, filed October 16, 1998. Rebuttal testimony filed February 4, 1999.
263. Pennsylvania Public Utility Commission, on behalf of Bell Atlantic-Pennsylvania: A report entitled "Promises Fulfilled; Bell Atlantic-Pennsylvania's Infrastructure Development." Filed January 15, 1999 (with Charles J. Zarkadas, Agustin J. Ros, and Jaime C. d'Almeida).
264. Pennsylvania Public Utility Commission (Docket Nos. A-310200F0002, A-311350F0002, A-310222F0002, A-310291F0003), on behalf of Bell Atlantic Corporation and GTE Corporation, rebuttal testimony regarding economic issues raised in the proposed merger of Bell Atlantic and GTE. Filed April 22, 1999.
265. Pennsylvania Public Utility Commission (Docket No. A-310630F0002), on behalf of Bell Atlantic, direct testimony regarding the measurement of economic costs of ISP-bound traffic and economic issues concerning intercarrier compensation for such traffic. Filed April 14, 2000. Rebuttal testimony filed April 21, 2000.
266. Pennsylvania Public Utility Commission, (Docket No. M-00001435) on behalf of Verizon-Pennsylvania, Inc.: affidavit regarding the public interest benefits of Verizon entry into interLATA services. Filed January 8, 2001.
267. Pennsylvania Public Utility Commission (Docket No. P-00981449), on behalf of Verizon North, testimony regarding parameters in a Chapter 30 price cap plan. Filed October 31, 2000. Rebuttal testimony filed February 20, 2001.
268. Pennsylvania Public Utility Commission, (Docket No. P-00032020), on behalf of Commonwealth Telephone Company. Affidavit regarding exogenous events in price cap plans. Filed February 3, 2003.
269. Pennsylvania Public Utility Commission, (Docket No. P-00930715F0002), on behalf of Verizon - Pennsylvania. Rebuttal testimony regarding broadband development and productivity growth in the context of a price cap plan. Filed February 4, 2003.
270. Pennsylvania Public Utility Commission on behalf of Verizon-PA Inc. and Verizon North Inc., surrebuttal testimony (proprietary) to support Verizon-PA rate rebalancing plan. Filed August 4, 2003.
271. Pennsylvania Public Utility Commission (Docket No. P-00951005) on behalf of the Frontier Companies, testimony regarding a price regulation plan. November 7, 2003.
272. Pennsylvania Public Utility Commission (Docket No. I-00030099) on behalf of Verizon Pennsylvania, rebuttal testimony regarding geographic market definition for unbundled network elements. January 20, 2004.
273. Pennsylvania Public Utility Commission (Docket No. M-0031754) on behalf of Verizon Pennsylvania, declaration regarding forecasts of incremental hot cuts. Filed January 28, 2004.

35. Rhode Island

274. Rhode Island Public Utilities Commission (Docket No. 1997) on behalf of New England Telephone & Telegraph Company, "Rhode Island Price Regulation Plan," analysis of proposed price regulation plan and evidence of the effects of incentive regulation on prices and infrastructure development. Filed September 30, 1991.
275. Rhode Island Public Utilities Commission on behalf of NYNEX (Docket No. 2252), testimony addressing the economic conditions under which competition in the local exchange and intraLATA markets will bring benefits to customers. Direct testimony, November 17, 1995.
276. Rhode Island Public Utilities Commission (Docket No. 2370), on behalf of New England Telephone and Telegraph Company, D/B/A NYNEX: economic review and revision of the Rhode Island price cap plan. Direct testimony, February 23, 1996. Rebuttal testimony filed June 25, 1996.
277. Rhode Island Public Utilities Commission, on behalf of Bell Atlantic – Rhode Island: direct testimony discussing basic economic principles regarding costs and prices of interconnection and unbundled network elements. Filed November 25, 1997.
278. Rhode Island Public Utilities Commission (Docket No. 2681), on behalf of Bell Atlantic-Rhode Island: rebuttal testimony regarding costs for OSSs, filed September 18, 1998.
279. Rhode Island Public Utilities Commission (Docket No. 2681), on behalf of Bell Atlantic: rebuttal testimony regarding entry into the local services telecommunications market. Filed January 15, 1999.
280. Rhode Island Public Utilities Commission (Docket No. 2681), on behalf of Bell Atlantic Rhode Island, direct testimony regarding incremental costs and switched access rates. Filed October 22, 1999.
281. Rhode Island Public Utilities Commission (Docket No. 2681), on behalf of Verizon Rhode Island, direct testimony regarding incremental costs and switched access rates. Filed May 1, 2002.
282. Rhode Island Public Utilities Commission (Docket No. 3179), on behalf of Verizon Rhode Island, direct testimony regarding alternative regulation. Filed July 1, 2002. Rebuttal Testimony filed October 22, 2003.
283. Rhode Island Public Utilities Commission on behalf of Verizon Rhode Island, Direct Testimony regarding forecasts of incremental hot cut demand, filed December 8, 2003.

36. South Carolina

284. South Carolina Public Service Commission, on behalf of BellSouth Long Distance, Inc., (Docket No. 97-101-C) : direct testimony regarding the probable economic benefits to consumers in South Carolina from entry by BellSouth into the interLATA long distance market. Filed April 1, 1997. Rebuttal testimony filed June 30, 1997.
285. South Carolina Public Service Commission (Docket No. 97-374-C), on behalf of BellSouth Telecommunications, Inc.: rebuttal testimony concerning general economic principles for the pricing and costing of interconnection and unbundled network elements. Filed November 25, 1997.

286. South Carolina Public Service Commission (Docket No. 97-124-C), on behalf of BellSouth Telecommunications, Inc.: rebuttal testimony concerning economic principles for pricing interconnection services supplied to payphone providers. Filed December 7, 1998.
287. South Carolina Public Service Commission, *In re: Petition for Arbitration of ITC^DELTA COM Communications, Inc., with BellSouth Telecommunications, Inc., Pursuant to the Telecommunications Act of 1996*, (Docket No. 1999-259-C), on behalf of BellSouth Telecommunications, testimony regarding economic interconnection issues. Filed August 25, 1999.
288. South Carolina Public Service Commission (Docket No. 2001-209-C), on behalf of BellSouth Telecommunications, Inc.: economic aspects of BellSouth's application to provide long distance services in South Carolina. Rebuttal testimony filed July 16, 2001.
289. South Carolina Public Service Commission (Docket No. 2001-209-C), on behalf of BellSouth Telecommunications, Inc.. Direct testimony regarding statistical issues in performance penalty plans, filed March 5, 2003.
290. Public Service Commission of South Carolina, Docket Nos. 2002-367-C and 2002-408-C on behalf of BellSouth Telecommunications, Inc.. Economic interpretation of "abuse of market position" and "inflation-based index" in legislation. Direct testimony filed July 23, 2003, Responsive testimony filed July 30, 2003.

37. Tennessee

291. Tennessee Public Service Commission (*In re: The Promulgation of Agency Statements of General Applicability to Telephone Companies That Prescribe New Policies and Procedures for Their Regulation*) on behalf of South Central Bell Telephone Company: theoretical analysis and appraisal of the proposed Tennessee Regulatory Reform Plan. Filed February 20, 1991.
292. Tennessee Public Service Commission (Docket No. 95-02499) on behalf of BellSouth Telecommunications, Inc. d/b/a BellSouth Telephone Company, testimony addressing the definition and measurement of the cost of supplying universal service. (Direct testimony filed October 20, 1995. Rebuttal testimony filed October 25, 1995). Additional testimony regarding economic principles underlying the creation of a competitively-neutral universal service fund: direct testimony filed October 30, 1995. Rebuttal testimony filed November 3, 1995.
293. Tennessee Public Service Commission (*In re: The Avoidable Costs of Providing Bundled Services for Resale by Local Exchange Telephone Companies*) on behalf of BellSouth Telecommunications, Inc. (Docket No. 96-00067): economic costing and pricing principles for resold and unbundled services. May 24, 1996. Refiled with the Tennessee Regulatory Authority (Docket No. 96-00067), August 23, 1996.
294. Tennessee Regulatory Authority (*In re: The Avoidable Costs of Providing Bundled Services for Resale by Local Exchange Telephone Companies*) on behalf of BellSouth Telecommunications, Inc. (Docket No. 96-01331): economic costing and pricing principles for resold and unbundled services. Filed September 10, 1996. Rebuttal testimony filed September 20, 1996.

295. Tennessee Regulatory Authority (In re: Petition to Convene a Contested Case Proceeding to Establish "Permanent Prices" for Interconnection and Unbundled Network Elements) on behalf of BellSouth Telecommunications, Inc. (Docket No. 97-01262): rebuttal testimony regarding costing principles on which to base prices of unbundled network elements. Filed October 17, 1997.
 296. Tennessee Regulatory Authority (Docket No. 97-00888), on behalf of BellSouth Telecommunications, Inc.: direct testimony regarding appropriate economic principles for sizing the state universal service fund, Filed April 3, 1998. Rebuttal filed April 9, 1998.
 297. Tennessee Regulatory Authority (Docket No. 99-00377), on behalf of BellSouth Telecommunications, direct testimony regarding intercarrier compensation for Internet-bound traffic in Arbitration with ICG Telecom Group, filed October 15, 1999. Rebuttal testimony filed October 25, 1999.
 298. Tennessee Regulatory Authority (Docket No. 99-00430), on behalf of BellSouth Telecommunications, direct testimony regarding intercarrier compensation for Internet-bound traffic in Arbitration with ITC-DeltaCom, filed October 15, 1999. Rebuttal testimony filed October 25, 1999.
 299. Tennessee Regulatory Authority, (Docket No. 97-00409), on behalf of BellSouth Telecommunications, rebuttal testimony regarding efficient pricing for pay telephone services. Filed October 6, 2000.
 300. Tennessee Regulatory Authority, (Docket No. 01-00193), on behalf of BellSouth Telecommunications: rebuttal testimony regarding performance measurements and self-effectuating penalties. Filed August 10, 2001.
38. Texas
301. *Darren B. Swain, Inc. d/b/a U.S. Communications v. AT&T Corp.*, United States District Court for the Northern District of Texas, Dallas Division, Civil Action 394CV-1088D: Retained by counsel for U.S. Communications, a reseller of AT&T long distance services, plaintiff in an antitrust suit alleging monopolization in inbound business long distance markets. Antitrust liability and damages. Confidential Report, November 17, 1995.
 302. Public Utility Commission of Texas (Docket No. 8585) on behalf of Southwestern Bell Telephone Company: analysis of Texas intrastate switched access charges and bypass of switched access. Filed December 18, 1989.
 303. Texas Public Utility Commission (Docket No. 21982), on behalf of Southwestern Bell Telephone Company, direct testimony regarding CLEC's rate for transport and termination of ISP-bound traffic. Filed March 13, 2000. Rebuttal testimony filed March 31, 2000.
 304. Texas Public Utility Commission (Docket No. 28607), on behalf of SBC Texas. Direct testimony regarding geographic market definition for local telephone service. Filed February 9, 2004. Rebuttal testimony filed March 19, 2004.

39. Utah

305. Utah Public Service Commission (Docket No. 99-049-41), on behalf of US West Communications, Inc., rebuttal testimony regarding the effects of the proposed Qwest-US West merger on economic welfare. Filed February 28, 2000.
306. Utah Public Service Commission (Docket No. 00-999-05), on behalf of Qwest Corporation, direct testimony regarding intercarrier compensation for Internet-bound traffic. Filed February 2, 2001. Rebuttal testimony filed March 9, 2001.
307. Utah Public Service Commission on behalf of Qwest Corporation, direct testimony regarding productivity offsets in a price cap plan. Filed October 5, 2001. Rebuttal testimony filed November 22, 2001.

40. Vermont

308. Vermont Public Service Board, Petition for Price Regulation Plan of New England Telephone on behalf of New England Telephone Company, Dockets 5700/5702: analysis of appropriate parameters for a price regulation plan. Filed September 30, 1993. Rebuttal testimony filed July 5, 1994.
309. Vermont Public Service Board, (Open Network Architecture Docket No. 5713) on behalf of New England Telephone Company, economic principles for local competition, interconnection and unbundling, direct testimony filed June 7, 1995. Rebuttal testimony filed July 12, 1995.
310. Vermont Public Service Board (Docket No. 5713), on behalf of Bell Atlantic – Vermont, direct testimony regarding economic principles for setting prices and estimating costs for interconnection. Filed July 31, 1997. Rebuttal testimony filed January 9, 1998. Surrebuttal testimony filed February 26, 1998. Supplemental rebuttal testimony filed March 4, 1998.
311. Vermont Public Service Board (Docket No. 5900) on behalf of NYNEX, testimony regarding the economic effects of the proposed merger between Bell Atlantic and NYNEX. Filed September 6, 1996.
312. Vermont Public Service Board (Docket no. 6000), on behalf of Bell Atlantic: direct testimony examining the likely benefits from adopting a price regulation plan. Filed January 19, 1998.
313. Vermont Public Service Board (Docket No. 6077), on behalf of Bell Atlantic-Vermont: rebuttal testimony regarding application of imputation standard, filed November 4, 1998.
314. Vermont Public Service Board (Docket No. 6167), on behalf of Bell Atlantic, rebuttal testimony regarding reduction of access charges & pricing of new services. Filed May 20, 1999. Supplemental testimony filed May 27, 1999.

41. Virginia

315. Affidavit to the U.S. District Court for the Eastern District of Virginia (Alexandria Division) on behalf of United States Telephone Association, *United States Telephone Association, et al., v. Federal Communications Commission, et al.*, (Civil Action No. 95-533-A) regarding the Section 214 process for local exchange companies providing cable television services. Filed October 30, 1995, (with A.E. Kahn).

316. State Corporation Commission of Virginia (Case No. PUC 950067) on behalf of Bell Atlantic - Virginia, Inc., rebuttal testimony concerning economic standards for the classification of services as competitive for regulatory purposes, January 11, 1996.
317. State Corporation Commission of Virginia, on behalf of Bell Atlantic-Virginia, (Case No. PUC960), direct testimony regarding costing and pricing of interconnection and unbundled network elements. Filed December 20, 1996. Rebuttal testimony filed June 10, 1997 (Case No. PUC970005).
318. State Corporation Commission of Virginia *In re: Joint Petition of Bell Atlantic Corporation and GTE Corporation for approval of agreement and plan of merger*, economic effects of the proposed merger of Bell Atlantic and GTE. Filed May 28, 1999, rebuttal testimony filed October 8, 1999.
319. Virginia State Corporation Commission, (Case No. PUC000079) on behalf of Bell Atlantic-Virginia, direct testimony regarding intercarrier compensation for Internet-bound traffic in arbitration with Focal Communications Group. Filed April 25, 2000.
320. Virginia State Corporation Commission, (Case No. PUC 000003) on behalf of Bell Atlantic-Virginia, direct testimony regarding efficient pricing of carrier access charges. Filed May 30, 2000.
321. State Corporation Commission of Virginia (Case No. PUC-2003-00091) on behalf of Verizon - Virginia, Inc.. Affidavit concerning pricing of carrier access charges. Filed March 31, 2004.
322. State Corporation Commission of Virginia (Case No. PUC-2004-) on behalf of Verizon - Virginia, Inc.. Affidavit concerning alternative regulation of telecommunications services. Filed July 9, 2004. Reply Affidavit filed October 29, 2004.

42. Washington

323. Washington Public Utilities Commission (Docket No. UT-990300), on behalf of US WEST, regarding US WEST's interconnection arbitration with AirTouch Paging in Washington. Direct testimony filed February 24, 1999; rebuttal testimony filed March 8, 1999.
324. Washington Utilities and Transportation Commission (Docket No. UT-991358), on behalf of US West Communications, Inc., rebuttal testimony regarding the effects of the proposed Qwest-US West merger on economic welfare. Filed February 22, 2000.
325. Washington Utilities and Transportation Commission (Docket No. UT-003006), on behalf of US West Communications, Inc., direct testimony regarding intercarrier compensation for internet-bound traffic. Filed April 26, 2000. Rebuttal testimony filed May 10, 2000.
326. Washington Transportation and Utilities Commission, *In the Matter of the Petition of Qwest Corporation for Competitive Classification of Business Services in Specified Wire Centers*, Docket No. UT-000883. Rebuttal testimony regarding economic criteria for classification of services as competitive. Filed October 6, 2000.
327. Washington Utilities and Transportation Commission (Docket No. UT-02-11-20), on behalf of Qwest, rebuttal testimony regarding economic aspects of the sale of Qwest Dex (Yellow Pages). Filed April 17, 2003.

43. West Virginia

328. Public Service Commission of West Virginia (Case No. 94-1103-T-GI) on behalf of Bell Atlantic - West Virginia: economic analysis of issues regarding proposed presubscription for intraLATA toll traffic in West Virginia, March 24, 1995.
329. Public Service Commission of West Virginia (Case Nos. 96-1516-T-PC, 96-1561-T-PC, 96-1009-T-PC, and 96-1533-T-T) on behalf of Bell Atlantic - West Virginia: direct testimony regarding costing and pricing of interconnection and unbundled network elements. Filed February 13, 1997. Rebuttal testimony filed February 20, 1997.
330. Public Service Commission of West Virginia on behalf of Bell Atlantic - West Virginia: economic analysis of issues regarding Bell Atlantic's entry into the interLATA long distance market. Filed March 31, 1997.

44. Wisconsin

331. Wisconsin Public Service Commission, (Docket No. 6720-TI-173) on behalf of SBC Wisconsin, economic analysis of competition for small business customers. Filed October 31, 2003.
332. Wisconsin Public Service Commission, (Docket No. 05-TI-908) on behalf of SBC Wisconsin, geographic market analysis for local exchange service. Filed February 9, 2004.

45. Wyoming

333. Wyoming Public Service Commission (Docket No. 70000-TR-99), on behalf of US West Communications, direct testimony evaluating proposed prices of non-competitive US West services with regards to cost, pricing, competition, & regulation. Filed April 26, 1999.
334. Wyoming Public Service Commission (Docket Nos. 74142-TA-99-16, 70000-TA-99-503, 74037-TA-99-8, 70034-TA-99-4, 74089-TA-99-9, 74029-TA-99-43, 74337-TA-99-2, Record No. 5134), on behalf of US West Communications, rebuttal testimony regarding economic issues arising in the proposed merger between U S WEST and Qwest. Filed April 4, 2000.

Canada

335. Canadian Radio-Television and Telecommunications Commission (Docket No. 1990-73) on behalf of Bell Canada: "The Effect of Competition on U.S. Telecommunications Performance," (with L.J. Perl). Filed November 30, 1990.
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Federal Communications Commission

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362. Federal Communications Commission (In the Matter of Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor) on behalf of four Regional Bell Holding Companies, Affidavit "Interstate Long Distance Competition and AT&T's Motion for Reclassification as a Nondominant Carrier," filed November 12, 1993, (with A.E. Kahn).

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369. Federal Communications Commission on behalf of the United States Telephone Association, study entitled "Competition in the Interstate Long-Distance Markets: Recent Evidence from AT&T Price Changes," *ex parte* filing in CC Docket No. 94-1, March 16, 1995.
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371. Federal Communications Commission (File Nos. W-P-C 7074) on behalf of Southern New England Telephone Company, affidavit supporting Section 214 applications to provide video dialtone services, July 6, 1995.
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374. Federal Communications Commission (CC Docket No. 95-185) on behalf of NYNEX, "Affidavit Concerning Interconnection Between Local Exchange Carriers and Commercial Mobile Radio Service Providers," filed March 4, 1996.
375. Federal Communications Commission (CC Docket No. 96-45) on behalf of BellSouth Corporation, "Comments on Universal Service," (with Kenneth Gordon) , analysis of proposed rules to implement the universal service requirements of the Telecommunications Act of 1996, filed April 12, 1996.
376. Federal Communications Commission (CC Docket No. 96-46), on behalf of Bell Atlantic, BellSouth, GTE, Lincoln, Pacific Bell and SBC Communications, Inc., *ex parte* affidavit on costing principles and cross-subsidization in broadband, joint-use networks, April 26, 1996.
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378. Federal Communications Commission (CC Docket No. 96-112), on behalf of the Southern New England Telephone Company: cost allocation between telephony and broadband services, Affidavit filed May 31, 1996.
379. Federal Communications Commission (CC Docket No. 96-112), on behalf of Bell Atlantic: reply comments concerning cost allocations between telephony and broadband services, Affidavit filed June 12, 1996.
380. Federal Communications Commission (CC Docket No. 96-46), on behalf of Bell Atlantic, BellSouth, GTE, Lincoln, Pacific and SBC, Declaration concerning the use of efficient component pricing in open video systems. Filed July 5, 1996.

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383. Federal Communications Commission (CC Docket No. 96-149), on behalf of Bell Atlantic, Affidavit concerning safeguards for in-region supply of interexchange services by local exchange carriers. Filed August 15, 1996.
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385. Federal Communications Commission (Tracking No. 96-0221) on behalf of NYNEX and Bell Atlantic, affidavit concerning the competitive effects of the proposed NYNEX-Bell Atlantic merger. Filed October 23, 1996 (with Richard Schmalensee).
386. Affidavit to the Federal Communications Commission, on behalf of SBC Communications, Inc., (Docket No. 96-149), regarding Commission's proposed rules and their impact on joint marketing. Filed November 14, 1996 (with Paul B. Vasington).

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389. Federal Communications Commission (CC Docket No. 96-262 et. al.), statement on behalf of United States Telephone Association, "Economic Aspects of Access Reform." Filed on January 29, 1997 (with Richard Schmalensee). Rebuttal filed on February 14, 1997.
390. Federal Communications Commission (CC Docket 96-262 et al.), on behalf of USTA: a report entitled, "An Analysis of the Welfare Effects of Long Distance Market Entry by an Integrated Access and Long Distance Provider", *ex parte* filed March 7, 1997 (with Richard Schmalensee, Doug Zona and Paul Hinton).
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392. Federal Communications Commission (CC Docket No. 96-149), on behalf of Bell Atlantic, BellSouth, NYNEX, Pacific Bell and SBC: affidavit concerning economic issues raised by the BOC supply of interLATA services to an affiliate. Filed April 17, 1997.
393. Federal Communications Commission (CC Docket Nos. 93-193, Phase 1, Part 2, 94-65), on behalf of Bell Atlantic: affidavit concerning allocation of earnings sharing and refunds in the local exchange carrier price cap plan. Filed May 19, 1997.

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398. Federal Communications Commission, *In the Matter of Customer Impact of New Access Charges* (CC Docket Nos. 96-262 and 96-45), affidavit on behalf of the United States Telephone Association analyzing long distance price reductions stemming from recent access charge reductions. Filed March 18, 1998.
399. Federal Communications Commission, *In the Matter of MCI Telecommunications Corp. Petition for Prescription of Tariffs Implementing Access Charge Reform* (CCB/CPD 98-12), affidavit on behalf of Bell Atlantic analyzing economic issues in MCI’s petition for changes in the level and structure of interstate access charges. Filed March 18, 1998.
400. Federal Communications Commission, Merger of SBC Communications Inc. and Ameritech Corporation, comments on behalf of SBC and Ameritech analyzing the likely effects of the proposed merger on competition. (with R. Schmalensee) Filed July 21, 1998, reply affidavit filed November 11, 1998.
401. Federal Communications Commission, *In the Matter of United States Telephone Association Petition for Rulemaking—1998 Biennial Regulatory Review*, “Economic Standards for the Biennial Review of Interstate Telecommunications Regulation,” economic rationale for regulatory simplification, Attachment to the Petition for Rulemaking of the United States Telephone Association, filed September 30, 1998 (with Robert W. Hahn).
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403. Federal Communications Commission, (CC Docket No. 96-262), “AT&T, MCI, and Sprint Failed to Pass Through the 1998 Interstate Access Charge Reductions to Consumers,” study of long distance pricing, filed *ex parte* on behalf of the United States Telephone Association, October 16, 1998 (with P.S. Brandon)
404. Federal Communications Commission, (CC Docket No. 98-137), Affidavit on behalf of the United States Telephone Association, Review of Depreciation Requirements for Incumbent Local Exchange Carriers, November 23, 1998. (with A. Banerjee).

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406. Federal Communications Commission (Docket No. 99-24), affidavit on behalf of Bell Atlantic: economic requirements for regulatory forbearance for special access services. Filed January 20, 1999 (with Karl McDermott). Reply affidavit responding to claims that Bell Atlantic retains market power in the provision of special access filed April 8, 1999.
407. Federal Communications Commission, *In the Matter of Application by Bell Atlantic New York for Authorization Under Section 271 of the Communications Act to Provide In-Region, InterLATA Service in the State of New York* (CC Docket No. 99-295), Declaration on behalf of Bell Atlantic analyzing public interest issues in connection with Bell Atlantic long distance entry in New York. Filed September 29, 1999.
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409. Federal Communications Commission (Docket No. 99-68), "An Economic and Policy Analysis of Efficient Inter-carrier Compensation Mechanisms for Internet-Bound Traffic," on behalf of U S WEST Communications, ex parte analysis of inter-carrier compensation plans for ISP-bound traffic, November 12, 1999 (with A. Banerjee and A. Ros). Reply Comments: "Efficient Inter-Carrier Compensation for Internet-Bound Traffic," (with A. Banerjee), October 23, 2000.

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411. Federal Communications Commission, *In the Matter of Reciprocal Compensation for CMRS Providers* (CC Docket Nos. 96-98, 95-185, WT Docket No. 97-207), "Reciprocal Compensation for CMRS Providers," on behalf of United States Telecom Association, reply comments regarding interconnection with CMRS providers, June 13, 2000 (with Charles Jackson).
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413. Federal Communications Commission, *In the Matter of Application by Verizon New England Inc., et. al. for Authorization to Provide In-Region, InterLATA Services in Massachusetts*, on behalf of Verizon New England, Appendix A, declaration regarding competition in Massachusetts and the public interest benefits of interLATA entry, September 19, 2000, Reply Declaration filed November 3, 2000. Supplemental Reply Declaration filed February 28, 2001.

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416. Federal Communications Commission (CC Docket No. 01-92), on behalf of BellSouth Corporation: Reply Declaration (with Aniruddha Banerjee) on a unified regime of inter-carrier compensation (calling party's network pays or bill and keep?). Filed November 5, 2001.
417. Federal Communications Commission (CC Docket No. 01-277), on behalf of BellSouth Corporation: Reply Affidavit on BellSouth's application for interLATA authority in Georgia and Louisiana. Filed November 13, 2001.

2002

418. Federal Communications Commission (CC Docket Nos. 99-273, 92-105, 92-237), on behalf of BellSouth Corporation, Qwest Communications International, Inc., SBC Communications, Inc., and Verizon Telephone Companies: Affidavit: "Competition and Regulation for Directory Assistance Services" (with Harold Ware) regarding incremental costs and benefits from 411 presubscription. Filed April 1, 2002.
419. Federal Communications Commission (CC Docket Nos. 01-338, 96-98, 98-47), on behalf of BellSouth Corporation: Reply Declaration (with Aniruddha Banerjee, Charles Zarkadas and Agustin Ros) regarding unbundling obligations of local exchange carriers. Filed July 17, 2002.
420. Federal Communications Commission (RM No. 10593) on behalf of BellSouth Corporation, Qwest Corporation, SBC Communications, Inc., and Verizon, regarding pricing flexibility for interstate special access services (with A.E. Kahn), filed December 2, 2002.

2003

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423. Federal Communications Commission (WCB Docket No. 02-112, CC Docket No. 00-175) on behalf of BellSouth Corporation, SBC and Verizon. Ex Parte Statement regarding imputation standards for in-region long distance service. Filed August 10, 2004. Ex parte October 6, 2004. (with T. Tardiff and H. Ware).
424. Federal Communications Commission (WCB Docket No. 04-313, CC Docket No. 01-338) on behalf of Verizon. Declaration regarding pricing history for special access services. Filed October 4, 2004. Reply Declaration filed October 19, 2004.
425. Federal Communications Commission (WCB Docket No. 04-313, CC Docket No. 01-338) on behalf of Verizon. Declaration regarding incremental hot cuts and workforce requirements. Filed October 4, 2004.

Mexico

426. Mexican Secretariat of Communications and Transport on behalf of Southwestern Bell International Holdings Corporation, affidavit on interconnection regulation (with T.J. Tardiff). Filed October 18, 1995.
427. Comisión Federal de Telecomunicaciones de México (“Cofetel”), “Economic Parameter Values in the Telmex Price Cap Plan,” arbitrator’s report on behalf of COFETEL and Telmex regarding the renewal of the price cap plan for Telmex, February 15, 1999.
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New Zealand

429. Commerce Commission of New Zealand on behalf of New Zealand Telecom, “Review of CostQuest Associates’ Benchmarking Survey” En banc hearings May 13-17, 2002.
430. Commerce Commission of New Zealand on behalf of New Zealand Telecom, “The Wholesale Discount” En banc hearings February 10, 2003

United States Department of Justice

431. Affidavit to the U.S. Department of Justice on behalf of NYNEX in *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company*, regarding provision of telecommunications services across LATA boundaries for traffic originating or terminating in New York State. Filed August 25, 1994.
432. Affidavit to the U.S. Department of Justice on behalf of SBC Communications Inc. in *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company*, regarding Telefonos de Mexico’s (Telmex’s) provision of interexchange telecommunications services within the United States. Filed May 22, 1995.
433. Affidavit to the U.S. Department of Justice on behalf of SBC Communications Inc. in *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company*, regarding provision of interexchange telecommunications services to customers with independent access to interexchange carriers. Filed May 30, 1995.

United States Senate

434. Subcommittee on Communications of the Senate Committee on Commerce, Science and Transportation, *Statement* and oral testimony regarding long distance competition and Section 271 of the Telecommunications Act of 1996. Filed March 25, 1998.

CERTIFICATE OF SERVICE

I do hereby certify that I have this 13th day of June 2005 served the following parties to this action with a copy of the foregoing **BELLSOUTH COMMENTS** by electronic mail addressed to the parties listed below:

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